

**Heidegger and Science:  
Nature, Objectivity and the Present-at-hand**

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## Abstract

Heidegger is commonly assumed to have been at first uninterested in science, and then later on positively hostile towards it. This thesis sets out to re-evaluate Heidegger's attitude towards science in general by carefully reconstructing an account of natural science that lies, I claim, at the heart of his major and early work, *Being and Time*. The existential conception of science articulated in this account revolves around three main issues: 1.) The genesis of science from everyday pre-theoretical behaviour; 2.) The structural necessity of crisis to the 'progress' of the sciences; 3.) The transformation of the concept of scientific foundation in the light of the permanent necessity of scientific revolution. In the course of the reconstruction it becomes apparent that certain basic concepts of the existential analytic are in urgent need of reinterpretation. In particular, the concepts of objectivity and presence-at-hand need to be disentangled. Once separated, it becomes clear that Heidegger's work is not a critique of the notion of objectivity, but rather an attempt to salvage it from the wreckage of epistemology. Equally, the charge first levelled by Karl Löwith and then repeated by Paul Ricoeur that Heidegger 'forgets nature' proves premature. This rereading of fundamental ontology suggests, in addition, that Heidegger opens up a path largely not taken by 20<sup>th</sup> century philosophy of science. Heidegger's interpretation of relativity theory, taking its cue from Weyl's attempt to extend Einstein's thinking to electromagnetism, differs fundamentally from the response of figures such as Cassirer, Reichenbach, Carnap and Schlick. It offers a perspective on questions about the status of scientific theory outside of the usual three-cornered debate between empiricism, realism and constructivism. Finally, the recovery of a specifically Heideggerian conception of science, allows us to understand and evaluate Heidegger's claim that philosophy is the science of Being.

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## Abbreviations of Frequently Cited Works by Heidegger

- G20** *Gesamtausgabe, Band 20: Prolegomena zur Geschichte des Zeitbegriffs*, ed. by Petra Jaeger, (Frankfurt am Main, Vittorio Klostermann, 1979) - Marburg Lecture Course Summer Semester 1925.
- HCT** *History of the Concept of Time - Prolegomena*, trans. by Theodore Kisiel (Bloomington and Indianapolis, Indiana University Press, 1985, pbk 1992) - English translation of G20.
- G24** *Gesamtausgabe, Band 24: Die Grundprobleme der Phänomenologie*, ed. Friedrich-Wilhelm von Herrmann (Frankfurt am Main, Vittorio Klostermann, 1975, 3rd ed. 1997) - Marburg Lecture Course Summer Semester 1927.
- BPP** *The Basic Problems of Phenomenology*, trans. by Albert Hofstadter (Bloomington and Indianapolis, Indiana University Press, 1982, rev. ed. 1988) - English translation of G24.
- G25** *Gesamtausgabe, Band 25: Phänomenologische Interpretation von Kants Kritik der reinen Vernunft*, ed. Ingrid Gölzl (Frankfurt am Main, Vittorio Klostermann, 1977) - Marburg Lecture Course Winter Semester 1927/28.
- PIK** *Phenomenological Interpretation of Kant's Critique of Pure Reason*, trans. by Parvis Emad and Kenneth Maly, (Bloomington and Indianapolis, Indiana University Press, 1997) - English translation of G25.
- G26** *Gesamtausgabe, Band 26: Metaphysische Anfangsgründe der Logik im Ausgang von Leibniz*, ed. by Klaus Held, (Frankfurt am Main, Vittorio Klostermann, 1978) - Marburg Lecture Course Summer Semester 1928.
- MFL** *The Metaphysical Foundations of Logic*, trans. by Michael Heim, (Bloomington and Indianapolis, Indiana University Press, 1984, pbk.1992) - English translation of G26.
- G27** *Gesamtausgabe, Band 27: Einleitung in die Philosophie*, ed. Otto Saame und Ina Saame-Speidel (Frankfurt am Main, Vittorio Klostermann, 1996) - Freiburg Lecture Course Winter Semester 1928/29.
- G29/30** *Gesamtausgabe, Band 29/30: Die Grundbegriffe der Metaphysik. Welt - Endlichkeit - Einsamkeit*, ed. by Friedrich-Wilhelm von Herrmann, (Frankfurt am Main, Vittorio Klostermann, 1983, 1992) - Freiburg Lecture Course Winter Semester 1929/30.
- FCM** *The Fundamental Concepts of Metaphysics - World, Finitude, Solitude*, trans. by William McNeill and Nicholas Walker, (Bloomington and Indiana, Indiana University Press, 1995) - English translation of G29/30.
- SZ** *Sein und Zeit*, (Tübingen, Max Niemeyer Verlag, 1927, 17<sup>th</sup> ed. 1993). All references to Being and Time are to the translation by Macquarrie and Robinson, (Oxford, Basil Blackwell, 1962, repr. 1967) unless otherwise stated.

In citing Heidegger's work I have relied for the most part on already existing translations. Where I have altered a translation or, as in the case of G27, provided my own, I have appended the German text in a footnote.

## Introduction

The physicist and Nobel laureate, Steven Weinberg, has drawn attention to a 'puzzling phenomenon,' which he dubs, 'the unreasonable ineffectiveness of philosophy' when it comes to science, an ineffectiveness that contrasts sharply with what a generation earlier Eugene Wigner had called 'the unreasonable effectiveness of mathematics.'<sup>1</sup> Philosophy, Weinberg says, provides no help to the sciences whatsoever. Metaphysics tells science nothing about its content, epistemology nothing about its validity, methodology nothing about its procedures. Anything that philosophers have ever declared to be necessarily true or necessarily scientific, has always turned out to be false or irrelevant. The only benefit a philosophical doctrine may provide the sciences is the ambiguous one of protecting them, temporarily at least, from other philosophical doctrines.<sup>2</sup> This is the role positivism played at the beginning of the 20<sup>th</sup> century, helping to rid science of the illusions of neo-Kantianism. But positivism itself has been responsible for at least as many illusions about what science can and cannot say or do, and ended up being just as much a hindrance to scientific progress as the doctrines it had so vigorously criticised as anti-scientific. This does not mean, however, that Weinberg embraces a kind of Feyerabendian epistemological anarchism. On the contrary, he takes Feyerabend to be representative of a peculiarly philosophical response to the uselessness of philosophy. Ignored by science, philosophy in a fit of pique calls into question science's objectivity. Relativism is philosophy of science's final, embittered form; the grotesque and sunken

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<sup>1</sup> Steven Weinberg, Dreams of a Final Theory - The Search For The Fundamental Laws Of Nature, (London, Vintage, 1993), p. 134. The chapter in which Weinberg presents his thesis on the uselessness of philosophy is entitled 'Against Philosophy,' pp. 132-151. Wigner coins his phrase in: E. P. Wigner, 'The Unreasonable Effectiveness of Mathematics,' Communications in Pure and Applied Mathematics, 13 (1960), pp. 1-14.

shadow of its once imperious self; a Miss Haversham, at once ludicrous and alarming, scheming malevolently at her wedding table vengeance upon the one who deserted her, but finally only consuming herself in her own hatred.

Of course, Weinberg's disdain for philosophy is likely to be met with an equal and opposite disdain, his remarks dismissed as the all too predictable prejudices of a scientist incapable of recognising his own metaphysical commitments. But Weinberg's remarks should be taken less po-facedly and more seriously than that. They do not set out a philosophical position, however naïve, they simply report a state of affairs. 'I know of *no one* who has participated actively in the advance of physics in the post-war period whose research has been significantly helped by the work of philosophers.'<sup>3</sup> This situation is interesting because the scientists clearly have the *expectation* that philosophy should be of some help. Weinberg himself stresses that it has been in the past. Moreover the philosophy that proves to be of no help is not primarily the continental philosophy lampooned by Alan Sokal and Jean Bricmont in *Intellectual Impostures*, but the very philosophy of science that prided itself on its allegiance to science and which was supposed to clear away the metaphysical rubbish impeding its progress. The peculiar fact, which Weinberg's brief history of the relations between philosophy and science in the 20<sup>th</sup> century draws our attention to, is that modern philosophy of science *and* the modern science which ignores it are both products of a period of particularly intense interaction between philosophy and science in the 1920s.<sup>4</sup>

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<sup>2</sup> 'The value today of philosophy to physics seems to me to be something like the value of early nation-states to their peoples. It is only a small exaggeration to say that, until the introduction of the post office, the chief service of nation-states was to protect their peoples from other nation-states.' Weinberg, p. 132.

<sup>3</sup> Weinberg, p. 134.

<sup>4</sup> The fundamental role relativity theory played in the logical-positivist break with neo-Kantianism is by now well-documented. See, for example, Michael Friedman, 'Philosophy and the Exact Sciences - Logical Positivism as a Case Study', *Inference, Explanation, and Other Frustrations - Essays in the Philosophy of Science*, ed. by John Earman, (Berkeley, Los Angeles, Oxford, University of California Press, 1992), pp. 84-98. Current debates in philosophy of science, in particular the three-cornered match between empiricism, realism and constructivism, can be plausibly read as simply the legacy of the

Martin Heidegger is not perhaps the obvious candidate to re-establish contact between philosophy and the sciences. His antipathy to science, summed up in his dictum that 'science itself does not and cannot think,' is well-known.<sup>5</sup> If science has no need of philosophy, that is simply a consequence of the fact that science in its modern guise has subordinated itself whole-heartedly and completely to the furious and devastating will to exploit and dominate, which Heidegger identifies as the essence of technology. 'Modern science and the total state, as necessary consequences of the essence of technology, are also its attendants.'<sup>6</sup> The self-certainty of the scientist and the objectivity of his knowledge are simply the most extreme examples of the necessary linkage between subject and object in the last phase of Western metaphysics. 'Even this, that man becomes the subject and the world the object, is a consequence of the essence of technology establishing itself, and not the other way around.'<sup>7</sup> The objectification of the world is simply the first step in the reduction of everything there is to raw material that is to be utilised for nothing else than the ceaseless expansion of the means to reduce everything to raw material. 'Man becomes that being upon which all that is, is grounded as regards the manner of its Being and its truth. Man becomes the relational centre of that which is as such.'<sup>8</sup> But man's mastery over everything that is, is in fact an enslavement to the will to dominate, which regulates and determines all his thoughts and actions, leaving no room for anything questionable, threatening a collapse into mere thoughtlessness. 'What has long since been threatening man with death, and indeed with

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equivocal and still unresolved nature of this break. That the founding fathers of modern physics, Einstein, Bohr, Heisenberg, Weyl, and many others, were in no doubt as to the importance of philosophical reflection to the formation of scientific theory is also equally well attested and acknowledged, if somewhat uneasily, by their successors who scorn philosophy.

<sup>5</sup> Martin Heidegger, What Is Called Thinking?, trans. by J. Glenn Gray (New York, Harper and Row, 1972), p. 8.

<sup>6</sup> Martin Heidegger, 'What are Poets For?', Poetry, Language, Thought, trans. by Albert Hofstadter, (New York, Harper and Row, 1971, pbk 1975), p. 112 - translation slightly altered.

<sup>7</sup> Ibid.



the death of his own essence, is the unconditional character of mere willing in the sense of purposeful self-assertion in everything.’<sup>9</sup> But if modern science is the herald and the vanguard of the essence of technology, one might think that the central role it plays in the culmination of Western metaphysics, would be grounds for subjecting it to intense philosophical scrutiny. But this proves not to be the case. Science serves technology precisely by obscuring its essence and the origin of that essence. ‘But above all, technology itself prevents any experience of its essence. For while it is developing its own self to the full, it develops in the sciences a kind of knowing that is debarred from ever entering into the realm of the essential nature of technology, let alone retracing in thought that essence’s origin.’<sup>10</sup> To think that the essence of technology could be thought through and thought back to its origin by analysing modern science would be to risk falling back into metaphysical thinking, which assumes that modern technology is the product of modern science and not the other way around. On the contrary, the only chance of thinking the essence of technology, which cunningly cloaks itself in modern science, is by meditating on the profound words of certain German poets who have managed to punch a few holes in the enveloping darkness so as to look beyond it, and by attempting to retrieve the equally profound words of certain ancient Greek thinkers, who stood in the dawn before the Platonic betrayal. Thereby is authorised the almost complete lack of any Heideggerian interpretation of the phenomenon of modern science even though it is one of the hallmarks of the modernity which Heidegger supposedly so vehemently rejects. As Theodore Kisiel has said at the beginning of an article on the

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<sup>8</sup> Martin Heidegger, ‘The Age of the World Picture’, The Question Concerning Technology and Other Essays, trans. by William Lovitt (New York, Harper and Row, 1977), p. 128.

<sup>9</sup> ‘What are Poets For?’, p. 116.

<sup>10</sup> Ibid, p. 117.

subject, 'Heidegger and science? To some, the combination undoubtedly still sounds strange and unlikely, let alone fruitful and worthy of extended consideration.'<sup>11</sup>

Heidegger and Weinberg, it would seem, are the perfect personifications of the two sides in what has come to be known as the science wars, equally incapable of comprehending the other, equally contemptuous of the other's incomprehension: Weinberg, for Heidegger, the epitome of unthinking technological man; Heidegger, for Weinberg, the father figure for all the irrationalist nonsense threatening the sciences. It is a little strange then to find Heidegger himself diagnosing this mutual incomprehension as the real threat posed to the sciences:

Between them the hyper-sophistication of philosophy and the intransigence of science create the hopeless situation in which both parties obstinately persist in talking past one another and foster the spurious freedom in which each eventually leaves the other to its own devices. [...] Such a state of affairs is symptomatic of contemporary science and represents its innermost danger.<sup>12</sup>

This thesis attempts to take Heidegger's diagnosis seriously, and in doing so takes a first small step in dispelling that familiar image of Heidegger, which Alain Badiou has succinctly and caustically summarised under the rubric 'Heidegger viewed as commonplace.'<sup>13</sup> It does so, however, not by tackling the question of technology and modern science's subordination to it head on, but by returning to *Being and Time*. This is not simply because the task of confronting the later Heidegger is too daunting, though anybody who has attempted to read the *Beiträge* unsustained by blind faith will have

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<sup>11</sup> Theodore Kisiel, 'Heidegger and the New Images of Science', Research in Phenomenology 7, ed. by John Sallis, (New Jersey, Humanities Press, 1977), p.162.

<sup>12</sup> Martin Heidegger, The Fundamental Concepts of Metaphysics - World, Finitude, Solitude, trans. by William McNeill and Nicholas Walker, (Bloomington and Indiana, Indiana University Press, 1995), p. 190 - hereafter referred to as FCM. This is the text of the lecture course Heidegger gave at Freiburg in the winter of 1929/30, first published in German as volume 29/30 of the *Gesamtausgabe*, Die Grundbegriffe der Metaphysik. Welt - Endlichkeit - Einsamkeit, ed. by Friedrich-Wilhelm von Herrmann, (Frankfurt am Main, Vittorio Klostermann, 1983, 1992) - hereafter referred to as G29/30.

<sup>13</sup> Alain Badiou, Manifesto for Philosophy, trans. by Norman Madarasz (Albany, NY, State University of New York Press, 1999), chapter 4, pp. 47-52. The chapter starts, 'What does the "current" Heidegger say, the one who organises opinion.'

despaired at the magnitude of the task. Rather, the step back to *Being and Time* is motivated by the conviction that the later Heidegger's thinking can never begin to be understood except as a prolonged and agonised reflection upon the meaning and implications of that work. Thus in 1947, Heidegger writes, 'The thinking that hazards a few steps in *Being and Time* has even today not advanced beyond that publication.'<sup>14</sup> Indeed the commonplace view of Heidegger has arisen precisely because as Heidegger himself notes, 'It is everywhere supposed that the attempt in *Being and Time* ended in a blind alley.'<sup>15</sup> It is commonly supposed that *Being and Time* falls prey to the very metaphysical thinking the later Heidegger warned against. The existential analytic, because it takes circumspective concern with the ready-to-hand as primordial, remains entrapped, one commentator tells us, 'within the technological spirit.'<sup>16</sup> Michael Zimmerman in his book *Heidegger's Confrontation with Modernity* staking out the claim that Heidegger is to be read as a reactionary modernist, agrees: *Being and Time* 'constitutes one of the final stages in the history of productionist metaphysics.'<sup>17</sup> As such it is to be dismissed as a 'paradoxical and ultimately unsuccessful attempt' - a youthful stab in the dark before the light dawned, and Heidegger 'discovered he could not reconcile a quest for *a priori* structures of human existence and a historicist conception of human existence.'<sup>18</sup> It is therefore assumed that after *Being and Time* Heidegger was forced to start afresh.

With the "turn," the exaggerated claims for the scientific character of philosophy give way to the judgement that the book BT was an aberrant way from the one topic of philosophy and thought. And when Heidegger first

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<sup>14</sup> Martin Heidegger, 'Letter on Humanism,' trans. by Frank A. Capuzzi and J. Glenn Gray, *Basic Writings*, ed. by David Farrell Krell, (London, Routledge, 1977, rev. ed. 1993), p. 246.

<sup>15</sup> *Ibid.*

<sup>16</sup> Drew Leder, 'Modes of Totalization: Heidegger on Modern Technology and Science', *Philosophy Today*, Vol. XXIX (Fall 1985), p.255.

<sup>17</sup> Michael E. Zimmerman, *Heidegger's Confrontation with Modernity - Technology, Politics, Art*, (Bloomington and Indianapolis, Indiana University Press, 1990), p.149.

<sup>18</sup> Zimmerman, p.147, p.166.

realizes that BT was a failed project, he then re-turns to earlier insights left unpursued in order to begin again. This re-turn is the real meaning of his self-professed and much discussed “turn.”<sup>19</sup>

But, as this quote implicitly suggests, the connection between *Being and Time* and the later Heidegger can never be established unless the place of science in the earlier thinking is first disinterred, reconstructed and interpreted. Only when we are in possession of a specifically Heideggerean concept of scientificity, shall we be able to assess whether *Being and Time* should be dismissed simply because of its exaggerated claims to scientificity, or whether on the contrary the commonplace view of Heidegger should be dismissed for its failure to read *Being and Time* as anything but a failure. This thesis, therefore, focuses upon the period of composition of *Being and Time* and the period immediately afterwards when Heidegger struggled to develop its thinking still further, that is to say, roughly from 1924 to 1930. This period, of course, coincides with the period we have already identified as being one of intense interaction between philosophy and science, the period in which both modern physics and modern philosophy of science were born. As we shall see, Heidegger like the nascent logical-positivists displayed a sustained and deep interest in the revolution occurring in the sciences during this period. For Heidegger, however, it was the crisis itself, and not the theory that resulted, which was of primary interest. The crisis in the sciences illuminated the conditions of possibility of science, and it was the *possibility* of science in which he was interested. An existential analytic that did not include an analysis of the conditions that made science possible would not be capable of encompassing the question of Being. Heidegger alludes to this condition for the existential analytic, when in the Kant book he writes, ‘Mathematical

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<sup>19</sup> Theodore Kisiel, *The Genesis of Heidegger's Being and Time*, (Berkeley, University of California Press, 1993, pbk 1995), p. 458.

natural science gives an indication of this fundamental conditional connection between ontic experience and ontological knowledge.<sup>20</sup>

The title of this thesis, 'Heidegger and Science,' is meant, then, to suggest a reciprocal movement of elucidation: Heidegger casting light on science, science casting light on Heidegger. But what kind of science? Science in general, or as the subtitle 'Nature, Objectivity, and the Present-at-hand' hints, just natural science? It is customary at this point to point out that the German word *Wissenschaft* does not correspond precisely with the English word 'science.' Whereas 'science' in English tends to mean primarily the natural sciences, and its use is only extended somewhat reluctantly to include those social and human sciences that have adopted the quantitative or experimental procedures of natural science such as economics or experimental psychology, *Wissenschaft* is used in German quite naturally to denote practically all the academic disciplines from physics to philology and history, even theology. This difference of extension is supposed to generate confusion between the English and German speaking worlds. With Heidegger, however, it is something of a boon because the difference mirrors a characteristic feature of Heidegger's approach to science. When Heidegger says 'Wissenschaft' he means *Wissenschaft*, but he is usually thinking of science. Unlike Dilthey, say, Heidegger is not interested in providing the historical or human sciences with a transcendental foundation similar to that supposedly already provided for the natural sciences by Kant. Instead he wants to reopen the question of science in general by returning to the natural sciences and analysing what it is precisely that they turn out to be.

Michael Friedman in his book, *A Parting of the Ways*, has documented and clearly analysed how the philosophy of the early logical-empiricists, in particular Carnap, and the early philosophy of Heidegger were both formed through a process of engagement with

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<sup>20</sup> Martin Heidegger, Kant and the Problem of Metaphysics, trans. by Richard Taft, (Bloomington and

and criticism of the work of Ernst Cassirer.<sup>21</sup> Friedman is concerned to show that the divide between continental and analytic philosophy originates in the different ways in which Heidegger and the logical positivists, both it should be said using Husserl for this purpose, broke with neo-Kantianism. But Friedman assumes that the difference between the continental and analytic traditions is in large part determined by which bits of neo-Kantianism they chose to break with and thus indirectly preserve. Heidegger reads, admires and criticises *The Philosophy of Symbolic Forms, Part Two: Mythical Thought* and the course is set. Carnap and Reichenbach read, assimilate, attempt to extend and eventually reject *Substance and Function*, and their course is also set. But we have already seen that there was also another parting of the ways, not a parting within philosophy, but a parting between philosophy and science. In this thesis I want to suggest that paradoxically it is the way that Heidegger took, the path apparently away from science, that offers the best chance of philosophy talking to science again and not just talking about it to itself.

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Karl Jaspers in an unpublished note commented on the experience of listening to Heidegger: 'Among contemporaries the most exciting thinker, masterful, compelling, mysterious - but then leaving you empty-handed.'<sup>22</sup> This is just a negative way of expressing what Heidegger himself always insisted was the basic trait of phenomenology. 'It is of the essence of phenomenological investigations that they cannot be reviewed

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Indianapolis, Indiana University Press, 1990, revised 1997), p. 7.

<sup>21</sup> Michael Friedman, *A Parting of the Ways - Carnap, Cassirer, and Heidegger*, (Chicago and La Salle, Open Court Publishing Company, 2000). Hans Reichenbach, another prominent logical-empiricist charts his own gradual break with Cassirer in *Modern Philosophy of Science - Selected Essays*, trans. and ed. by Maria Reichenbach, (Westport, Connecticut, Greenwood Press, 1981).

<sup>22</sup> Quoted in Rüdiger Safranski, *Martin Heidegger - Between Good and Evil*, trans. by Ewald Osers (Cambridge MA, London, Harvard University Press, 1998), p. 100.

summarily but must in each case be rehearsed and *repeated* anew.<sup>23</sup> The investigation must be repeated because it leaves you empty-handed. There are no results that can be taken away and stored up for another day. The truth uncovered in the investigation is the very process of the investigation. This is no doubt what the later Heidegger also meant when he celebrated the ‘uselessness’ of philosophy as its highest virtue. If the last five years have taught me anything it is the real meaning of these words. Again and again I have found myself returning to the same passages in *Being and Time*, the passages on the worldhood of the world and the nature of the understanding, and come away empty-handed, though nonetheless certain that something has happened. This experience suggests that the structure of the thesis is not, cannot be the structure that I intended. I conceived and dreamt of a work in which each chapter built upon the last, somewhat in the nature of a deductive proof, until in the end we had a clear structural understanding of scientific activity, even if that structure were meant to be dizzingly self-embedded and self-transforming. But each chapter has proved to be inconclusive, what insight there has been, difficult to carry over to the next, which suggests perhaps that each chapter should be read as an individual foray, a separate cut across the field. But that would still be to fail to grasp the meaning of repetition. I prefer to think that each chapter, if not built upon the last, is at least informed by it. How past experience informs the present, how something that happens lasts beyond its happening, is of course the question.

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<sup>23</sup> Martin Heidegger, *History of the Concept of Time - Prolegomena*, trans. by Theodore Kisiel, (Bloomington and Indianapolis, Indiana University Press, 1985, pbk 1992), p. 26 - hereafter referred to as HCT. This is the text of the lecture course Heidegger gave at Marburg in the summer of 1925, first published in German as volume 20 of the *Gesamtausgabe*, *Prolegomena zur Geschichte des Zeitbegriffs*, ed. by Petra Jaeger, (Frankfurt am Main, Vittorio Klostermann, 1979) - hereafter referred to as G20.

## Chapter One

### The Place of Science in *Being and Time*

On the face of it *Being and Time* doesn't have much to say about science. In a book that is nearly 500 pages long, Heidegger discusses the topic, explicitly at least, only twice: in paragraph 3 of the introduction and subparagraph 69b of division 2, which taken together amount to only some 11 pages, or round about 2% of the total text. In other words, questions about science appear to have virtually no place in *Being and Time*. Evidently, it is a subject that remains strictly peripheral to Heidegger's main concerns, and in which he displays no great interest. Little wonder, then, that William Richardson back in 1968 should assert as a matter of self-evidence that 'Heidegger could never be called a philosopher of science.'<sup>1</sup> Despite a brief flurry of interest in the 70's around the idea that Heideggerian concepts such as world and projection might prove a useful background for an understanding of post-positivist philosophies of science such as Kuhn's or Polanyi's, this has been pretty much the consensus ever since.<sup>2</sup> Indeed, to my knowledge, only one commentator has had the gall to protest the exact opposite.

Hans Seigfried in a paper published ten years after Richardson's does not merely claim that Heidegger might have had something interesting to say about the sciences along or

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<sup>1</sup> William J. Richardson, 'Heidegger's Critique of Science,' *New Scholasticism*, 42 (1968), p. 511.

<sup>2</sup> See, for example, Theodore Kisiel, 'Heidegger and the New Images of Science', *Research in Phenomenology* 7, ed. by John Sallis, (New Jersey, Humanities Press, 1977), pp.162-181. Also by Theodore Kisiel, 'The Rationality of Scientific Discovery', *Rationality Today/Rationalité Aujourd'hui*, ed. by Theodore F. Geraets, Collection Philosophica (Ottawa, University of Ottawa Press, 1979) pp.401-411, and 'Scientific Discovery: Logical, Psychological or Hermeneutical?', *Explorations in Phenomenology: Papers of the Society for Phenomenological and Existential Philosophy*, ed. by David Carr and Edward S. Casey, (The Hague, Martinus Nijhoff, 1973) pp.263-284. Joseph Rouse, 'Kuhn, Heidegger and Scientific Realism', *Man and World* 14, (The Hague, Martinus Nijhoff, 1981), pp.269-290. And a little later John D. Caputo, 'Heidegger's Philosophy of Science: The Two Essences of Science', *Rationality, Relativism and the Human Sciences*, ed. by J Margolis, M Krausz and R.M. Burian (Dordrecht, Martinus Nijhoff Publishers, 1986) pp.43-60. All of these papers agree that though some of Heidegger's comments are



by the way, but that '*Being and Time* has to be read as a treatise in the philosophy of science.'<sup>3</sup> This unlikely thesis is based entirely upon paragraph 3 of the introduction in which Heidegger seeks to assert the ontological priority of the question of Being. But, according to Seigfried, this paragraph is of the highest strategic importance to the treatise as whole. It answers the question why the question of Being, which as Heidegger famously states in the very first line of *Being and Time* 'has today been forgotten,' should be revived at all.<sup>4</sup> As Heidegger himself says, 'One may, however, ask what purpose this question is supposed to serve.'<sup>5</sup> Without an answer to the question of what drives Heidegger to re-open the question of Being, we are left essentially in the dark about what *Being and Time* is really trying to accomplish. But *this* question, according to Seigfried, has itself been forgotten. Such is the fascination exerted by the question of Being, upon Heideggerians at least, that its primacy is simply taken for granted. To outsiders, all the chatter about Being is in danger of appearing purely cultish; in Heidegger's own words 'a mere matter of soaring speculation about the most general of generalities,' which only serves to obscure what makes this question '*of all questions, both the most basic and the most concrete.*'<sup>6</sup> Yet Heidegger himself *does* provide an answer to the question of the necessity, the urgency, and the purpose of re-opening the question of Being; an answer that, in Seigfried's words, 'is so clear and explicit that it is simply amazing that it has been so consistently overlooked.'<sup>7</sup> At the end of paragraph 3 Heidegger says:

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suggestive in the light of later developments in philosophy of science, Heidegger is still in no way to be read as primarily a philosopher of science.

<sup>3</sup> Hans Seigfried, 'Heidegger's Longest Day: *Being and Time* and the Sciences,' Philosophy Today, 22 (Winter 1978), p. 319.

<sup>4</sup> Martin Heidegger, Being and Time, trans. by John Macquarrie and Edward Robinson. (Oxford, Basil Blackwell, 1962, reprinted 1967), p. 21. First published in German as Sein und Zeit, (Tübingen, Max Niemeyer Verlag, 1927, 17<sup>th</sup> ed. 1993) - hereafter referred to as SZ.

<sup>5</sup> Being and Time, p. 29.

<sup>6</sup> Being and Time, p. 29.

<sup>7</sup> Seigfried, p. 320.

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 possibilities of those ontologies themselves which are prior to the ontical sciences and which provide their foundations.<sup>8</sup>

This settles it as far as Seigfried is concerned, and one can see why. The passage appears to be unequivocal. *Being and Time* is quite simply ‘a treatise in the foundations of science (*Grundlegung der Wissenschaften*, BT 10), the proper domain of the philosophy of science.’<sup>9</sup> The sciences require foundation because they do not start from scratch. Rather, the entities which the sciences investigate, to begin with at least, are already available and to some extent known to us prior to any scientific inquiry. We, or at least our ancestors, observed the stars, tilled the ground, reared the sheep, endured the winter, and feared the dark long before there was any science. Confusion as to what should be reared as opposed to tilled, or what should be patiently waited for as opposed to diligently sought after, did not reign. When a science first gets started, it chooses a certain range of phenomena, a definite set of those entities already familiar to us, as its subject matter. But this choice is never purely arbitrary. The subject matter is always contained within a domain that has already been demarcated in pre-scientific experience. Any science relies, to start with at least, upon these pre-scientific demarcations for assurance of the potential unity of its subject matter. Moreover, in exploring its subject matter, a science adopts as its initial guide those basic concepts about the entities in question that are already at least implicit in our pre-scientific experience and activities. It is notable, for example, that the concepts that are used even today to demarcate the field of biology, and to identify the various avenues open to it for research - namely,

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<sup>8</sup> *Being and Time*, p. 31.

<sup>9</sup> Seigfried, p. 320. Seigfried’s page reference - BT 10 - is, in actual fact, to *Sein und Zeit*. This serves to obscure the fact that his translation of *Grundlegung* differs from that of Macquarrie and Robinson. Their translation of the relevant sentence runs, ‘Laying the foundations for the sciences in this way [*Solche Grundlegung der Wissenschaften*] is different in principle from the kind of “logic” which limps along

self-movement, responsiveness, growth, reproduction, and energy-release - would all, bar perhaps the last, be perfectly familiar to any subsistence farmer or hunter gatherer.<sup>10</sup> But these concepts and demarcations are lifted straight from the rough and ready world of everyday existence. There is no telling whether they might not be hopelessly naïve or utterly confused, simply not up to the job of providing conceptually transparent knowledge of the way things *are*; and conceptually transparent knowledge, Seigfried takes it, is what science is all about. That the pre-scientific concepts and demarcations which science is forced to rely upon are not in fact up to the job is demonstrated by the fact that the sciences are from time to time compelled to go back and revise the basic concepts with which they started. These periods of crisis testify to the fact that the sciences are not merely extensions of pre-scientific ways of thinking but have their own autonomous ideals, and therefore stand in need of some other grounding. But fundamental revisions to a science's basic concepts, though testimony to science's desire for objective truth, have no more inherent legitimacy than the concepts which they replace. Executed on the hoof, as it were, simply in order to get the whole enterprise back on track again, they may be nothing more than make-shifts. If the sciences did indeed get off on the wrong foot because of their reliance upon a conceptually unarticulated and possibly incoherent understanding of the fields under investigation, then who is to say whether the various breaks with their past have brought them any closer to the reality that they claim to articulate, or on the contrary have simply been the ramifications of that faulty start? The nightmare, to which mathematics first awoke in the second half of the 19<sup>th</sup> century with the realisation that its understanding of the continuum produced paradox in the calculus, is that the entire theoretical edifice

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after, investigating the status of some science as it chances to find it, in order to discover its "method". (Being and Time, p. 30.) The translation of *Grundlegung* will turn out to be of some importance.

<sup>10</sup> See, for example, the introductory section 'What is Life?' in M.B.V. Roberts, Biology - A Functional Approach, (London, Thomas Nelson and Sons Ltd., 1971), pp. 2-3.

may be unsound, the most prized and sophisticated conceptual apparatus nothing more than a grotesque assemblage of bodged repairs to a bodged job. The whole programme might crash at any minute, and no ad hoc alteration will get around the problem because the problem is precisely the proliferation of get-arounds. In *Being and Time* Heidegger reports that this pervasive sense of crisis, this urgent sense of a need for 'new foundations,' now grips all the sciences.<sup>11</sup> The reason why the question of Being needs to be reopened is the contemporary crisis in science. Only when the sciences have worked themselves to a point where the instability of their foundations can no longer be ignored; only then, when the relationship between the sciences and their subject matter 'begins to totter,' does the question of Being get reawoken.<sup>12</sup> The question of Being sets us the task of ascertaining the meaning of Being as such. The discipline that pursues this task, which Heidegger calls fundamental ontology, provides the necessary conceptual clarification for a series of further ontological investigations, which seek to ascertain the ontological constitution of the various different kinds of entities that are already available to us in pre-scientific experience. These regional ontologies will provide the positive sciences - what Heidegger calls the ontical sciences, the sciences that deal with specific kinds of beings - with the basic conceptual clarification they have hitherto been lacking. By ascertaining what it means *to be* a particular kind of being, a regional ontology will demonstrate concretely and prior to all theoretical speculation the *kind of* conceptual determinations and methodological procedures appropriate to that particular realm of beings. Regional ontologies provide the individual sciences with the categorial structure, if you like, of their particular domain.<sup>13</sup>

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<sup>11</sup> *Being and Time*, pp.29-30.

<sup>12</sup> *Being and Time*, p. 29.

<sup>13</sup> Thus Heidegger quite deliberately cites Kant as an example when discussing the regional ontological foundations of the individual sciences: 'Similarly the positive outcome of Kant's *Critique of Pure Reason* lies in what it has contributed to the working out of what belongs to any Nature whatsoever, not in a

At the end of his paper Seigfried expresses the modest hope that now the real purpose of the question of Being has been pointed out, *Being and Time* will at long last be recognised as the contribution to philosophy of science that it really is. It will thereby be saved from becoming an impressive but increasingly irrelevant historical monument, and be brought back into the mainstream of contemporary philosophical discussion. But recognition did not follow. The clear and explicit statement of Heidegger's intent went on being as consistently overlooked as it had always been, despite the fact that it had now been clearly pointed out. It rather begins to look as if the failure to recognise *Being and Time* as a treatise in the philosophy of science is due not so much to an oversight as to a blind refusal to even countenance the possibility; and the reasons for this prejudice are not hard to find. In the very next paragraph, immediately after detailing the ontological priority of the question of Being, Heidegger turns his attention to what he terms its *ontical* priority. This turn proves decisive, since it determines the whole subsequent trajectory of *Being and Time*.

In paragraph 4, Heidegger attempts to demonstrate that if we are to pursue the question of Being then we must examine the Being of the entity which we ourselves are. What distinguishes this entity from all others is that its own Being is an issue for it. *That we are, that we may at any moment no longer be, these are clearly issues for us. Moreover, what we are is not fixed before it becomes an issue for us; rather we become what we are in the course of an existence in which what we are, what we shall become, and what we have been, are all issues for us, even if they are issues which we may ignore or put off to another day. Consequently, Heidegger tells us, 'we have chosen to designate this entity as "Dasein", a term which is purely an expression of its Being.'*<sup>14</sup> The term

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'theory' of knowledge. His transcendental logic is an *a priori* logic for the subject-matter of that area of Being called "Nature".' (Being and Time, p. 31.)

<sup>14</sup> Being and Time, p. 33.

'Dasein' highlights the fact that what is ontically distinctive about us is that we are ontological. It is part and parcel of what we are that we have some kind of understanding of what it is *to be*, and not just what we are, but also what we are *not*; and that means in turn not just what we have turned out *not to be*, but also what, in being what we are, we have come up against that is *not us*. Thus some kind of understanding of Being as such belongs to the Being of Dasein. And this means, so Heidegger thinks, that the entities which we ourselves are have a special priority when it comes to the question of Being. The question of Being is to be pursued by examining what it means 'to understand Being.' Precisely because an understanding of Being is integral to the Being of Dasein, that Being is quite unlike the Being of entities for which Being is not an issue. Heidegger reserves the term 'existence' for this kind of Being alone. Only Dasein, strictly speaking, *exists*. Other entities certainly *are*, but, though Heidegger seems to be happy at this stage to borrow from the tradition and think of the ontological constitution of these entities as *categorical*, the manner in which they are has yet to be determined.<sup>15</sup> By contrast the structures belonging to the Being of Dasein are termed *existential*. 'Therefore *fundamental ontology*, from which alone all other ontologies can take their rise, must be sought in the *existential analytic of Dasein*.'<sup>16</sup>

Seigfried is, of course, aware of all this, but insists that nothing in paragraph 4 indicates a diversion from the aim laid out in paragraph 3. Consequently, 'the existential analytic of *Dasein* is nothing but a means to that end.'<sup>17</sup> Seigfried reads paragraphs 3 and 4 as dealing in turn with the questions of *what* fundamental ontology is supposed to do, and then *how* it is supposed to go about it. But paragraph 4 is not, after all, entitled 'The

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<sup>15</sup> 'Because Dasein's characters of Being are defined in terms of existentiality, we call them "*existentialia*". These are to be sharply distinguished from what we call "*categories*" - characteristics of Being for entities whose character is not that of Dasein.' (Being and Time, p. 70.)

<sup>16</sup> Being and Time, p.34.

<sup>17</sup> Seigfried, p. 327.

priority of Dasein *for* the Question of Being,' though that on the face of it is what the paragraph sets out to demonstrate. Instead, the section is entitled 'The Ontical Priority of the Question of Being,' clearly echoing the title of paragraph 3. The phrase, it is true, is potentially ambiguous. It could at a pinch be interpreted as referring to what, within the ontical realm, has priority for the question of Being, but the echo of the title for paragraph 3 suggests that it is meant to refer to a priority that the question of Being itself has, a priority alongside and perhaps equal in status to its ontological priority. This priority is ontical in so far as it concerns an entity, i.e. Dasein itself. The ontical priority of the question of Being would then refer to a priority that the question had *for* Dasein in its actual existence as that entity which it is, over and above any purely theoretical interest in determining the ontological constitution of entities that are the object of scientific investigation. These two interpretations of the title cannot, of course, be disentangled. The whole point is that Dasein has priority for the question of Being, as the entity to be interrogated about its Being, precisely because the question of Being has priority for Dasein. To exist doesn't simply mean to be what one is, nor even to understand what one is; rather it means *to put to the test* what one takes oneself to be by existing *as* that possibility. A stone does not exist in this technical sense because what it is, is not an issue for it. It simply is what it is. It does not enter into the question of what it is. By contrast, Dasein *pursues* its own existence. 'The question of existence never gets straightened out except through existing itself.'<sup>18</sup> The kinds of understanding involved in pursuing one's own existence, Heidegger calls *existentiell* in contrast to existential. The existentiell/existential distinction is akin to the ontical/ontological distinction between beings and Being in general. The existential refers to the ontological constitution of Dasein as such, whereas the existentiell refers to whatever is ontically

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<sup>18</sup> Being and Time, p. 33.

distinctive in each case about the entities that are Dasein. But precisely because Dasein is ontico-ontological, what is ontically distinctive in each case about Dasein is the stance that Dasein in its existence takes towards that existence. That somebody is happy or unhappy is an ontical characteristic of a specific entity, but one is happy or unhappy not as a stone is heavy or light. One is only ever happy or not happy *about* something that *matters* to one in the context of one's own singular and idiosyncratic existence. The release of Nelson Mandela or the relegation of QPR to the second division can only bring joy or despair to those whose lives *turn upon* such things. As Heidegger says, Dasein has in each case its Being to be, and the way that it 'copes' existentially with this 'burden' is what ontically differentiates it. The fact that Dasein is in this sense ontico-ontological, is what makes ontological inquiry possible. If it were not for the *fact* that Dasein's Being is an issue for it, there could be no existential analytic, because there would be no access to the Being of Dasein. But this condition of possibility is simultaneously a guarantee of complication - a complication of two levels that one might have hoped could be kept separate. The name for this complication is facticity. And it is the reason why the existential analytic must always be interpretative, that is to say, hermeneutical.

The relationship here between hermeneutics and facticity is not a relationship between the grasping of an object and the object grasped, in relation to which the former would simply have to measure itself. Rather, interpreting is itself a possible and distinctive how of the character of being of facticity. Interpreting is a [way of] being which belongs to the being of factual life itself. If one were to describe facticity - improperly - as the "object" of hermeneutics (as plants are described as the "object" of botany), then one would find this (hermeneutics) in its own object itself (as if analogously plants, what and how they are, came along with botany and from it).<sup>19</sup>

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<sup>19</sup> Martin Heidegger, Ontology - The Hermeneutics of Facticity, trans. by John van Buren, (Bloomington and Indianapolis, Indiana University Press, 1999), p. 12. This is the translation of the Freiburg lecture course given in the summer semester of 1923, originally published in German as part of the Gesamtausgabe, Band 63: Ontologie (Hermeneutik der Faktizität), ed. by Käte Bröcker-Oltmanns, (Frankfurt am Main, Vittorio Klostermann, 1988).



But the point is not purely methodological. If it were, then the distinction between ends and means that Seigfried relies upon, would indeed be preserved. However the factual embeddedness of hermeneutical inquiry within the very thing that it inquires into, i.e. factual existence, has implications not only for the way in which such inquiry should be carried out, but also for the nature of any possible result. If ontological inquiry is necessarily an existentiell affair, it must have an existentiell result.

But the roots of the existential analytic, on its part, are ultimately *existentiell*, that is, *ontical*. Only if the inquiry of philosophical research is itself seized upon in an existentiell manner as a possibility of the Being of each existing Dasein, does it become at all possible to disclose the existentiality of existence and to undertake an adequately founded ontological problematic. But with this, the ontical priority of the question of Being has also become plain.<sup>20</sup>

Because the existential analytic cannot simply be pursued as though it were the analysis of an object independent of the analyst, it must be seized as an existentiell possibility of the analyst herself. But that means that the analysis will be in some way transformative for the analyst in her factual existence. In pursuing the existential analysis of the Being of Dasein, fundamental ontology will necessarily alter our conception of what it is to be ourselves. But self and self-conception cannot be disentangled. Since Being is an issue for Dasein, since part of what it is *to be* Dasein is in each case *to understand* what it is to be Dasein in some way or other, Dasein is co-determined as what *it is*, i.e. determined existentielly, by what it takes itself to be. But it works the other way round as well. The existential analytic doesn't just produce an existentiell transformation in the Dasein engaged in such a pursuit, the pursuit cannot even be undertaken except on the basis of an existentiell transformation of Dasein. The factual existence of the inquirer must *turn upon* the question of Being, not just because that is the task that the inquirer happens to be engaged in, but also because the *existentiality* of Dasein cannot even show up unless Dasein is so existentielly transformed. This is the ontical priority of the question of

Being. The transformation occurs not simply in the light of a theoretical result obtained through ontological inquiry, rather the transformation is itself the result sought for *in* inquiry as the necessary condition *for* inquiry. 'But in that case the question of Being is nothing other than the radicalisation of an essential tendency-of-Being which belongs to Dasein itself - the pre-ontological understanding of Being.'<sup>21</sup> The ontical priority of the question of Being consists therefore in the way that it promises an existentiell transformation of Dasein that not merely makes ontological inquiry possible, but that brings Dasein back in its very existence to what at root it is most capable of being. Once again, as with Greek philosophy, it is a question not so much of knowledge as of flourishing.

It seems, then, that the question of Being has two priorities, two goals - a traditionally metaphysical goal of determining what kinds of things there are, and an existential, or more precisely, existentiell goal of awakening Dasein to the possibility of its own authenticity. The connection between these two goals, the structure of dependence or interdependence, promises to be difficult to work out. Not least because Heidegger seems to hint that the ontological priority depends upon the ontical priority: 'whenever an ontology takes for its theme entities whose character of Being is other than that of Dasein, it has its own foundation and motivation in Dasein's own *ontical* structure.'<sup>22</sup> And this in turn suggests that the relation between the positive sciences and the regional ontologies that serve as their foundation is not going to be quite as simple as Seigfried perhaps hopes. Science, as Heidegger notes at the very beginning of paragraph 4, cannot simply be taken as a theoretical edifice, an interrelated totality of true propositions about some domain of entities. It is also an *activity*, one of the many ways in which human

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<sup>20</sup> Being and Time, p. 34.

<sup>21</sup> Being and Time, p. 35.

<sup>22</sup> Being and Time, p. 33 [my emphasis].

beings pursue their existence. As such it belongs to the ontical structure of Dasein, that is to say, science represents an existentiell possibility of Dasein, one of the possible ways in which it may choose to exist. If science belongs to the ontical structure of Dasein, and if any ontology of beings other than Dasein has its foundation in that ontical structure, then science taken as an activity begins to look as if it might be foundational for those regional ontologies that are foundational for the sciences taken as theoretical edifices of true propositions. The relation is beginning to look *almost* circular. And since fundamental ontology pursued through and *as* existential analytic is existentially transformative of Dasein's ontical structure, it begins to look as if perhaps the way in which fundamental ontology underwrites the possibility of regional ontology, is precisely by transforming our *existentiell* understanding of the positive sciences as activities that we ourselves pursue. All of which, in sum, suggests that Seigfried may be a bit premature in dismissing what he calls the 'existential interpretation' of *Being and Time*. It seems pretty clear that the 'existential interpretation' doesn't so much miss the point that the existential analytic is merely a means to an end, as grasp the point that the ontical priority of the question of Being muddies the waters about means and ends; a point that Seigfried himself appears to be blind to. At the very least, it appears incumbent upon Seigfried, if he is to substantiate his claim that *Being and Time* really is an exercise in philosophy of science, to demonstrate how the existential analytic is meant to help in laying the foundations for the sciences. But this is precisely what he chooses not to do.<sup>23</sup>

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<sup>23</sup> Seigfried does discuss the way in which the existential analysis of understanding, world, knowing, and the 'ontological genesis of the theoretical attitude,' may help in a philosophical assessment of the 'new' philosophies of science emerging in the work of Polanyi, Kuhn and Feyerabend, but nowhere does he discuss how this existential analysis of scientific *activity* is supposed to help in providing phenomenological clarification of the Being of the beings that those sciences investigate. Indeed, in a footnote he suggests that *any* further elaboration of the way in which the existential analytic deals with science is irrelevant to his claim. 'In order to bring out and demonstrate the bearing *Being and Time* has on the discussion of the problems raised by the new philosophy of science, these points have to be

The problem facing Seigfried is that Heidegger never gets as far as establishing the connection between fundamental ontology pursued via the existential analytic and those regional ontologies which are supposed to lay the foundations for the individual sciences. In fact, he doesn't even get around to a complete analysis of science thought of as an activity, that is to say, as an existentiell possibility of Dasein's existence. If we turn to the only other place in *Being and Time* where science is explicitly discussed, we discover that it is mentioned only so that a proper discussion may be postponed. In paragraph 69b, Heidegger warns:

Yet a fully adequate existential Interpretation of science cannot be carried out until the *meaning of Being and the "connection" between Being and truth* have been *clarified* in terms of the temporality of existence. The following deliberations are preparatory to the understanding of this *central problematic*.<sup>24</sup>

In other words, even at this stage - and it is a pretty late stage in the overall exposition of *Being and Time* - Heidegger is still not able to specify the existential conditions of possibility for scientific activity.<sup>25</sup> The chances, then, of providing the sciences with their foundations, whatever that might turn out to mean, appear even more remote. However, Seigfried can no doubt take some comfort in the fact that the existential analysis of science is not postponed arbitrarily, or because the question has proved in the course of the existential analytic to be after all incidental to its goals. On the contrary, the analysis is postponed precisely because it is so closely tied to the central problematic of fundamental ontology, that is to say to the question of Being as such. If the question of science gets touched upon only incidentally in the course of *Being and Time* as it stands, this is because the time for it was not yet ripe. The right time for the question of science would have been division 3 of *Being and Time*, 'Time and Being,' which was to

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elaborated. However, to further elaborate them in this paper would distract from the main point I am trying to make.' (Seigfried, fn 12, p. 331.)

<sup>24</sup> Being and Time, p.408.

have provided 'the explication of time as the transcendental horizon for the question of Being.'<sup>26</sup> But division 3 was, as we know, withheld from publication in 1927, because, as Heidegger tells it, he felt after long conversations with Karl Jaspers that its exposition had proved unintelligible.<sup>27</sup> The problem proved to be more than one of exposition, however, and in 1953 with the appearance of the 7<sup>th</sup> edition any hope that the remaining parts of *Being and Time* might eventually appear was finally abandoned.<sup>28</sup> Indeed already at the very end of division 2, Heidegger alludes to the problem of the connection between Being and truth, which he has already told us has to be clarified *before* there can be any adequate existential interpretation of science, as a *limit* to his investigations. 'Any investigation which goes further in the direction of questions such as these, will come up against the same "boundary" which has already set itself up to our provisional discussion of the connection between truth and Being.'<sup>29</sup> This 'boundary' is first encountered at the end of division 1, but one can assume that it was precisely the failure to push beyond this limit in any intelligible manner at the end of division 2 as well, that led Heidegger to abandon the publication of division 3. Even if we assume that Heidegger had intended the ultimate object of his phenomenology to be the clarification of the conceptual foundations of the positive sciences, it begins to look very much as if he was forced to abandon this ambition. The task of laying the foundations of the sciences was permanently deferred because it lay on the other side of a limit which Heidegger found he could never get beyond - a limit which seemed to impose itself at the very moment he tried to move from the analytic of existence to the question of Being in general; a move he was able only ever to couch in the form of a question, but never

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<sup>25</sup> 'we are asking which of those conditions implied in Dasein's state of Being are existentially necessary for the possibility of Dasein's existing in the way of scientific research.' (*Being and Time*, p. 408.)

<sup>26</sup> *Being and Time*, p. 63.

<sup>27</sup> Heidegger gives this version of events in the 1941 lecture course on Schelling. Quoted in William D. Blattner, *Heidegger's Temporal Idealism*, (Cambridge, Cambridge University Press, 1999), p. 261.

<sup>28</sup> See the preface to the 7<sup>th</sup> edition, *Being and Time*, p. 17.

enact: 'Is there a way which leads from primordial *time* to the meaning of *Being*? Does *time* itself manifest itself as the horizon of *Being*?',<sup>30</sup>

In short, there appear to be strong reasons for rejecting Seigfried's claim that *Being and Time* can only be properly read as a contribution to philosophy of science. In the first place, the emphasis placed upon the ontical priority of the question of Being suggests that the task Heidegger sets himself in *Being and Time* is not as clear cut as Seigfried makes out. In the second place, even if Seigfried were right, and the whole of *Being and Time* as it stands, including division 2, were just a means to an end, the fact would still remain that that end is never even touched upon let alone achieved, and that, therefore, whatever remains of value in *Being and Time*, it certainly isn't what it contributes to the philosophy of science. The best that can be said for Seigfried's claim is that there are some indications in the first few pages of the book that Heidegger may have originally thought that *Being and Time* would make a contribution to philosophy of science, but that that is not how it turned out.

There is, of course, another reason why we might want to remain suspicious of Seigfried's claim. It is the rather disconcerting way in which he can tell us without batting an eyelid that philosophy of science *proper* consists in laying the foundations [*Grundlegung*] of the sciences. But isn't that precisely what philosophers of science have come to realise over the last hundred years is *not* the proper task of philosophy of science? And yet curiously, Seigfried is anxious to ally Heidegger's conception of science with the views of those post-positivists, such as Thomas Kuhn, Paul Feyerabend, and Michael Polanyi, who have done more than most to discredit the idea that the basic concepts of science are subject to independent philosophical validation. Indeed, Seigfried wishes to use *Being and Time* to provide post-positivism with a proper

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<sup>29</sup> Being and Time, p. 472.

philosophical backing. Part of the problem, in his opinion, with these so-called new philosophies of science is that the arguments advanced in support of them are by and large not really philosophical at all, but instead merely historical or psychological. 'In this situation, *Being and Time* could prove to be helpful, since it not only anticipated many of the so-called new views, but it dealt with them in a thoroughly systematic fashion and provided philosophical arguments and ample phenomenological evidence which would allow us to settle this philosophical controversy one way or another.'<sup>31</sup> But the controversy is in large part a controversy over the *proper task* still facing philosophy of science, once any hope of laying the conceptual foundations of the sciences has been abandoned. The post-positivist break with traditional Anglo-Saxon philosophy of science was a break with the positivist concentration upon the justification of methodology. But it did not thereby represent a return to the justification of theoretical content, rather it represented a break with justification altogether. Indeed, a figure such as Feyerabend must surely be seen as *continuing* the revolution initiated by logical-positivism. Logical-empiricism, as it was then called, arose in Germany and Austria during the 1920s out of and in reaction to neo-Kantianism, when a generation of students brought up in that tradition recognised the futility of attempting to provide transcendental deductions of the *a priori* truths underpinning the sciences, not least because the scientists were dispensing with those truths as fast the philosophers could prove them *a priori*. The concentration upon methodology, the question of verification, the logic of induction, the theory-independent description of observation, were all the result of a self-imposed ban on the justification of theoretical concepts. Philosophy was, if you like, to concern itself only with the justification of the procedures of justification employed by the sciences themselves. A work such as Feyerabend's *Against Method*

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<sup>30</sup> *Being and Time*, p. 488.

<sup>31</sup> Seigfried, p. 321.

simply extends the prohibition to even this limited regulatory role. Science is what science does, and any attempt to restrict its freedom of action risks stifling its capacity for innovation. Of course, this instantly raises the question of what role, if any, there still is for a *philosophy* of science. Perhaps one of the reasons why the arguments raised in favour of the new descriptions of scientific activity were to Seigfried's taste not properly philosophical at all, was precisely because the argument was not between two competing philosophies of science, but rather was an argument about what kind of 'meta-discipline' there could properly be about science at all. In this light, the historical researches of Thomas Kuhn are not meant to hint inadequately at a potential, new philosophy of science, still sadly lacking proper philosophical elaboration or validation, but rather are meant to demonstrate concretely that the only fruitful kind of talk about science is *historical*. Philosophy of science is to be replaced variously by history of science, sociology of science, and, at its most anaemic, science studies. The only task left to philosophy itself is to reconcile itself to the fact that the sciences have at last broken free from its apron strings.

In other words, if *Being and Time* really is a treatise in the philosophy of science, then it is a treatise in the *wrong* kind of philosophy of science, the kind of philosophy of science that really does still believe it can run ahead of the sciences and prescribe for them the true nature of their subject matter, a kind of philosophy of science that nobody, whether positivist or post-positivist, whether empiricist, realist, or constructivist, has any interest in anymore: not so much a philosophy of science as a full-blown metaphysical subordination of science to philosophy. Worse still, *Being and Time* would then be a treatise in the wrong kind of philosophy of science that chooses precisely the wrong method to set about its task. If the existential analytic really does throw up philosophical arguments that support the kinds of description of scientific research provided by Kuhn or Feyerabend, then one is at a loss to know how it is supposed to lay



the foundations for the sciences, since there are on the basis of its own arguments *no* foundations to the sciences, or at least no foundations that can be philosophically secured. All the more reason then, surely, to read *Being and Time*, whatever Heidegger's original, real or ultimate intention might have been, as the existentialist tract it is conventionally taken to be, and forget all about the introductory talk of *a priori* conditions, regional ontologies, and laying the foundations of the sciences, especially since thankfully none of these promissory notes are ever honoured. One senses that to read *Being and Time* as a treatise in the philosophy of science on the basis of a few scattered remarks that may be nothing more than the residues of Heidegger's own neo-Kantian and Husserlian training, would be to condemn it to real historical irrelevance, and strip it of everything that in actual fact did prove significant and revolutionary about it. Perhaps this is even Seigfried's secret intention: to recast Heidegger as the devoted disciple of Husserl that he turned out not to be, patiently dedicating himself to the painstaking task, which Husserl himself thought might last generations, of phenomenologically securing the foundations of Western science.

But before dismissing Seigfried completely, we should perhaps examine a text that was not available when he wrote his paper. Published in 1979 as volume 20 of the *Gesamtausgabe*, the lecture course that Heidegger gave at Marburg in the summer semester of 1925, bears a particularly close relation to *Being and Time*. We find not only that large portions of the course have been carried over into the text of *Being and Time* virtually unchanged, but that the entire structure of division 1 and the first two chapters of division 2 have already been fully worked out and executed. It seems reasonable to assume, therefore, that the 1925 lecture course represents what its translator, Theodore Kisiel, has called the penultimate draft of *Being and Time*. What is interesting for us, therefore, is that Heidegger here links the outcome of his phenomenological

investigation to the possibility of philosophy of science even more explicitly than he does in *Being and Time*.

The theme of the lecture course is to be understood, Heidegger tells us in its opening sentence, by way of its subtitle, not its title. The course is entitled 'History of the Concept of Time,' but it is subtitled 'Prolegomena to the Phenomenology of History and Nature.'<sup>32</sup> The subtitle tells us what a history of the concept of time is *for*. It is meant to provide us with whatever is necessary from the very beginning, if we are to be able *to do* phenomenology of history and nature. 'This means,' Heidegger tells us a little later, 'that we wish to arrive at a *horizon* from which history and nature can be originally contrasted. This horizon must itself be a *field of constituents* against which history and nature stand out in relief. Laying out this field is the task of the "prolegomena to a phenomenology of history and nature."<sup>33</sup> But we can only learn what the prolegomena actually consist of, if we know 'what a phenomenology of history and nature is supposed to be.'<sup>34</sup> The distinction between history and nature is most readily apparent in the sciences which investigate these two separate domains. But that does not mean that the *basis* for this distinction is to be found within the sciences. On the contrary, the sciences already operate within this distinction, and take their bearings from it. 'But the phenomenology of history and nature promises to disclose reality precisely as it shows itself *before* scientific inquiry, as the reality that is already given to it. [...] In this way, the basis for a philosophy of these sciences is first created.'<sup>35</sup>

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<sup>32</sup> HCT, p. 1. Though the lecture course was announced under the title 'History of the Concept of Time' and bore the subtitle 'Prolegomena to the Phenomenology of History and Nature,' the German editor tells us that it seemed appropriate to change the title of the published work to *Prolegomena zur Geschichte des Zeitbegriffs*, and lose all reference to a phenomenology of history and nature, 'since Heidegger did not complete the presentation of the central thematic' (HCT, p. 321). In other words, rather than a history of the concept of time as the prolegomena to the phenomenology of history and nature, all Heidegger managed to present in the course of his lectures was a prolegomenon to the prolegomena.

<sup>33</sup> HCT, p. 5.

<sup>34</sup> HCT, p. 1.

<sup>35</sup> HCT, p. 2.

It might seem that these introductory remarks to the 1925 lecture course really add nothing new to what we have already gleaned from *Being and Time*. Indeed, to the extent that they emphasise how closely the ambition of establishing the possibility of a genuinely perspicuous philosophy of science is tied to the traditional neo-Kantian problematic of grounding the difference between the historical and the natural sciences, it could be argued that they simply confirm the suspicion that the references to science in paragraph 3 of *Being and Time* are nothing more than the remnants of a philosophical orientation that had to be discarded in the very process of working out the prolegomena to a phenomenology of Being. This is certainly how Theodore Kisiel interprets it.<sup>36</sup> However Heidegger immediately goes on to outline *how* the basis for a philosophy of science is to be established, thus making it clear *what* he considers a philosophy of science should be trying to do, and what therefore it should look like. This clarification will prove to be crucial in deciding the question of whether or not science really does have a place in the overall scheme of *Being and Time*. The phenomenology of history and nature will create the basis for a philosophy of the sciences, Heidegger tells us, ‘serving 1.) to provide the foundation for their genesis from pretheoretical experience,

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<sup>36</sup> Kisiel has this to say about the 1925 lecture course: ‘this a course of misnomers, false starts, and false promises, beginning with the irrelevance of its announced title and followed by an inertially faulty introduction. [...] The initial motivation, [...] spelled out in the opening lecture, would still reflect the Diltheyan inspiration of the systematic essay, in its concern for founding the division of the field of the sciences into the natural and the historical (human, cultural) sciences (Dilthey’s forte), as well as the mathematical and metaphysical sciences. [...] Heidegger in fact makes clear only in the fourth week (May 28, 1925) what “the real theme of the course” (124/91) actually is, as he burrows ever more deeply into an excessively detailed Preliminary Part on the history and nature of phenomenology, a Part that one could almost overleap to get to the point of the course.’ Theodore Kisiel, *The Genesis of Heidegger’s Being and Time*, (Berkeley LA, London; University of California Press; 1993, pbk 1995), pp. 363-64.

But what those who would like to consign the talk of laying the foundations of the sciences to a faulty start that might just as well be skipped, have to explain is why this talk is not confined to Heidegger’s preparatory work before *Being and Time*, but in fact recurs insistently after its publication. For example, in late 1927 we find Heidegger still declaring grandly, ‘Laying the foundations of a science means founding and developing the ontology which underlies the science. In turn, these ontologies are grounded in fundamental ontology, which constitutes the centre of philosophy.’ Martin Heidegger, *Phenomenological Interpretation of Kant’s Critique of Pure Reason*, trans. by Parvis Emad and Kenneth Maly, (Bloomington and Indianapolis, Indiana University Press, 1997), p. 27 - hereafter referred to as *PIK*. This is the text of the lecture course given at Marburg in the winter of 1927/28, first published in German as volume 25 of the *Gesamtausgabe*, *Phänomenologische Interpretation von Kants Kritik der*

2.) to exhibit the kind of access they have to the pregiven reality, and 3.) to specify the kind of concept formation which accrues to such research.<sup>37</sup>

This makes it clear that the clarification of the conceptual foundations of the sciences is to proceed by way of an analysis of science not just as one activity among others, but as an activity that *arises* out of prescientific activity. The *way* in which science arises out of prescientific activity promises to cast light upon the kind of access that science has to its subject matter, because that subject matter is pregiven in prescientific experience. Science detaches itself from prescientific activity precisely so as to be able to make the reality already implicit in prescientific activity accessible to it. Access to the given is a question of forging a certain distance from it. In turn, the question of the basic concepts underlying a science's theoretical articulation of a particular domain is to be sorted out by examining the ways in which those concepts are *formed* in the very process of opening up access to the domain. In other words, Heidegger's suggestion is that concepts do not just appear out of the blue, and then subsequently have to be married up against the domain they are supposed to help conceptualise. Nor are they simply borrowed from prescientific experience. Rather concepts are forged in the very process of gaining access to a domain. They are themselves the *results* of an activity. An understanding of *how* a science gains access to its domain, will determine *what* kind of concepts are appropriate or relevant to that particular science.

This in turn begins to explain the special emphasis that Heidegger places upon scientific *crisis*. 'Our path to the fields of subject matter is therefore not by way of the theory of the factually available sciences. This is shown by the sense of the present *crisis of the*

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*reinen Vernunft*, ed. by Ingtraud Görland, (Frankfurt am Main, Vittorio Klostermann. 1977, 3rd ed. 1995) - hereafter referred to as G25.

<sup>37</sup> HCT, p. 2.

*sciences*, if we truly understand what this means.’<sup>38</sup> But scientific crisis, if truly understood, does not offer an excuse for ignoring the sciences. Rather a true understanding of scientific crisis is a necessary step on the path to laying the foundations of the sciences. In scientific crisis scientific activity concerns itself with basic concepts.

[T]he real crisis in the sciences is internal to the sciences themselves, wherein their basic relationship to the subject matter which each of them investigates has become questionable [...] which activates the tendency to carry out a propaedeutic reflection on their basic structure. Such a reflection seeks to dispel the insecurity over the fundamental concepts of the science in question or to secure those concepts in a more original understanding of its subject matter. Genuine progress in the sciences occurs only in this field of reflection.<sup>39</sup>

And this is a necessary feature of science, if Heidegger’s conception of the way in which philosophy of science is to proceed, is to have any chance of success. It is precisely because basic concepts are forged in scientific activity that an examination of scientific activity can have any hope of clarifying those basic concepts. If scientific activity merely proceeded on the basis of a conceptual framework that came from who knows where, then scientific activity would be a secondary phenomenon not worthy of philosophical attention. Everything a science did would be determined by the conceptual framework that would have to be established in some other and as yet unexplained manner. If, on the other hand, sciences are responsible for their own conceptual frameworks, then scientific crisis is the middle term that negotiates the passage between science thought of as an activity susceptible to existential analysis and the conception of science as a systematically articulated body of true propositions requiring grounding of its fundamental concepts. Laying the foundations for a science does not therefore mean providing that science with an already fully worked out conceptual framework within which to pursue its research. Rather, it means establishing the grounding link between

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<sup>38</sup> HCT, p. 2.

<sup>39</sup> HCT, p. 3.

the structure of the subject matter as it already presents itself in prescientific experience and the kind of concept formation exemplified by scientific activity in periods of crisis.

The laws of progress by which a scientific revolution occurs differ in the individual sciences because the mode of being of the experience and what is experienced is different, because the states of affairs stand in definite fundamental relationships to man himself, and because sciences themselves are nothing but concrete possibilities of human Dasein speaking out about the world in which it exists and about itself.<sup>40</sup>

If, as Heidegger asserts, the sciences in crisis assume a philosophical cast, and 'thus say that they are in need of an original interpretation which they themselves are incapable of carrying out,'<sup>41</sup> this is not because they are incapable of radically revising their basic concepts. Indeed, such capability is the hallmark of their maturity.<sup>42</sup> Rather, what the sciences prove themselves incapable of in crisis, is an interpretation of that capability in terms of the very field that they seek to investigate and their peculiar relation to it. What always gets obscured by a scientific revolution is not so much the origin of the new conceptual delimitation within the field itself - that, after all, tends to be taken for granted - as the origin of the possibility of transformation within the field itself. A sociology of *theory formation* is not a rival to scientific realism, rather it is the necessary supplement to a realism about *theories*. The more original interpretation that Heidegger seeks, is thus neither a sociology of knowledge nor a metaphysical realism, but an interpretation of scientific activity *and* the fields which such activity investigates as they are *bound together* within human existence as a whole.

Here it becomes apparent why Seigfried's claim was destined to be ignored, even though he appears to have cottoned on to something important. The thesis that *Being and Time* is to be read as a contribution to philosophy of science, is presented with the

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<sup>40</sup> HCT, p. 4.

<sup>41</sup> HCT, p. 3.

clear aim of explaining what *Being and Time* is really all about. But this assumes that philosophy of science is already well-defined, and that *Being and Time* gains definition by being identified with it. We see now that for Heidegger, on the contrary, it is the idea of philosophy of science that first needs to be worked out, and that *Being and Time* is intended, amongst other things perhaps, to provide the prolegomena for such a definition. In other words, the primary task is not to supply a philosophy of science, but rather to rethink the relation between philosophy and science altogether. This is why, no doubt, in the 1925 lecture course Heidegger goes on, immediately after outlining the full plan for the prolegomena to a phenomenology of history and nature, to give a brief historical overview of the situation facing philosophy under the title 'Philosophy and the sciences.' The situation is one in which philosophy defines itself as scientific in a twofold sense - scientific in that having relinquished to the sciences its traditional subject matter it takes the sciences themselves as its own proper domain - philosophy conceives of itself as a theory or logic of the sciences - and scientific also because insofar as it now takes for itself one specific domain amongst all the others, it conceives of itself as one specialised science amongst all the others, and borrows from the already constituted sciences the criteria for its own scientificity.

The point, however, is not that this self-conception of philosophy should be denounced as incorrect. It is, after all, the situation that philosophy finds itself in. Rather the question is: how is this situation to be *addressed*? If we think that laying the foundations of the sciences means providing them with a body of results, handing them the a priori categorial structure of their various domains on a plate, then science is strictly speaking outside the scope of fundamental ontology, ignored in favour of the reality that presents

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<sup>42</sup> 'The level which a science has reached is determined by how far it is *capable* of a crisis in its basic concepts.' *Being and Time*, p. 29. 'Such crises do not take place in the historiological sciences only because they have not yet reached the degree of maturity necessary for revolutions.' *HCT*, p. 3.

itself prior to scientific investigation. Science is to be thought of as merely the passive recipient of the results. But this way of understanding what is meant by laying the foundations of the sciences, just as much as any squeamishness at the thought of such philosophical hubris, is a symptom of the very way in which philosophy defines itself in relation to the sciences. If, on the other hand, we now remember that the existential analytic cannot be pursued except on the basis and with the aim of an existentiell transformation, we can ask *what* is that is supposed to be existentiellly transformed? Precisely the situation of the questioning itself. But *how* is it to be transformed? By reading *Being and Time* and engaging with it in reading it. *Being and Time* is addressed to science. The active reading of *Being and Time* is meant to produce a transformation in the existence of the sciences themselves, such that the 'foundations' of scientific research, the necessary existential preconditions for such research, have been made ready in that very existence. The question of the centrality of science in *Being and Time* is not to be answered by measuring the extent to which it is the subject of sustained thematic analysis, but rather by considering to what extent it is both the background against which fundamental ontology defines itself, and the audience to which it addresses itself. The place of science in *Being and Time* is behind it and in front of it. All of this is made spectacularly explicit in the address Heidegger gave to the academics, that is to say, researchers, assembled before him in his inaugural lecture upon assuming the chair of philosophy at Freiburg university:

We are questioning, here and now, for ourselves. Our existence - in the community of researchers, teachers, and students - is determined by science. What is happening to us, essentially, in the grounds of our existence, when science has become our passion?<sup>43</sup>

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<sup>43</sup> Martin Heidegger, 'What is Metaphysics?' trans. by David Farrell Krell, *Pathmarks*, ed. by William McNeill, (Cambridge, Cambridge University Press, 1998), p. 82 [also *Basic Writings*, ed. by David Farrell Krell, (London, Routledge, 1977, 1993), p. 94]. This rhetorical 'we,' this call from *within* the community of researchers for that community to take up the task of transforming itself, is maintained throughout the 1930s, most notably perhaps in the infamous Rectoral Address of 1933. see 'The Self-



The timing of this address is also significant. It occurs after *Being and Time*, at the beginning of that period dating roughly from 1928 to 1931 that is commonly supposed to mark the beginning of the turn in Heidegger's thinking. That is to say, the explicit emphasis upon the situation in which questioning about Being finds itself, occurs precisely at the time Heidegger is attempting to push the thinking of *Being and Time* on towards the question of Being in general. It is here that we should expect science to become an explicit theme of existential analysis, if, as Heidegger asserts in *Being and Time*, that analysis cannot be undertaken until the question of the relation between Being and truth has been clarified. And that is precisely what we do find. The very first lecture course that Heidegger gave upon returning to Freiburg in 1928 is almost entirely devoted to determining the 'essence of science.' But at the beginning of this lecture course Heidegger inserts a word of warning about how such a reflection upon the essence of science should *not* be taken.

Only one thing still remains to be said, before we finish speaking about the crisis [in the sciences]: It would be blind enthusiasm, if you were now for example suddenly to begin explaining in the seminar exercises of your speciality that the sciences stand authentically in crisis, and tried to reform your science with the help of a Heideggerian terminology.<sup>44</sup>

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Assertion of the German University, and The Rectorate 1933/34: Facts and Thoughts', trans. by Karsten Harries, The Review of Metaphysics, Vol. 38 (March 1985), pp. 467-502. But it is also exemplified practically as late as 1936 by the seminar group Heidegger organised with the members of the faculty of the natural sciences, the notes to which have been published under the title 'The Threat to Science,' see 'Die Bedrohung der Wissenschaft', Zur philosophische Aktualität Heideggers - Band 1: Philosophie und Politik, ed. by Dietrich Pappenfuss and Otto Pöggler, (Frankfurt am Main, Vittorio Klostermann, 1991), pp. 5-27. It recurs even in the 1950s at the very moment Heidegger supposedly denounces science: 'Science does not think. This is a shocking statement. [...] Hence we, those of us who come from the sciences, must endure what is shocking and strange about thinking - assuming we are ready to learn thinking.' What is Called Thinking?, trans. by J. Glenn Gray, (New York, Harper and Row, 1972), p. 8. What is shocking and strange about thinking only endures in being endured by those who come from the sciences. Those who would take comfort in Heidegger's rejection of science are surely as incapable of experiencing what is shocking and strange about thinking as those who endeavour to set up a 'comfortable commerce between thinking and the sciences.' Ibid.

<sup>44</sup> 'Nur das eine mag noch gesagt sein, bevor wir aufhören, über die Krisis zu sprechen: Es wäre blinder Eifer, wenn Sie nun zum Beispiel in Seminarübungen Ihres Faches plötzlich anfangen zu erzählen, daß die Wissenschaften eigentlich in einer Krisis ständen, und wenn Sie versuchten, Ihre Wissenschaft mit Hilfe einer Heideggerischen Terminologie zu reformieren.' Martin Heidegger, Gesamtausgabe, Band 27: Einleitung in die Philosophie, ed. by Otto-Saame and Ina Saame-Speidel, (Frankfurt am Main, Vittorio

*Being and Time* is bracketed by appeals to science. On the one side the project of fundamental ontology is introduced in 1925 in the light of a phenomenology of history and nature which will make a philosophy of science possible for the first time. On the other side, the effort to push beyond *Being and Time* and rethink the turn from the question of the Being of Dasein to the question of Being in general is couched in terms of a reflection upon what is going on in the depths of the existence of *we* who have allowed science to become our passion. Simultaneous with this rhetorical appeal, there appears to be a sustained effort to provide an existential interpretation of science. The “proof” of science’s centrality to the aims of fundamental ontology lies, therefore, in the failure ever to accomplish its analysis in terms of fundamental ontology.

The examination of Heidegger’s introductory remarks to the 1925 lecture course has not simply confirmed what we already found in *Being in Time*. It has clarified the *kind* of interest Heidegger has in science, and it has focused our attention on three aspects of the subject that appear to be crucial to Heidegger’s conception of the way in which a philosophy of science should proceed. These three topics are:

- 1.) Science’s genesis from pretheoretical experience.
- 2.) The crisis in the sciences.
- 3.) Laying the foundations for the sciences.

These three topics provide the guiding thread for the exegesis of Heidegger’s existential conception of science. In the next chapter, I examine Heidegger’s analysis of everyday existence, out of which scientific activity arises in the first place. Then in chapter three, a general account of the genesis of science is derived on the basis of Heidegger’s examination of a paradigm case, modern mathematical physics. In chapter four, I

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Klostermann, 1996), p. 39 - hereafter referred to as G27. This is the text of the lecture course given at Freiburg in the winter of 1928/29. All translations from this work are my own.

attempt to reconstruct a Heideggerian interpretation of scientific crisis in the context both of the contemporary rhetoric of cultural crisis and contemporary interpretations of relativity theory. Chapter five then deals with what Heidegger means by 'laying the foundations of the sciences.' Finally, in chapter six, we return to the question of the relation between philosophy and science in the light of the interpretation of science that has been achieved. Here it will be possible for the first time to gain some understanding of the place science has in Heidegger's thinking, and the way that the interpretation of science reflects back upon the conception of philosophy itself.

## Chapter Two

### The Everyday Origins of Science

That science arises out of some kind of pre-scientific experience or activity is clearly true, but does it mean anything? One might hold, for instance, that though the sciences as a matter of ineluctable fact are indeed conducted by ordinary human beings who had ordinary human lives before they ever became scientists and no doubt continue to lead ordinary human lives outside the lab, this has got nothing to do with the sciences themselves. The scientist is supposed to leave his life at the door. Maybe he doesn't always manage it - perhaps he allows his inalienable sense of superiority to women to cloud his judgement for a generation or two, it happens - but a science is scientific precisely to the extent that it has procedures for eliminating the prejudices it inherits from its workforce. Science becomes science only as it cleanses itself of the pre-scientific. The fact, then, that it arises out of the pre-scientific can tell us nothing about science itself - it is an empty given. Science has to arise out of something, but precisely because science is rationally autonomous, it doesn't matter what. This view of science is surprisingly widespread, and certainly not just confined to logical empiricism or Popperian rationalism. The Bachelardian concept of an epistemological break, for example, is just as much a quarantine device as the obsessively reiterated distinction between the context of discovery and the context of justification. Both philosophical notions serve to underwrite the rational autonomy of the sciences. Even a constructivist such as Thomas Kuhn can be seen as maintaining the autonomy - if not strictly speaking, rational autonomy - of the sciences. Science is distinguished from non-scientific activity precisely by the adoption of a paradigm. This adoption of a single agreed procedural and theoretical framework imposes order upon a discipline and allows

steady progress to be made. Within a science everybody agrees most of the time upon what is and what is not important; outside of science nobody ever does. Even when a paradigm breaks down in periods of scientific crisis, what is distinctive about research communities is the rapidity with which they agree upon a new paradigm. This communal consensus, rather than any traditional notion of objectivity, is the crucial difference from pre-scientific speculation, which Kuhn identifies as the essential trait of mature sciences.<sup>1</sup> And it should not be thought that the paradigms, which provide the scientists with the rules and standards for their research, might carry over from pre-scientific experience some content that would make a pre-scientific metaphysics determinative of science and its results. It is not just that paradigms are arbitrary, it is even more that they are *scientific*. A paradigm is a solution to a problem that is taken as exemplary. A paradigm is not, at least in Kuhn's more radical formulations, simply a conceptual framework. It is rather an already existing body of procedures, some theoretical, some practical, which although perhaps very limited in scope are, because of their perceived success, taken to be the right way forward. A paradigm serves as a template for further investigations, and in so serving gets extended and elaborated, perhaps changing beyond all recognition. But what it is important to realise is that this use, extension and elaboration of paradigms is a practise peculiar to science itself, and that paradigms only exist in the context of their use. Paradigms are not the products of a

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<sup>1</sup> See Thomas S. Kuhn, The Structure of Scientific Revolutions, (Chicago, The University of Chicago Press, 1962, 2<sup>nd</sup>. ed. enlarged 1970), pp. 10-22; in particular the following passages: 'Acquisition of a paradigm and of the more esoteric type of research it permits is a sign of maturity in the development of any scientific field.' (p. 11); 'No wonder, then, that in the early stages of the development of any science different men confronting the same range of phenomena, but not usually all the same particular phenomena, describe and interpret them in different ways. What is surprising, and perhaps also unique in its degree to the fields we call science, is that such initial divergences should ever largely disappear.' (p. 17); 'Ever since prehistoric antiquity one field of study after another has crossed the divide between what the historian might call its prehistory as a science and its history proper.' (p. 21) Collectively, these passages confirm that though in its early days a science may be characterised by a clash of schools who agree on nothing, or a Baconian accumulation of random and unconnected facts, a science is only really a science to the extent that it is capable of crossing the divide that marks mature science off from all other fields: adoption of a single paradigm.

prescientific metaphysics, they are its replacement. The single-minded pursuit of paradigm elaboration cuts science off from the everyday life surrounding it just as surely as any strictures on normativity or the imposition of a neutral observation language. This is indicated by the fact that Kuhn's historical investigations always yield *internal* histories of science. Adoption of a paradigm, because it is both arbitrary and scientific, effectively seals the development of the science off from any outside cultural or social influence. Adoption of the paradigm is the initiation rite which any aspiring research student must pass through to enter the hermetic order, guaranteeing its purity.

On the other hand, one might hold that the fact that the sciences arise out of pre-scientific experience is of no great philosophical significance because there is no essential difference between scientific and pre-scientific experience. The real philosophical problem - the problem of knowledge, how it is possible and what guarantees that it is not merely belief - is common to both. Perhaps, science is to be distinguished from the assertions of common-sense simply because it is more conscious of this problem, and submits more rigorously to the forms of adjudication devised in the course of epistemological research. In this regard, science is exemplary for common-sense, and is held up as a standard to which we should all aspire. Again, this view is common to some unlikely bedfellows. It underlies the programme of teleological criticism initiated by Rickert, in which Heidegger himself was schooled, just as much as Carnap's programme of logical reduction. That the various forms of empiricism obviously take this position shows that though it provides a contrary reason for not being fussed about the genesis of science from everyday experience to that provided by those who believe in the purity of the sciences, it does not contradict their position. If pre-scientific experience is itself theoretical, or science merely the accumulation and ordering of sense data already available to us, then either way the fact that science arises

out of our pre-scientific activities becomes neither very remarkable nor very informative.

It is important to realise at the outset that Heidegger considers the fact that the sciences arise out of our pre-scientific existence to be philosophically significant *because* he disagrees with both positions outlined above. He does not mindlessly commit a fallacy, rather he explicitly disputes that there is a fallacy. The belief that the proper philosophical concern when it comes to science is the context of justification, and not the context of discovery rests in the end upon a distinction between the space of nature - that which scientific knowledge is to be about, and a space of reasons - that in which scientific knowledge as rational gets justified. This distinction itself is just a reformulation of the Cartesian distinction between the *res extensa* and the *res cogitans*. But this is to get things the wrong way round. The primary phenomenon that calls out for philosophical investigation, and is at the same time the basis for any such investigation, is that the beings that we are, Dasein, are primarily characterised as Being-in-the-world. "World" is to be understood, Heidegger says, 'as that "*wherein*" a factual Dasein as such can be said to "live".'<sup>2</sup> The insistence upon Being-in-the-world as a priori, is meant to suggest that what is fundamental to Dasein is the structured totality of ways of being in the world. World is that in which Dasein moves and dwells, it is the structured totality in which Dasein necessarily already finds itself prior to any inquiry into itself or anything else.

It is absurd to wish to subject to a proof of existence that which finds in their very being all questioning of a world and all attempts to prove and demonstrate that the world exists. World in its most proper sense is just that which is already on hand for any questioning.<sup>3</sup>

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<sup>2</sup> Being and Time, p. 93.

<sup>3</sup> HCT, p. 215.

But if, as we suggest, we thus find phenomenally that *knowing is a kind of Being which belongs to Being-in-the-world*, one might object that with such an Interpretation of knowing, the problem of knowledge is nullified; for what is left to be asked if one *presupposes* that knowing is already 'alongside' its world, when it is not supposed to reach that world except in the transcending of the subject? In this question the constructive 'standpoint', which has not been phenomenally demonstrated, again comes to the fore; but quite apart from this, what higher court is to decide *whether and in what sense* there is to be any problem of knowledge other than that of the phenomenon of knowing as such and the kind of Being that belongs to the knower?<sup>4</sup>

In other words, the problem of knowledge presupposes that we already know what knowledge *is*, and then asks how there can be knowledge of the external world. It asks an ontical question about knowledge, but then draws ontological conclusions from the answer. The problem of knowledge is ontico-ontologically confused, in that on the one hand it poses itself as a question about a particular sort of knowledge - knowledge of the external world as opposed, say, to knowledge of our own internal mental states - asking how knowledge, already determined as something or other, can as this something or other be knowledge of the external world; but at the same time it takes the answer, or rather the lack of an answer, to be ontologically indicative, in that doubt as to the possibility of knowledge of the external world casts doubt upon the possibility of knowledge at all, since knowledge as such is taken to be knowledge of the external world or nothing at all. The sleight of hand should be instantly apparent. Knowledge of the external world is taken to be on the one hand analogous to knowledge of some particular thing or fact, say the number of the planets, and therefore to be something which we may or may not have, and on the other hand to be essentially characteristic of knowledge as such, thus suggesting that knowledge as such may be something which we either do or do not have. But the question is not whether we do or do not have knowledge as such, but rather what it is that knowledge proves to be, and in particular what 'having' it might mean. The question is not do we have *knowledge*, but rather in

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<sup>4</sup> Being and Time, p. 88.



what way do we *have* knowledge - what does this *having* mean? And this question is clearly prior, in a purely analytic sense, to the question of what knowledge, if any, we can actually have, in this as yet unanalysed sense of 'have.'

And because knowing is only one way in which human beings find themselves to be in a world, only one mode of Being-in-the-world, Heidegger also disputes the second reason for denying the philosophical importance of the genesis of science out of pre-scientific existence: the assumption that there is no essential difference between scientific and pre-scientific experience, that all experience is to a greater or lesser extent a form of knowing the world. Heidegger insists that on the contrary the reality which is already given prior to any scientific investigation, and out of which the sciences carve their various domains, is *not known*, and it is precisely this which allows it to be *a priori*. In the 1925 lecture course, for example, Heidegger says, 'But the world into which concern has *fallen* at any given time is not thematically perceived, not thought, not known, and it is just this which grounds the possibility of an *original reality*.'<sup>5</sup> Things are already present for us in so far as they concern us, or better yet, in so far as they are caught up in our concerns, without us having had to fix our attention explicitly upon them. Concern, not knowing, is the primary mode of Being-in-the-world. And this realisation necessitates a fundamental reorientation of the way we go about inquiring into the possibility of any kind of knowledge, scientific included.

If we do not explain our encounter of the world from our apprehension of it but instead understand the later as based on the former, then it becomes clear that it is the *presence of what is of concern* which first and foremost brings to light what we in the context of theoretical apprehension designate as the immediately given. The genuine immediate datum is thus once again not the perceived but what is present in concerned preoccupation.<sup>6</sup>

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<sup>5</sup> HCT, p. 193.

<sup>6</sup> HCT, pp. 194-95.

But this reorientation is not merely necessitated by the phenomenal facts, it promises to side-step, as it were, the pitfalls that bedevil the traditional approach to the problem of knowledge. In particular, the concept of 'the thing in itself' as that which remains stubbornly transcendent to all knowledge does not so much vanish, as find itself entirely demystified. Heidegger tells us that the 'basic phenomenal trait' of that which is of concern, is:

*presence in the manner of inconspicuousness, its presence precisely on the basis of not yet being apprehended and nevertheless having [been] discovered primarily, permitting encounter.*

It is on this basis that we understand the sense of a favourite expression, that of the '*in-itself*' of the being of the world. It is customary to point out that the world is first there not on account of a subject, the world is rather '*in-itself*.' The frequent use of this expression '*in-itself*' of course never tells us anything about its sense.<sup>7</sup>

And indeed in its customary usage the term has no positive sense. The phrase 'in itself' which is supposed to characterise what we mean by reality - how things are in themselves and not how they may simply appear to us - is a purely negative marker, pointing to a transcendental X, which must be posited if appearances are indeed to be appearances of something, but about which nothing further can be said. It now however acquires a positive phenomenal interpretation. The 'in itself' no longer refers to a transcendental realm forever shut off from our perception, an absolute absence, but rather to the primary form of presence - the presence of what is of concern to us, but which we need not be directly cognisant of. How something is 'in itself' still refers, if you like, to how it is before it is perceived, but it is not so much a question of that which cannot be perceived, as rather a question of what it is that enables that which is present, nevertheless not to be perceived. The 'in itself' is not hidden from us by something else, the veil of appearances, say; rather it is inconspicuous to us in its very proximity to us. After all, something inconspicuous is inconspicuous not because of anything else, but

precisely *in itself*, because it keeps itself to itself and does not draw attention to itself. This “holding itself in,” as Heidegger dubs it in *Being and Time*, ‘this is what we have our eye upon in the “Being-in-itself” of something.’<sup>8</sup>

The presence of the specific world of concern means precisely *non-objectivity* as something apprehended. For the time being, the following question will be left open: To what extent is there actually a world present in concern and why does reality mean non-objectivity?<sup>9</sup>

The true phenomenal sense of the ‘in-itself’ is however fully visible in its structure only when we have clarified this very presence of what is of concern and understood it in its primacy. This will also show the extent to which non-objectivity is and can be constitutive of reality. The non-objectivity of the immediately given world is not nothing; it is a positive phenomenal character belonging to the presencing of the environing world.<sup>10</sup>

Heidegger is, therefore, attempting to clarify the phenomenon of knowledge by untying a series of knots of our own making. For Heidegger, the phrase ‘objective reality’ is simply an oxymoron, and as such it blocks not just the possibility of any genuine understanding of what might be meant by reality, but equally any hope of getting a grip on what might constitute ‘objective knowledge.’

What comes before knowledge is what Heidegger has already designated as encounter. We are in the world and encounter the entities within it prior to amassing any knowledge about it or them. The encounter with entities is the phenomenon that must be interrogated, if the basis for our knowledge of things is to be uncovered. There is simply nowhere else to turn.

The being of entities does not lie in the activity of encountering them, but the encounter of entities is the phenomenal basis, and the sole basis, upon which

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<sup>7</sup> HCT, p. 197.

<sup>8</sup> Being and Time, p. 106.

<sup>9</sup> HCT, p. 193.

<sup>10</sup> HCT, pp. 197-98.

the being of entities can be grasped. *Only the interpretation of the encounter with such entities can secure the being of entities, if at all.*<sup>11</sup>

‘Encounter’ translates the German verb *begegnen*, but it cannot capture the peculiarity of the German idiom. Used reflexively, the verb means ‘to meet’ usually by chance, ‘to run into,’ and has persons as its subject. When used to mean an encounter with a thing, however, it is the thing and not the person that is the subject. *Das Ding ist mir begegnet* would normally be translated as ‘I encountered the thing,’ but literally, since *begegnen* derives from *gegen* (‘against’), the phrase means something like ‘The thing has run up against me.’ Heidegger seizes upon the idiom because it emphasises that the notion of encountering is not merely an extension of the idea of experience, certainly not as understood in Kantian terms, but is in some sense its reversal. For Kant experience of an object is the product of the subject’s activity, specifically the unification of a manifold under a concept. The object is constituted by this grasping of the manifold in its unity. Now, it would be perfectly possible to complain that Kant had far too restricted a notion of experience, and to argue that in fact all human activity, not merely the synthetic activity of the understanding, was constitutive of objectivity. Objects would then be constituted by the various human activities that grasped them. Heidegger’s use of the word *begegnen* should alert us, however, from the very start to the fact that this is *not*, despite appearances, what he is going to argue. On the contrary, the encounter does not constitute an object, rather things are *discovered* in the encounter.

Does this mean that encountering is as purely passive as Kantian intuition - that it is nothing more than a waiting for things to happen? Not at all. When an acorn falls from an oak tree upon the ground, the ground does not encounter the acorn. But if it should fall upon the head of someone walking underneath the tree, then that person does indeed encounter it. Wherein lies the difference? That the person is conscious of a light blow

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<sup>11</sup> HCT, p. 217.

upon the head, as presumably the ground is not? Yes and no, because consciousness of a light blow upon the head is indeed one way of encountering something, but consciousness by no means exhausts the various ways of encountering things. Heidegger would want to say that the person equally encounters the roots of the tree when she steps over them, whether she is conscious of stepping over them or not. Perhaps rubbing her head and looking ruefully up, she is now conscious only of the branches and the leaves against the sky, yet nonetheless she does not stumble but picks her way carefully between the tracery of roots only half submerged in the ground. Her encounter with the roots, then, occurs *through* avoiding them *while* walking, in other words, through a modification of her behaviour that takes them into account. Heidegger uses the German verb *sich verhalten* to designate this relation to things - a relation which manifests itself in the modification of one's own behaviour. *Sich verhalten* in ordinary usage means 'to behave', 'to act', while *sich zu etwas verhalten* means 'to have an attitude towards something.' The infinitival noun *Verhalten* means 'behaviour or 'conduct', while the noun *Verhältnis*, also derived from the verb, has as one of its meanings 'relationship'. Thus the phrase *sich zu etwas verhalten* could also be construed as literally meaning 'to relate oneself to something,' and indeed this is how it does get translated at times by Macquarrie and Robinson.<sup>12</sup> The usual translation, standard to most translators, is however 'comportment' for *Verhalten* and 'to comport oneself (towards something)' for *sich (zu etwas) verhalten*. This is fine as long as one remembers that to comport oneself towards something does not necessarily mean to direct one's attention or even activities at it specifically. Rather it means that in one's behaviour there is already a relationship to things, whether or not that behaviour actually acts, so to speak, upon them. This is

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<sup>12</sup> See Being and Time, fn. 1, p. 23, and fn. 1, p. 162.

why Heidegger can say, 'to speak of intentional comportment is already a pleonasm.'<sup>13</sup> In other words, all human behaviour is intentional in Brentano's sense of the word. Intentionality no longer belongs simply to consciousness (of something). Indeed intentionality now gets defined in terms of comportment, so there can no longer be any confusion between it and the content of a mental act. 'The expression "relation of perception" means, not a relation into which perception first enters as one of the relata and which falls to perception as in itself free of relation, but rather a relation which perceiving itself is as such. This relation, which we signify by intentionality, is the *a priori comportmental character* of what we call self-comporting.'<sup>14</sup> Thus intentionality is the intrinsic character of behaviour that it is itself a relating to things, a relating however that is not necessarily directed at anything, but rather is a self-modification that takes things into account. This taking things into account, of course, still remains mysterious, and we are tempted to view it as some sort of tacit knowledge, based perhaps on implicit perception. Surely, in order to be able to step over the roots of a tree, I, or at least some part of me, must know where they are? And in order to know where they are, must I, or again at least some part of me, not at some point have perceived them?

Laying this worry aside for a moment, we can see that the encounter with things is inextricably bound up with comportment towards things. There only ever is any encounter with things because we are self-comporting, and all comportment is self-modifying on the basis of the encounter with things. We can also see how encountering/comporting redescribes the passivity/activity of Kantian sensibility and

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<sup>13</sup> Martin Heidegger, The Basic Problems of Phenomenology, trans. by Albert Hofstadter, (Bloomington and Indianapolis, Indiana University Press, 1982), p. 61 - hereafter referred to as BPP. This is the text of the lecture course Heidegger gave at Marburg in the summer of 1927, first published in German as volume 24 of the *Gesamtausgabe*, Die Grundprobleme der Phänomenologie, ed. by Friedrich-Wilhelm von Herrmann, (Frankfurt am Main, Vittorio Klostermann, 1975) - hereafter referred to as G24.

understanding, so as to avoid the seemingly inevitable conclusion that the activity of the understanding must work upon the passively received content of sensibility so as to form it into objects of experience. In the Kantian schema, the conditions of possibility of experience, i.e. the categories, are themselves the necessary determinations of the objects of experience. Here it is the other way around. The condition of possibility of encountering a thing, i.e. behaviour, does not determine the thing encountered, rather the thing encountered determines the behaviour. Behaviour is the condition of possibility of encountering a thing because it opens up a 'space' within which that encounter can take place, but that 'space' is precisely the behaviour itself and the encounter is nothing other than the modification, that is to say the determination, of the 'space' of behaviour.

This leads us back to our initial worry. How does behaviour take the thing encountered into account? At first sight, Heidegger undoes all the work he has just done by answering very simply that it is understanding which allows comportment to take something into account and thus make the encounter with it possible.

In all comportment toward beings - whether it is specifically cognitive, which is most frequently called theoretical, or whether it is practical-technical - an understanding of being is already involved. For a being can be encountered by us *as* a being only in the light of the understanding of being...

...[Understanding] is as such the condition of possibility for all of the Dasein's particular possible manners of comportment. It is the condition of possibility for all kinds of comportment, not only practical but also cognitive. The explanatory and understanding sciences - if this classification is admitted as being at all legitimate - are possible only because the Dasein, as existent, is itself an intrinsically understanding entity.<sup>15</sup>

This reintroduction of understanding as the condition of possibility of comportment and encounter would seem to reinstate the traditional relation between cognition of a thing and action towards it, restoring the traditional primacy of epistemology. But Heidegger

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<sup>14</sup> BPP, p. 61. The last sentence reads in German: 'Diese Beziehung, die wir mit Intentionalität meinen, ist der *apriorische Verhältnischarakter* dessen, was wir mit Sichverhalten bezeichnen.' G24, p. 85.

<sup>15</sup> BPP, pp. 275-77.

is repeatedly insistent that, 'With the term "understanding" [*Verstehen*] we have in mind a fundamental *existentiale*, which is neither a definite *species of cognition* [*Erkennen*] distinguished, let us say, from explaining and conceiving, nor any cognition at all in the sense of grasping something thematically.'<sup>16</sup> Or again: 'And what is more, in the end understanding [*Verstehen*] is not at all primarily a cognition [*Erkennen*] but - since existence is indeed more than mere cognition in the usual spectator sense of knowledge and such knowledge presupposes existence - a basic determination of existence itself.'<sup>17</sup>

What then is understanding, if it cannot be understood in terms of conceptual knowledge, but rather is radically antecedent to such knowledge? In both *Being and Time* and *Basic Problems of Phenomenology* Heidegger appeals to the normal usage of the verb *verstehen*:

When we are talking ontically we sometimes use the expression "understanding something" ["*etwas verstehen*"] with the signification of "being able to manage something" ["*einer Sache vorstehen können*"], "being a match for it" ["*ihr gewachsen sein*"], "being competent to do something" ["*etwas können*"].<sup>18</sup>

In German we say that someone can *vorstehen* something - literally, stand in front of or ahead of it, that is stand at its head, administer, manage, preside over it. This is equivalent to saying that he *verstehet sich darauf*, understands in the sense of being skilled or expert at it [has the know-how of it]. The meaning of the term "understanding" [*Verstehen*] as defined above is intended to go back to this usage in ordinary language.<sup>19</sup>

Understanding, then, is something like 'know-how.' It is an ability - an ability to cope *with* something - not a representation *of* something. Nor need this know-how be dependent on such conceptual representations. To use an example of Wittgenstein's, one doesn't have to be able to draw a map of a town, to know one's way around it.<sup>20</sup> The

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<sup>16</sup> *Being and Time*, p. 385.

<sup>17</sup> *BPP*, p. 276.

<sup>18</sup> *Being and Time*, p. 183.

<sup>19</sup> *BPP*, p. 276.

<sup>20</sup> Ludwig Wittgenstein, *Zettel*, trans. by G.E.M. Anscombe (Oxford, Basil Blackwell, 1967), para. 516.



point of this example is not just that one doesn't have to have a map in order to find one's way around, rather the fact that one may actually be unable to draw a map even though one can find one's way around points to the logical priority of being able to find one's way around. To anyone who argued that being able to find one's way around necessarily presupposes some kind of internal map, albeit not one that one necessarily was aware of, one would have to reply that this fundamentally misunderstands how real maps work. A real map presupposes that one already knows how to find one's way around, most obviously on the map itself, but also in the world at large. How else could the wanderings of one's finger upon the surface of the map be translated into one's wanderings upon the surface of the earth? An internal map if it really were to be the precondition for knowing one's way around would have to be something entirely different from an actual map, and so would probably be better called something else altogether.

Understanding [*Verstehen*], then, as know-how, that is to say, the ability to cope with things, is inherent in all behaviour [*Verhalten*], and is a precondition for any encounter [*Begegnen*] with things that might arise out of such behaviour. Knowledge [*Erkennen*] comes after the encounter with things, and is dependent upon that encounter for that which it is knowledge of - what Heidegger calls the pregiven reality. Know-how cannot in its turn be dependent upon knowledge, not even implicit knowledge, because as we have seen the idea that know-how might simply be the application of knowledge surreptitiously invokes the idea of some further know-how, namely the ability to apply that knowledge. Does this mean, then, that know-how is something basic beyond which we cannot go in our analysis?<sup>21</sup> In which case, how do we know what know-how is?

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<sup>21</sup> This would certainly seem to be Hubert Dreyfus's position, whose exposition of Heidegger's notion of understanding in terms of coping I have so far been following pretty closely. 'But on the other hand, originary transcendence (being-in-the-world, disclosure) is not something radically different from ontic transcending (transparent coping with specific things, discovering); rather, it is *the same sort of coping*

Shouldn't our suspicions be aroused by the fact that any determinacy which attaches to know-how seems to ride upon its characterisation as an ability to cope with *something*?

Be that as it may, we can already see, broadly at least, how a Heideggerian account of science will proceed. It will consist of two steps. In the first place, there will be an analysis of encountering comportment. In the second place, there should be some account of how theoretical knowledge arises out of that encountering comportment. But since on the one hand understanding is the condition of possibility of comportment, while on the other hand cognition is characterised by Heidegger as a particular kind of comportment, which therefore will have its own particular kind of understanding, it is clear that understanding is the lynch-pin that both underpins and connects the two steps. The rest of this chapter, therefore, will consist of two sections: the first on how things are encountered in comportment; the second on the understanding which makes such comportment possible. This prepares the way for the next chapter, where the modification of the understanding inherent in the genesis of scientific behaviour is examined.

### **Worldhood and the Being of the Ready-to-hand**

The starting point (*Ansatz*) of the investigation is Being-in-the-world (*In-der-Welt-sein*). 'In the interpretation of Dasein, this structure is something "*a priori*".'<sup>22</sup> This means that Being-in-the-world is not arrived at at the end of the existential analytic as a result, something deduced and therefore proved to be fundamentally constitutive of Dasein.

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functioning as the holistic background for all purposive comportment... One needs to be finding one's way about in the world in order to use equipment, but finding one's way about is just more coping. Any specific activity of coping takes place on the background of more general coping. Being-in-the-world is, indeed, ontologically prior - in Heidegger's special sense, *a priori* - as the ontological condition of the possibility of specific activities, yet being-in-the-world is just more skilled activity.' Hubert Dreyfus, Being-in-the-World - A Commentary on Heidegger's *Being and Time*, Division 1, (Cambridge, MA: London; The MIT Press; 1991, 7<sup>th</sup> printing 1997), p. 107.

But neither is it something posited as a first principle from which the various possible kinds of encounter with entities could be deduced, so that the validity of the whole investigation would stand or fall with the validity of its initial assumption. Rather it is something already there that must be 'laid bare' as the investigation goes ahead, *if* the investigation is to go ahead at all.<sup>23</sup> Being-in-the-world is not an axiom, from which a model of human being is systematically constructed; it is not an alternative to the *cogito*, but rather the a priori condition of *impossibility* of all axiomatics. This is perhaps what Heidegger had in mind when in a footnote to *Being and Time* he said, 'But to disclose the *a priori* is not to make an '*a-prioristic*' construction. Edmund Husserl has not only enabled us to understand once more the meaning of any genuine philosophical empiricism; he has also given us the necessary tools.'<sup>24</sup>

All comportment *towards* entities, therefore, takes place *in* the world, and it is Heidegger's contention that no encounter with entities could take place except in the context of a world. But what world *is*, that is to say its worldliness (*Weltlichkeit*), cannot be decided beforehand, but can only be determined precisely through an analysis of that encounter with entities which takes place in the world. This structure can be best delineated by investigating the world that is always closest to us, the world of everyday existence that can never be escaped from because it is in some sense the prerequisite for all other kinds of worldly living. This world Heidegger calls 'the environment' (*Umwelt*), the world that is immediately around us. 'We shall seek the worldhood of the

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<sup>22</sup> *Being and Time*, p. 63.

<sup>23</sup> 'Adhering to the procedure which we have fixed upon for starting our investigation, we must lay bare a fundamental structure in Dasein: Being-in-the-world.' (*Being and Time*, p. 63.) 'Unter Festhaltung des fixierten Ansatzes der Untersuchung ist am Dasein eine Fundamentalstruktur freizulegen: das In-der-Welt-sein.' (*SZ*, p. 41.) And again, at the beginning of chapter 2: 'But these determinations of the Being of Dasein must now be seen and understood *a priori* on the basis of the state of Being which we call "*Being-in-the-world*". The right initial approach consists in the interpretation of this constitutive state.' (*Being and Time*, p. 78, trans. slightly altered.) 'Diese Seinsbestimmungen des Daseins müssen nun aber a priori auf dem Grunde der Seinsverfassung gesehen und verstanden werden, die wir das *In-der-Welt-sein* nennen. Der rechte Ansatz der Analytik des Daseins besteht in der Auslegung dieser Verfassung.' (*SZ*, p. 53.)

environment (environmentality) by going through an ontological Interpretation of those entities within-the-*environment* which we encounter as closest to us.<sup>25</sup> We encounter entities within the environment in our everyday dealings (*Umgang*) with them. By investigating *how* these dealings take place, by looking at what this tells us about the entities thus encountered, we uncover the Being of these beings, and at the same time the worldhood of the world in which they are encountered.

In our everyday dealings with the world we encounter things precisely because they are materially implicated in those dealings. We come across something because it is somehow bound up with what we are doing. The door-handle *is* that *with which* we open the door *in order to* go outside. We encounter the door handle not just when we look at it, but also, when we open the door with it. In fact, we only really encounter it *as* a door handle when we open the door with it. Just looking at it, we could not tell if it *were* a door handle, unless we already knew that we *could* open the door with it. In other words, a purely visual encounter with it as a door handle, is dependent upon at least the possibility of encountering it by actually using it as a door handle. Use, however, does not exhaust the ways in which something can be caught up in our affairs. We may encounter something precisely because it gets in the way of what we're doing. Or something may actually be essential to what we're doing, without us really using it - unless we want to push the word way beyond its normal usage. Do I use the floor when I stand upon it? Nor do things which do get used in what we're doing, get used in exactly the same kind of way. Something may be used as raw material in the production of something else, or as a tool that works upon that raw material. Or something may be used not in the production of anything at all, but in order to accomplish some task. But though this is true both of a book and a bus, clearly they are not used in the exactly same

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<sup>24</sup> Being and Time, fn 10, p. 490.

way either. This is why Heidegger shies away from saying that the kind of comportment towards things found in our everyday affairs is simply one of use. The word is both too prescriptive and too vague.

Heidegger does however choose a particular word to denote the kind of things that we by and large encounter in our everyday concerns. This word is *Zeug*, which could be translated into English as 'gear' or 'equipment', or even 'stuff'. Heidegger chooses it for its generality, but also because it is used widely in compounds that have very specific meanings, depending on the spheres of human activity in which they are used. Thus Heidegger cites *Schreibzeug* 'writing things', *Nähezeug* 'sewing kit', *Werkzeug* 'tool', *Fahrzeug* 'vehicle', and *Meßzeug* 'measuring instrument'.<sup>26</sup> In addition, one could mention *Spielzeug* 'toy' and *Flugzeug* 'aircraft'. *Zeug*, therefore, denotes the kind of things encountered in our everyday activities, while indicating that there is no overarching 'use' to which these things are put. An instrument is not a special kind of tool, unless you empty 'tool' of most of its usual meaning, and it would sound very odd indeed to describe a vehicle either as a tool or as an instrument, while it is not at all certain that a toy would even remain a toy if one actually used it for anything.

What these things do have in common, however, is that they can never exist alone. 'Taken strictly, there "is" no such thing as *an* equipment.'<sup>27</sup> Any piece of equipment always comes as part of a kit. The door handle comes with the door. The door comes with the room. And this is not merely accidental. A piece of equipment is *a* piece of equipment precisely because it plays *a part* in a collection of equipment. This means that something that is encountered in the course of our affairs, is not just bound up with those affairs, but is already bound up with other things. Indeed, it is only bound up with

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<sup>25</sup> *Being and Time*, p. 94.

<sup>26</sup> *SZ*, p. 68.

<sup>27</sup> *Being and Time*, p. 97.

our affairs, and therefore only encounterable, because it is bound up with things that drag it, as it were, into the circle of our concerns.

Equipment - in accordance with its equipmentality - always is *in terms of* [*aus*] its belonging to other equipment: ink-stand, pen, ink, paper, blotting pad, table, lamp, furniture, windows, doors, room. These "Things" never show themselves proximally as they are for themselves, so as to add up to a sum of *realia* and fill up a room. What we encounter as closest to us (though not as something taken as a theme) is the room; and we encounter it not as something "between four walls" in a geometrical spatial sense, but as equipment for residing. Out of this the "arrangement" emerges, and it is in this that any "individual" item of equipment shows itself. *Before* it does so, a totality of equipment has already been discovered.<sup>28</sup>

This means that the piece of equipment does not merely have relations with other things, rather in some sense it is nothing other than those relations. This is why Heidegger uses the preposition *aus* ('out', 'from'). The individual thing arises *out of*, comes *from* the equipmental whole - it is what it is only on the basis of its *place* in the system. But its place in the system is precisely to move us onto something else in the system. A piece of equipment is always there *in order to* do something else. Its constitutive relation to the other things is not merely static, but is precisely a passing on; its place to be taken in succession. The door knob is not what it is simply in terms of its relation to the door, rather the doorknob is *for* opening (or shutting) the door. But this functionality does not simply relate the doorknob to the door, rather what the doorknob is for bears itself a relation to what the door is for, i.e. leaving (or entering) the room. In fact, it allows it. What the doorknob is for, is, in the end, simply to give access to what the door is for. Heidegger uses the term *Verweisung* to describe this kind of relation inherent in the structure of the in-order-to. *Verweisung* means both 'expulsion' and 'referral', but 'referral' in the specific sense in which a GP might refer you to a specialist. The doorknob's functionality does not simply refer to the functionality of the door, as one might refer in passing to the weather, rather it passes one over to it. The functionality of the

doorknob deports itself into the functionality of the door; and in fact this is the function of functionality in general. What the doorknob *is*, is its in-order-to. And yet what a doorknob is in-order-to, is precisely to let it go.

The piece of equipment is not merely embedded in the system of equipment, it must actually withdraw (*zurückziehen*) in order to be effectively what it is, something that enables something else to be what it is.<sup>29</sup> But this is not a withdrawal from the limelight, as if each piece of equipment were allowed its brief moment of glory before handing over to the next piece. Rather the withdrawal is structural and inherent. By and large the things encountered in our everyday dealings are not focused upon *at all*, and do not come explicitly into view even when we are using them. Indeed, the less they come into view the better: 'the less we just stare at the hammer-Thing, and the more we seize hold of it and use it, the more primordial does our relationship to it become, and the more unveiledly is it encountered as that which it is - as equipment.'<sup>30</sup> This does not mean, however, that our attention is focused elsewhere; on the goal we are aiming at perhaps. the final product of our activities rather than the tools in use. Heidegger emphasises this in *Basic Problems of Phenomenology*:

When I am completely engrossed in dealing with something and make use of some equipment in this activity, I am just not directed toward the equipment as such, say, toward the tool. And I am just as little directed toward the work itself. Instead, in my occupation I move *in* the functionality relations as such. In understanding them I dwell with the equipmental contexture that is handy. I stand neither with the one nor with the other but move in the in-order-to [*Um-zu*]. It is for this reason that we have dealings [*Umgang*] with things - not merely a path of access [*Zugang*] towards something lying in front of us, but a dealing with things as they exhibit themselves as equipment in an equipmental contexture.<sup>31</sup>

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<sup>28</sup> *Being and Time*, pp. 97-98.

<sup>29</sup> *Being and Time*, p. 99.

<sup>30</sup> *Being and Time*, p. 98.

<sup>31</sup> *BPP*, p. 293, trans. slightly altered. 'Wenn ich ganz hingegeben mit etwas beschäftigt bin und dabei irgendein Zeug gebrauche, so bin ich gerade nicht auf das Zeug als solches gerichtet, etwa auf das Handwerkszeug. Ebenso wenig bin ich auf das Werk selbst gerichtet, sondern in der Beschäftigung bewege

It is not even as if one were focused upon the functionality relations *between* things rather than the things themselves. Fully occupied by the task, one moves in the functionality relations that tie the various bits of equipment together, like a fish in water. The kind of awareness that accompanies this movement is precisely not a directedness. 'The view in which the equipmental contexture stands at first, completely unobtrusive and unthought, is the view and sight of practical *circumspection* [*Umsicht*], of our practical everyday orientation.'<sup>32</sup> But circumspection, *Umsicht*, does not mean simply to survey the scene, to *look* around; rather, circumspectively we *find* our way around. 'When we enter here through the door, we do not apprehend the seats as such... Nevertheless, they are there in this peculiar way: we go by them circumspectively, avoid them circumspectively, stumble against them and the like.'<sup>33</sup> To be circumspect means to act in accordance with the way things are, in line with how they are set up; to be prudent and not rock the boat. It is imprudent to rock the boat because of the likely consequences. Prudence is a proper sense of the *order* of things, the way one thing follows upon another. The *um* in *Umsicht* is not so much the *um* of the *herum*, the 'round about' or the 'hereabouts,' rather it is the *um* of the *Um-zu*, the in-order-to. But this is, in fact, true of all the words that cluster around the *um*, not just the *Umgang* ('dealings'), but the *Umwelt* ('environment') as well. And this means that what is round about, the meaning of *um* exemplified in such words as *Umgebung* and *Umkreis* ('vicinity', 'surroundings') as well as *Umwelt*, is only round about because it is involved in the complex web of in-order-tos. The immediate vicinity is not distinguished from the remote by distance, but by relevance. There only is something like an environment, a

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ich mich *in* den Bewandnisbezügen als solchen. Im Verstehen derselben halte ich mich beim zuhandenen Zeugzusammenhang auf. Ich stehe weder beim einen noch beim anderen, sondern ich bewege mich im Um-zu. Daher haben wir *Umgang* mit den Dingen, nicht einen bloßen Zugang auf etwas Vorliegendes, sondern einen *Umgang* mit den Dingen, sofern sie als Zeug in einem Zeugzusammenhang sich zeigen.' G24, p. 416.

<sup>32</sup> BPP, p. 163.



neighbourhood of things, because the structure of the in-order-to knits them together - this is what their 'closeness' consists of. Yet the notion of 'around' does not simply get eliminated in what would be a pure reduction of a derivative, secondary and perhaps metaphorical meaning to the original and true one. This is because the *Um-zu*, the 'in-order-to' already contains a notion of circulation. The 'in-order-to' gets, if you like, passed around within the equipmental whole, but never points outside of it. 'The work to be produced, as the "towards-which" of such things as the hammer, the plane, and the needle, likewise has the kind of Being that belongs to equipment. ...it lets us encounter already the "towards which" for which *it* is usable.'<sup>34</sup> Circumspection, *Umsicht*, cannot be a gaze directed at, or an attention focused upon, the *Um-zu*, the 'in-order-to', because the *Um-zu* is already dispersed throughout the equipmental whole. Just when you think you've got it pinned down it moves on to something else, or if you think you've got to the end of the chain you find yourself back at the beginning again, as in the song 'There's a hole in my bucket'.

Equipment, then, is only genuinely encountered *in* circumspective dealings (*umsichtige Umgänge*) *with* it - perhaps when it is employed for what it was meant for, when, for example, the hammer is picked up and used for hammering, but not just then. The table is literally *umsichtig umgegangen* i.e. 'prudently gone around' every time one doesn't knock into it, whether or not one sits down at it, or puts anything on it, i.e. employs it as what it is meant for. The encounter is genuine because what is encountered is encountered *as what it is*. There is no room for scepticism or illusion in this encounter because the encountering and the encountered fit together like hand and glove, or more appropriately hand and handle. 'The hammering does not simply have knowledge about [*um*] the hammer's character as equipment, but it has appropriated this equipment in a

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<sup>33</sup> BPP, p. 163.

way that could not possibly be more suitable.’<sup>35</sup> In employing a piece of equipment, we *discover* what it is. ‘The functionality that goes with chair, blackboard, window is exactly that which makes the thing what it is.’<sup>36</sup> This functionality is brought to light precisely *in* employing the equipment. But this *discovery*, this bringing to light, is not the representation or even the reproduction of something already there in the equipment, rather employment of the equipment *realises* its functionality, makes it *actual*. Employment doesn’t tell us about the functionality of the equipment; it demonstrates it. It acts it out, as it were. How what something is gets manifested is not a property of the thing itself, rather it is an ontological characteristic of the Being of the thing. That a piece of equipment has a specific manipulability [*Handlichkeit*] linked to its functionality is an ontical characteristic of it. But the fact that it is ontically characterised by manipulability at all is an ontological characteristic of equipment as such; i.e. of the Being of equipment. Equipment is the kind of thing that is made manifest as what it is by being taken up and put into employment. This requires both that it is in some very general sense of the word ‘manipulable’ (*handlich*) and that it be ‘available’ (*verfügbar*). Heidegger sums up this dual ontological requirement with the term *Zuhandenheit*. That something is *zuhanden* means simply that it is to hand. Macquarrie and Robinson translate it as ‘ready-to-hand’ so as to indicate that equipment is not merely available, within reach as it were, but is *ready* for its specific use, shaped to it as it were. ‘Readiness-to-hand’, *Zuhandenheit*, denotes, then, in the most general way possible, the kind of Being that belongs to equipment.

So far I have been cheating slightly, by talking blithely of the ‘functionality’ of equipment and its ‘involvement’ in the ‘in-order-to’. These are the words chosen by the

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<sup>34</sup> *Being and Time*, p. 99.

<sup>35</sup> *Being and Time*, p. 99.

<sup>36</sup> *BPP*, p. 164.

translators of *Basic Problems of Phenomenology* and *Being and Time* respectively to render the German word *Bewandtnis* into English. But though 'functionality' and 'involvement' both get at what Heidegger is about, they are not what *Bewandtnis* means. This is important because it is not Heidegger's business to present us with a result; say, that the Being of equipment is its functionality. Rather Heidegger does not want to presuppose the concept of functionality at all. This is because the concept of functionality is already bound up with a whole series of other concepts, 'act', and 'purpose', for instance, that threaten to prejudice the enquiry from the outset. It would be very easy to see Heidegger's entire project as consisting of a switch of emphasis from the subject as perceiver, to the subject as actor. Functionality, then, would be to the things which the acting subject picks up and uses, as the categorial is to the objects of perception. In other words, to say that the ready-to-hand is its functionality, could be read as saying that what a piece of equipment is, is something imposed by the spontaneous action of a subject. Or perhaps better, to say that the ready-to-hand is its functionality is to beg the question, because any attempt to say what functionality is comes up against the task of saying what an action is. Instead Heidegger wants to *work towards* a phenomenological description of a structure which will *turn out* to give us something very like what we have always meant by 'functionality.' This working out however tells us what 'functionality' is, and it tells us what it is by lighting upon an at first innocuous and highly idiomatic word, and unpacking what is implicit in the seemingly merely idiomatic usage. This technique does not rely upon an *a priori* and dogmatic assertion of the identity of reality and idiom, however. No doubt, there are many idioms which cast no light upon the truth. Rather, in unpacking the idiom we are meant to recognise that that is indeed the way it is. And this recognition can only come because we are already acquainted with the phenomenon being interpreted.

The ordinary usage of *Bewandtnis* is highly idiomatic and restricted to an impersonal phrase with a very specific syntax: ‘*Damit hat es eine andere Bewandtnis*’ (‘There’s another reason for that.’); ‘*Damit hat es seine eigene Bewandtnis*’ (‘That’s a long story.’); ‘*Damit hat es folgende Bewandtnis:*’ (‘The facts of the matter are as follows:’).<sup>37</sup> Now both in *Basic Problems of Phenomenology* and in *Being and Time* Heidegger first introduces the word in precisely this familiar idiomatic construction. ‘Wahrnehmend bin ich auf das Fenster dort als dieses bestimmte Gebrauchsding gerichtet. Mit diesem Seienden, Vorhandenen im weitesten Sinne, hat es eine bestimmte *Bewandtnis*.’ Translating for the moment as colloquially as possible, and with no regard

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<sup>37</sup> See Macquarrie and Robinson’s footnote on the meaning of the word, where they admit, ‘The terms “Bewenden” and “Bewandtnis” are among the most difficult for the translator.’ (*Being and Time*, p. 115, fn 2.) This difficulty has become something of a cliché. Theodore Kisiel comments, for example, ‘Having discussed this point at various international conferences, I have yet to find anyone who could admit to a “ready-to-hand” translation of *Bewandtnis* in his/her language.’ (*The Genesis of Heidegger’s Being and Time*, p. 546, fn 10.) The difficulty, however, does not justify abandoning translation altogether, and instead *substituting* a term of the translator’s own choosing, supposed to indicate what he or she thinks Heidegger was actually getting at. That would be to admit to the essential unintelligibility of Heidegger’s *argument* at this crucial point, his *reasons* for designating the Being of the ready-to-hand *Bewandtnis*. This is precisely the accusation made by Ernst Tugendhat in his *Habilitationsschrift [Der Wahrheitsbegriff bei Husserl und Heidegger]*, (Berlin, Gruyter, 1967), pp. 289ff]. The only translator, that I am aware of, who has attempted to address the difficulty actually *in* his translating, and thus counter Tugendhat’s accusation of unintelligibility, is Manuel Jiménez Redondo in his translation of Volume 27 of the *Gesamtausgabe* into Spanish. In an epilogue that was demanded by Heidegger’s estate, Redondo demonstrates very clearly, I think, the necessity of a radical and rigorous translation of *Bewandtnis*: ‘I refuse to translate by a single Spanish term a term which in German capriciously unites two distinct meanings that no Spanish term unites. [...] the translation of *Bewandtnis* by a single term implies the acceptance of the risk that the argument of section 18 of *Being and Time* and also of essential fragments (or the essential fragments) of the first part of the present “Introduction to Philosophy” end up unintelligible. [...] when Tugendhat says that this phrase is untranslatable into any other language, I understand that what he wants to say is that it would be pure chance if another language were to contain a term which corresponded with this German term in such a way that a phrase for phrase translation would be possible. [...] Now then, my colleagues, in the afore-mentioned translations, use one single term or at most two when Heidegger says *Bewandtnis*. [...] I, however, use a first meaning from a dictionary entry, a second meaning from the same dictionary entry and an articulation of these two meanings [...]. That is to say, when H says *Bewandtnis* in the original, my translation of it comes to occupy in Spanish from 3 to 5 lines and at times even 6. And the objection is: this is not a translation; it is a gloss or a commentary; the translator is not properly resolving the problem of translation but running up against it, what happens is not translation but something more; you could say it is attributing to Heidegger what Heidegger says. My response is: what I try to do is to say in Spanish exactly what Heidegger says in German; [...] to transform what is in the first language into a second language in terms which end up in this second language as intelligible as what the author says in the first, and demonstrate the argument by which the author hits upon the concept which he seeks.’ [*Introducción a la filosofía*, trans. by Manuel Jiménez Redondo, (Madrid, Fronesis - Catedra Universitat de Valencia, 1999), pp. 445-46.] Redondo’s point, then, is that it is precisely the substitution of a single term that amounts to an implicit commentary on or interpretation of Heidegger’s *intentions*, a gloss that only serves to obscure the *function* of the word *Bewandtnis* in Heidegger’s *argument*. [My thanks to Antonio Castellote for drawing my attention to this

for what Heidegger is about to do with the phrase, in other words trying to maintain the flavour of the sentence as it would have been heard by an audience as yet unaware of what is going to happen: 'In perceiving, I am directed toward the window there as this particular thing of use. *This being, extant in the broadest sense, is there for a reason.*'<sup>38</sup>

At this stage, *Bewandtnis*, a little like *Dasein*, is a word that is completely familiar, but very hard to pin down. In fact, its meaning seems to be so vague that it is virtually redundant. In the following passage from Kant, the whole complicated idiomatic structure is translated by Norman Kemp Smith by the verb 'to be'. '*Was es für eine Bewandtnis mit den Gegenständen an sich und abgesondert von aller dieser Rezeptivität unserer Sinnlichkeit haben möge, bleibt uns gänzlich unbekannt.*' 'What objects may be in themselves, and apart from all this receptivity of our sensibility, remains completely unknown to us.'<sup>39</sup> Perhaps *Bewandtnis* connotes nothing more specific than a state of affairs, 'the facts of the matter', but with a suggestion that states of affairs are always tied up in, or in fact are in themselves always, some kind of narrative or history, 'that's a long story', in which one thing leads to another, and so might be said to provide some kind of reason or explanation for any particular element in the state of the affairs, as long as one doesn't expect the explanation to be anything more than a narrative explanation.

Only after having used it purely idiomatically does Heidegger then draw attention to the peculiarity of the construction and the etymology of the word. *Bewandtnis* derives from

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translation, and my especial thanks to Frances McLoughlin for translating Redondo's afterword into English for me.]

<sup>38</sup> *G24*, pp. 95-96; *BPP*, p. 68, trans. altered. In *Being and Time* the word is first used colloquially and without emphasis in discussing the nature of signs: 'Signs always indicate primarily "wherein" one lives, where one's concern dwells, what sort of involvement there is with something.' *Being and Time*, p. 111; 'Die Zeichen zeigen primär immer das, "worin" man lebt, wobei das Besorgen sich aufhält, welche Bewandtnis es damit hat.' *SZ*, p. 80.

<sup>39</sup> Immanuel Kant, *Kritik der reinen Vernunft*, *Werke, Band II*, ed. by Wilhelm Weischedel, (Darmstadt, Wissenschaftliche Buchgesellschaft, 1983, 1998), p. 87; *Critique of Pure Reason*, trans. by Norman Kemp Smith, (London, Macmillan, 1929, 2<sup>nd</sup> impr. 1933, repr. 1993), p. 82 (A42, B59).

the verb *bewenden*, past participle *bewandt*. It is the state achieved by the action of the verb. Unfortunately, the verb *bewenden* doesn't actually seem to denote any specific action. Again it is only ever used in highly idiomatic constructions such as '*es bei etwas bewenden lassen*', 'to be content with something', '*wir wollen es dabei bewenden lassen*', 'let's leave it at that', or as a noun, '*dabei hat es sein Bewenden*', 'there the matter rests'. Heidegger again draws attention to this everyday meaning. 'Ontically, "letting something be involved" signifies that within our factual concern we let something ready-to-hand *be* so-and-so *as* it is already and *in order that* it be such.'<sup>40</sup> *Bewenden lassen* means both simply letting something *be*, and letting it *become* itself. One lets something be what it is only by letting it alone at the right moment, at the moment when matters rest, so that the thing can be left at that.

Heidegger now amalgamates the idiomatic use of *Bewandtnis* and the idiomatic use of *bewenden*. 'If something has an involvement, this implies letting it be involved in something [*bewenden lassen mit etwas bei etwas*]. The relationship of the "with... in..." [*»mit... bei...«*] shall be indicated by the term "assignment" or "reference" [*Verweisung*].'<sup>41</sup> Note that the use of both *mit* and *bei* together is not idiomatic. *Mit* may replace *bei* in the idiomatic use of *bewenden lassen*, but it is never used alongside it. The *mit* in Heidegger's usage, therefore, seems to be imported from the idiomatic use of *Bewandtnis*. This amalgamation radically transforms *bewenden lassen* from a one place to a two place predicate.<sup>42</sup> Its meaning would seem to something like, 'The facts of the matter regarding X rest at Y.' *Bewandtnis* is not, therefore, the relation of reference

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<sup>40</sup> *Being and Time*, p. 117; 'Bewendenlassen bedeutet ontisch: innerhalb eines faktischen Besorgens ein Zuhandenes so und so *sein lassen*, wie es nunmehr ist und *damit* es so ist.' *SZ*, p. 84.

<sup>41</sup> *Being and Time*, p. 115

<sup>42</sup> The fact that Heidegger is here amalgamating two idiomatic usages for his own idiosyncratic ends appears to have been passed over largely without comment in the Anglo-saxon literature. Ernst Tugendhat points it out in his *Habilitationsschrift*, but considers it to be evidence of the capriciousness of Heidegger's argument. Only Manuel Jiménez Redondo, as far as I am aware, has attempted to argue for its

between things, the involvement of one in the other, rather it is that involvement's possibility. It is the way such relations get forged. Playing on the derivation of *bewenden* from *wenden*, which means primarily 'to turn', we can say that the ready-to-hand *turns out* to be what it is when it is *turned to* use. The prefix *be-* can either make an intransitive verb transitive or form a verb out of an adjective or noun that means providing something with that thing or quality. *Bewenden*, then, could mean transitively 'to turn something' (derived from the intransitive 'turn'), or alternatively it could mean 'to give something the quality of a turning'; taken together 'to turn something into a turning'. The ready-to-hand is turned to turning out something else and in this turning out turns out to be what it is. *Bewandtnis* is this 'turnedness' - all these 'turnednesses' turned upon each other, to the point at which we say 'leave it at that.'<sup>43</sup>

*Bewandtnis* is what makes the ready-to-hand what it is; it is, if you like, the 'essence' of being ready-to-hand. As such, Heidegger says explicitly, it is the *Being* of the ready-to-hand.<sup>44</sup> What is the relation, then, between *Bewandtnis* and readiness-to-hand (*Zuhandenheit*), which is the name Heidegger has already given to the Being of the ready-to-hand? Are they merely synonyms? The relation can be clarified by looking at the careful way in which Heidegger introduces the two terms: 'Die Seinsart von Zeug, in der es sich von ihm selbst her offenbart, nennen wir die *Zuhandenheit*.'<sup>45</sup> 'Der Seinscharakter des Zuhandenen ist die *Bewandtnis*.'<sup>46</sup> This is a specific example of what Heidegger calls the articulation of Being. *Seinsart* ('kind of Being') and *Seinscharakter*

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importance in understanding the structure of the Being of the ready-to-hand. [See references in footnote 37.]

<sup>43</sup> The provisional character of the kind of "explanation" denoted by *Bewandtnis* should not be ignored; it too belongs to the Being of the ready-to-hand, which has the capacity always to be determined in some new and possibly unexpected way by following the chain of its involvements a little bit further along.

<sup>44</sup> 'Bewandtnis ist das Sein des innerweltlichen Seienden,' *SZ*, p. 84; 'Bewandtnis selbst als das Sein des Zuhandenen...' *SZ*, p. 85.

<sup>45</sup> *SZ*, p. 69.

<sup>46</sup> *SZ*, p. 84.

(‘character of Being’) are respectively the ‘how’ and the ‘what’ something is. In *Basic Problems of Phenomenology* Heidegger examines the scholastic distinction between *existentia* and *essentia*, and concludes: ‘Formulated more generally, the thesis that *essentia* and *existentia* belong to each being merely points to the general problem of the articulation of each being into a being *that* it is and the *how* of its being. [...] The articulation of being varies each time with the way of being a being.’<sup>47</sup> Equipment manifests itself by being ready-to-hand. This is *how* it is there. *What* gets manifested in its being ready-to-hand is determined as what it is through its involvement, its functionality, its *Bewandtnis*.

The reference relations inherent in the involvement of the ready-to-hand ultimately point back to a ‘for-the-sake-of-which’ which has itself no further involvement, that is to say, which does not have the kind of Being belonging to the ready-to-hand. Rather the ‘for-the-sake-of-which’ has the kind of Being that belongs to Dasein, and is furthermore an issue for it. ‘We have thus indicated the interconnection by which the structure of an involvement leads to Dasein’s very being as the sole authentic “for-the-sake-of-which”.’<sup>48</sup> The ‘for-the-sake-of-which’ towards which all the reference relations within the totality of involvements ultimately point, always pertains to Dasein; it is a potential way that Dasein could be, and not just in the sense that Dasein might be this or that, but rather as that which is precisely an issue for Dasein itself. But Heidegger now introduces a new term, *significance*, which refers to a set of new relations that seem to run the other way, emanating out from the “for-the-sake-of-which” and binding the involvements of the ready-to-hand both together and to it. ‘The understanding lets itself make assignments both in these relationships and of them. The relational character which these relationships of assigning possess, we take as one of *signifying*. In its familiarity

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<sup>47</sup> BPP, p. 120.



with these relationships, Dasein 'signifies' to itself.'<sup>49</sup> Dasein could be said to inhabit these signifying relations, and indeed Heidegger goes on to tell us that it is they that make up the worldhood of the world. 'These relationships are bound up with one another as a primordial totality; they are what they are as this signifying in which Dasein gives itself beforehand its Being-in-the-world as something to be understood. The relational totality of this signifying we call "*significance*". This is what makes up the structure of the world - the structure of that wherein Dasein as such already is.'<sup>50</sup> But this makes it clear that significance and the way in which Dasein inhabits the world lead us directly to the issue of understanding. Understanding could be said to be the *act* of being in the world.

### **Understanding: Projection and Letting-be**

We have already seen that Heidegger is adamant that understanding should not be thought of as some special kind of cognition, rather understanding is the condition of possibility of any comportment towards entities whatsoever. But we have already worried that this idea of know-how may be self-defeating. As such it is to be thought of in terms not so much of knowing as of know-how. But we have already worried that this idea of know-how may be self-defeating. On the one hand, know-how is meant to be what underlies our activities. It is meant to express the fact that there is something which *allows* us to do the things that we can do. Know-how is supposed to be what makes us *capable*. But, on the other hand, in the absence of any concrete description of what know-how might actually consist of, the concept of know-how appears to be simply synonymous with the ability to do something. Does saying that one knows how

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<sup>48</sup> Being and Time, p. 117.

<sup>49</sup> Being and Time, p. 120.

to ride a bike really say anything more than that one is able to ride a bike? In which case, to say that one is able to pursue an activity because one has the know-how for it, says nothing more than that one is able to pursue an activity because one is able to pursue it. Hence the constant temptation to reinterpret know-how as some kind of internal and implicit knowledge about what goes to make up the activity; a knowledge which then gets applied when one engages in the activity. This at least appears to provide an explanation of how one can actually go about the activity. On the other hand, one could bite the bullet and accept that there was after all nothing underlying our activities. The buck stops there; no further interpretation is either possible or necessary.

Now Heidegger appears to do neither of these two things. He does not fall back upon some internal representation of the activity, which the actor is supposed to mimic in carrying out the activity. But neither does he accept the behaviourist thesis that we are nothing more than what we do. This is because what we do is *co-ordinated*, and no mere enumeration of activities would ever be able to capture this co-ordination. It is the way that activities are fitted together that demonstrates understanding, not activity itself. Of course, any activity is always a co-ordination of a series of subsidiary activities, and that probably in itself casts doubt on the idea that there are anything like activities in themselves, which might provide the atomic facts for a behaviourist description of our understandings.<sup>51</sup> Instead of worrying about know-how, Heidegger sets his sights firmly

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<sup>50</sup> *Being and Time*, p. 120.

<sup>51</sup> It is the atomistic presupposition, which appears inevitable in any expression of the behaviourist thesis, i.e. that there are indeed individual activities that could be picked out and enumerated once and for all, that is at fault. The criticism is similar to that which Kant discovered in his attempt to overcome Humean scepticism. The impossibility of knowing that the connection between events is causal only holds if there are atomic events, which then need somehow to be linked together. If on the other hand the very possibility of identifying an event is dependent upon causality, then the sceptical argument falls away. There are no singular events and so there is no call to link *them* together. If what is misidentified as a singular event is already a causal nexus, then there is no inherent reason why one shouldn't regard the connection between two 'singular' events as just a larger event, in no way different from the 'singular' event and structured in just the same way by causality. This is the real insight behind Kant's dictum that the conditions of possibility of experience are also the conditions of possibility of the objects of

on the concept of ability, that ability to do something which seems to be at the heart of the possible redundancy of the concept of know-how. Heidegger claims that the ability to do something could never be explained in terms of know-how, unless Dasein were already itself *its own ability to be*. 'The kind of Being which Dasein has, as Being-able-to-be, lies existentially in understanding. Dasein is not something present-at-hand which possesses its ability for something by way of an extra; rather it is primarily Being-possible.'<sup>52</sup> But what does this mean? We understand what something is, because we understand how it fits or does not fit into what we are doing, and we understand how it fits or does not fit because we understand what we are doing. But, in turn, we understand what we are doing because we understand what we are about. This 'what we are about' translates as well as anything the idiomatic force of the German expression '*es geht uns um...*': the phrase that Macquarrie and Robinson translate as '...is an issue for us.' We *are* what we are about, and what we are about is what is at issue for us. We understand ourselves insofar as we *go about* being what we are. To understand oneself here means, to subordinate oneself to, to co-ordinate oneself in one's commitments around, a possible way of being oneself; it means, to go about existing *for the sake of* that possibility. And this in turn means: to be able to be that possibility which one is, is the way in which Dasein *is*. Understanding is Dasein's being able to be, its competence for itself.

When we are talking ontically we sometimes use the expression 'understanding something' with the signification of 'being able to manage something', being a match for it', 'being competent to do something'. In understanding, as an

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experience. The unity which the understanding imposes upon the objects of experience doesn't come after the event.

<sup>52</sup> *Being and Time*, p. 183 [trans. altered.] 'Im Verstehen liegt existenzial die Seinsart des Daseins als Sein-können. Dasein ist nicht ein Vorhandenes, das als Zugabe noch besitzt, etwas zu können, sondern es ist primär Möglichsein.' *SZ*, p. 143. Macquarrie and Robinson translate *Sein-können* as 'potentiality-for-Being,' but this obscures the clear relation between our own *Sein-können* and our ability to do something ['*etwas zu können*'], which they translate in the next sentence as 'competence for something.'

*existentiale*, that which we have such competence over is not a “what”, but Being as existing.<sup>53</sup>

The kind of possibility that Heidegger is talking about here is not logical possibility. If it were then the ability to be its possibility would not be ontologically distinctive for Dasein. In so far as any entity actually is, it is clearly, in some very loose sense, ‘able to be’ its logical possibility. But we balk at saying this. A stone is not able to be a stone just because it actually is a stone; rather it is a stone whether it likes it or not. Nor is the kind of possibility that Heidegger is talking about, the possibility of becoming something which the entity happens not yet to be. Dasein does not pick some possibility of being Dasein which it has happened to find lying around so as to actualise it, or so as to set about the task of becoming it once and for all. Rather Dasein exists as and in that possibility here and now. Its possibility always remain an issue for it. But it is only because it is a *possibility* that it can be an issue at all. There would be no issue about it nothing one could do about it, if it were something actualised. And this is, very succinctly, why Dasein never *becomes* its possibility, but rather can only ever become what is most impossible, most unlike the possible, that actuality called death in which Dasein quite simply and quite suddenly ceases to exist, ceases to be possible, ceases to be a possibility. This means that for Dasein’s Being to be an issue for it that Being must be and must remain as possibility, a Being-possible. But this means in turn that Dasein is not first something which then adopts a possibility as a goal perhaps, rather Dasein is only insofar as it seizes upon that possibility for the sake of which it exists *as possibility*. Dasein is able to be possibility *as such*, and understanding is *the way in which* Dasein is able to be its possibility as possibility. ‘Understanding is the Being of such being-able-to-be.’<sup>54</sup> Understanding is an existential structure of Dasein - it is one of

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<sup>53</sup> Being and Time, p. 183.

<sup>54</sup> Being and Time, p. 183. [Again I have translated *Sein-können* by ‘being-able-to-be’.]

the ways that it is *in* the world; it is a structure of that Being-in which is constitutive of Being-in-the-world. This structure has the character of *projection* [*Entwurf*]. But projection does not mean here that Dasein has concocted some plan which it attempts to carry out, or that it has projected some self-image which it then feels beholden to live up to. No doubt, we do on occasion make plans or attempt to keep up appearances, but these are existentiell affairs. There would be no carrying out, no living up to, if Dasein were not existentially projection; if it did not exist *by* projecting. Dasein projects *itself*, throws itself out onto its possibilities, and in so throwing itself, it allows them to be. These possibilities would have no existence except in being so projected. 'As projecting, understanding is the kind of Being of Dasein in which it *is* its possibilities as possibilities.'<sup>55</sup> In *The Basic Problems of Phenomenology* Heidegger provides the following illuminating gloss upon this gnomic statement: 'To understand means, more precisely, *to project oneself upon a possibility*, in this projection to keep oneself at all times in a possibility. A can-be, a possibility *as* possibility, is *there* only in projection, in projecting oneself upon that can-be.'<sup>56</sup>

Dasein understands what it is about in terms of a possibility for the sake of which it pursues its existence. Projection is the existential condition that there could be anything like a for-the-sake-of-which existentiellly characterising Dasein in the first place. It is *how* Dasein - as the bundle of 'activities' that we are unfolds as the 'story' that we also are - *takes place*. 'Understanding as the Dasein's self-projection is the Dasein's fundamental mode of *happening*.'<sup>57</sup> Dasein projects itself *through* its existence, constantly throws itself, in the course of its existence, forward into possibilities of existence; which is why it is appropriate and so familiar to say that one pursues one's

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<sup>55</sup> Being and Time, p. 185.

<sup>56</sup> Being and Time, p.277.

<sup>57</sup> BPP, p. 277.

existence. 'We also call it existentiell understanding because in it existence, as the Dasein's happening in its history, temporalizes itself. The Dasein becomes what it is in and through this understanding.'<sup>58</sup>

But why does projection still get characterised as understanding? Doesn't the redescription of understanding in terms of projection, the way in which Dasein 'moves' through its existence, strip the word of everything we familiarly understand by it, and reduce it to a mere process? Which would be why Heidegger is forced to go on describing projection as understanding, precisely so as to hold onto that which has not been accounted for in the redescription of understanding as projection. Surely Heidegger implicitly confesses to this impasse when he says, 'this understanding, this becoming manifest of the self, is not a self-contemplation in the sense that the ego would become the object of some cognition or other; rather the projection is the way in which I *am* the possibility; it is the way in which I exist freely.'<sup>59</sup> Clearly, a great deal rides on the little word, "freely," appended to the end of this sentence; but that would seem to beg the question that has not been answered. How are we supposed to have the freedom to decide our own existence unless we in some sense *know* what possibilities are offered by that existence? It is not at all clear why Dasein's possibilities should become *manifest* to Dasein simply because it projects itself into those possibilities so as *to be* them. However, Heidegger himself sets a great deal of store by another little word used in the passage, the word "am" - hence, no doubt, its emphasis in the text. The 'I am' is, in Heidegger's mind at least, linked intimately to the possibility of understanding.

It is not *cogito sum* which formulates a primary finding but rather *sum cogito*. And this *sum* is not to be taken in the ontological indifference in which Descartes and his successors took it, as the extantness of a thinking being. *Sum*

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<sup>58</sup> BPP, p. 278.

<sup>59</sup> BPP, p. 277.

here is the assertion of the basic constitution of my being: I-am-in-a-world and therefore I am capable of thinking it.<sup>60</sup>

The connection between being a possibility and manifesting that possibility resides in the 'I am'; and it resides in the 'I am' because the 'I am' already says 'I am in the world,' 'I reside in it,' 'I inhabit it.' In *Being and Time* Heidegger seeks to establish the connection between 'am' and 'in' etymologically. "'In" is derived from "inman" - "to reside", "to dwell" [...] The expression "bin" is connected with "bei", and so "ich bin" ["I am"] means in its turn "I reside" or "dwell alongside" the world.'<sup>61</sup> Regardless of whether this etymology is correct or not, the inference is clear: The projection of Dasein into its possibilities can only be understood as simultaneously manifesting those possibilities, that is to say, understood as understanding, because Dasein is Being-in-the-world. The possibilities which Dasein projects itself upon are not the various possible *states* of an ego-thing; they are, rather, possible *ways* of being in the world. Does this then mean that they manifest themselves in the world? It all, depends of course, on what we mean by 'in.' If Dasein's possibilities manifested themselves in the world like actors upon a stage, then that would simply beg the question of the manifestation of the world *within* which these possibilities were supposed to appear; a question which the recourse to Dasein's projection upon its own possibilities was meant to resolve, not rely upon. In *Being and Time* we come across a passage that on the face of it is very similar to the passage I've just quoted from *The Basic Problems of Phenomenology*, in which Heidegger insists that in understanding Dasein manifests itself, while equally vehemently denying that this self-manifestation is to be taken as in any way cognitive.

Dasein is such that in every case it has understood (or alternatively, not understood) that it is to be thus or thus. As such understanding it 'knows' *where* it is with itself - that is to say, with its being-able-to-be. This 'knowing'

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<sup>60</sup> HCT, p. 216.

<sup>61</sup> *Being and Time*, p. 80.

does not first arise from an immanent self-perception, but belongs to the Being of the “there”, which is essentially understanding.<sup>62</sup>

Though this looks suspiciously as if it is simply going round in circles, the reference to the “there” is illuminating. Dasein ‘knows’ where it is; and the “there” where it is, is not some location in which Dasein just happens to be placed quite independent of what it is, rather it is already out there. ‘The entity which is essentially constituted by Being-in-the-world *is* itself in every case its “there”.’<sup>63</sup> But if Dasein is its ‘there,’ i.e., is not just there where it happens to find itself, but *is* only in so far as it is that ‘there’, that situation in which it finds itself, then Dasein is not some self-contained entity but is instead open *to* the world, an opening *in* the world. ‘This entity carries in its ownmost Being the character of not being closed off. In the expression “there” we have in view this essential disclosedness.’<sup>64</sup> Dasein discloses itself, and this is the way in which Dasein manifests itself to itself in understanding. Heidegger explicitly distinguishes this ‘self-manifestation’ from the way in which entities are ‘discovered’ in our encounter with them.<sup>65</sup> Dasein does not appear to itself, nor is it discovered in some kind of self-encounter. There is no process of self-discovery. Rather Dasein ‘uncloses’ itself, opens itself out, unfolds itself, in projecting itself upon its possibilities. Hence Heidegger

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<sup>62</sup> Being and Time, p. 184 [trans. altered]. The sentence which I have altered runs in German, ‘Als solches Verstehen »weiß« es, *woran* es mit ihm selbst, das heißt seinem Seinkönnen ist.’ (SZ, p. 144.) Macquarrie and Robinson’s translation obscures the fact that Heidegger is using a very particular idiom. To say in German, ‘man weiß bei ihm nie, woran man ist,’ is equivalent both in syntax and meaning to saying in English, ‘you never know where you are with him.’ The kind of knowing involved here is clearly not simply a matter of knowing or not knowing certain facts about the guy. Rather the phrase expresses something about the *situation* you find yourself in with this guy. ‘With this guy, things are always tricky, you never quite know what’s *going on*’: the social situation is difficult to interpret. Similarly with Heidegger’s use of the idiom: Dasein doesn’t so much understand *what* it is; rather, to use another English idiom, Dasein understands where it is at [*woran es ist*]. And this “where” clearly foreshadows the “there” to which understanding belongs.

<sup>63</sup> Being and Time, p. 171.

<sup>64</sup> Being and Time, p. 171.

<sup>65</sup> ‘In letting entities be involved so that they are freed for a totality of involvements, one must have *disclosed* already that for which they have been freed. But that for which something environmentally ready-to-hand has thus been freed [...] cannot itself be conceived as an entity with this discovered kind of Being. It is essentially not discoverable, if we henceforth reserve “*discoveredness*” as a term for a possibility of Being which every entity *without* the character of Dasein may possess.’ (Being and Time, p. 118.)



emphasises that, “‘Disclose’ and ‘disclosedness’ will be used as technical terms in the passages that follow, and shall signify “to lay open” and “the character of having been laid open.””<sup>66</sup> Dasein discloses itself to itself in its ‘there.’ Dasein is its ‘there,’ because it discloses itself precisely there, unfolds itself as its situatedness. If Dasein is capable of being clear about itself, i.e. of understanding itself, it is because it is ‘there’ for itself

What is crucial here is not just the insistence that Dasein’s happening, its historical existence, and its understanding cannot be separated out, as if on the one hand there were the sequence of events that went to make up Dasein’s life, and on the other hand there were Dasein’s understanding of those events, but that what ensures that Dasein discloses itself in happening, and happens as understanding, is that it is Being-in-the-world. ‘*Dasein is its disclosedness,*’ as Heidegger insists.<sup>67</sup> But equally, ‘In the “for-the-sake-of-which”, existing Being-in-the-world is disclosed as such, and this disclosedness we have called “understanding”.’<sup>68</sup> Dasein discloses itself *as* Being-in-the-world by disclosing itself *in* the world.

All of this becomes less obscure, when we grasp what Heidegger means by world. Dasein, Heidegger tells us, always assigns itself to an ‘in order to’ in terms of a possibility for the sake of which it itself is. This assignment to a ‘context of involvements is what constitutes an act of understanding. The possibility for the sake of which Dasein itself is, is disclosed in such an act of understanding. Now Heidegger goes on to say:

*That wherein [Worin] Dasein understands itself beforehand in the mode of assigning itself is that for which [das Woraufhin] it has let entities be encountered beforehand. The “wherein” of an act of understanding which assigns or refers itself, is that for which one lets entities be encountered in the*

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<sup>66</sup> Being and Time, p. 105.

<sup>67</sup> Being and Time, p. 171.

<sup>68</sup> Being and Time, p. 182.

*kind of Being that belongs to involvements, and this "wherein" is the phenomenon of the world.*<sup>69</sup>

Dasein discloses itself to itself in the world because the world is, if you like, the medium of that disclosure. Dasein understands itself in terms of the world precisely because the world as that structured context of meanings that Dasein projects itself upon provides the 'terms' in which Dasein is able to articulate itself. That hackneyed Elizabethan metaphor is reversed. If all the world is a stage, then it is not man that appears on it. Rather entities appear upon the stage, and man understands himself in the staging. The world is, if you like, the language *in* which we write ourselves, but it is the stage *upon* which other entities perform. This means that world is nothing like a world-view, indeed quite to the contrary it is much more something like a self-view, a self-understanding - we understand ourselves *in terms of* the world. 'With equal primordially the understanding projects Dasein's Being both upon its "for-the-sake-of-which" and upon significance, as the worldhood of its current world.'<sup>70</sup>

What we have so far, then, is an analysis of *existentiell* understanding, that is to say the understanding Dasein has of itself *in and as* the pursuit of its own existence articulated in terms of the worldhood of the world. But does this analysis suffice for understanding as such? After all *existentiell* understanding is only one kind of understanding. On the face of it the analysis will have to be extended in two directions: both broadened to include the understanding of beings other than Dasein, and deepened to include the understanding of Being that is the fundamental ontological characteristic of Dasein. How does Heidegger approach this problem? In two ways.

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<sup>69</sup> *Being and Time*, p. 119.

<sup>70</sup> *Being and Time*, p. 185. Even more explicitly, Heidegger says in the 1927 lecture course, 'Since in *understanding world* the relations of the in-order-to, of functionality and being-for-the-sake-of are understood, it is essentially *self-understanding*, and self-understanding is Dasein understanding.' *BPP*, p. 296.

In the first place, Heidegger attempts to *formalise* what has been learnt about the structure of understanding *as such* in the course of the analysis of *existentiell* understanding. Understanding is projection, but projection has been shown to be a disclosive unfolding in which Dasein *articulates* itself in terms of the significance relations that go to make up the worldhood of the world. 'Meaning is that wherein the intelligibility [Verständlichkeit] of something maintains itself. That which can be articulated in a disclosure by which we understand, we call "meaning".'<sup>71</sup> Meaning, then, is the other essential element in the structure of understanding. It is that which is available for articulation, that *in* and *in terms of* which the projection proceeds, that upon which the projection depends. '*Meaning is the "upon-which" [das Woraufhin] of a projection in terms of which something becomes intelligible as something. [...]* "meaning" must be conceived as the formal-existential framework of the disclosedness which belongs to understanding.'<sup>72</sup> But it must be stressed that the 'upon-which' is not to be thought of as the place where something happens to be thrown, as an image is thrown up upon a screen; rather it is that *on the basis of which* projection itself can occur. (In German *auf etwas hin* means 'on the basis of something.')

This is why later on in *Being and Time* Heidegger will associate the 'upon-which' with the condition of possibility of something.<sup>73</sup>

This formal-existential definition of meaning completes the analysis of the structure of the understanding. 'The phenomenon of projection contains two things. First that *upon which* the Dasein projects itself is a can-be of its own self. [...]

Secondly, this projection *upon* something is always a projecting *of*. . . .'<sup>74</sup> The formal-existential structure of

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<sup>71</sup> *Being and Time*, p. 193.

<sup>72</sup> *Being and Time*, p. 193. [SZ, p. 151.]

<sup>73</sup> 'To lay bare the "upon-which" of a projection, amounts to disclosing that which makes possible what has been projected.' *Being and Time*, p. 371.

<sup>74</sup> *BPP*, p. 277.

understanding can now be applied to both ontical understanding and the understanding of Being. 'A being of the nature of equipment is thus encountered as the being that it *is in itself* if and when we understand beforehand the following: functionality [*Bewandtnis*], functionality relations, functionality totality. In dealing with equipment we can use it as equipment only if we have already beforehand *projected this entity upon functionality relation*.'<sup>75</sup> Understanding of beings consists of projection of those beings *upon* their Being. Moreover, understanding of Being as such also has this structure of projection *of. . . upon. . .* 'In the understanding of Being there *is* present a further projection: Being is understood only as, on its own part, it is *projected upon something*.'<sup>76</sup> Hence Heidegger's ultimate claim that the *meaning* of Being is time; i.e. time is that something which Being has to be projected upon so as to be understood as Being.

But we must be careful here. Projection is, after all, the manner of Dasein's occurrence. The projection of beings upon their Being is not *another* projection alongside and independent of Dasein's projection upon its own possibilities. Rather, there is *only one* projection, Dasein's happening as Being-in-the-world. This is, no doubt, what Heidegger had on his mind when he said later in 1930, '*projection is world-projection. World prevails in and for a letting-prevail that has the character of projecting*. With respect to our previous terminology, projection is only this originary occurrence, and no longer to be taken as our specifically factual and concrete planning, deliberation, and understanding.'<sup>77</sup> The projection of Dasein into its own possibilities is *simultaneously* the condition of possibility of Dasein's own disclosure *and* of the discovery of entities. As we have formulated it ourselves, world is *both* the language *in* which Dasein

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<sup>75</sup> BPP, p. 293.

<sup>76</sup> BPP, p. 280. See Chapter 6 for a discussion of what is meant and entailed by this claim.

<sup>77</sup> FCM, p. 362.

articulates itself, and the stage *upon which* entities appear. But this does not mean, Heidegger insists, that the Being of beings is somehow constituted in or by world-projection. 'Not only is the world, *qua* world, disclosed as possible significance, but when that which is within-the-world is itself freed, this entity is freed for *its own* possibilities.'<sup>78</sup>

In order to understand what is going on here we need to analyse more closely the structure of the *Woraufhin* - the "upon-which" of projection. The term does not make its first appearance in *Being and Time* in the formal-existential definition of meaning. It has already made a *double* appearance in Heidegger's definition of the world as the "wherein" of an act of understanding. Significantly enough Macquarrie and Robinson translate these two appearances of the same term in adjoining sentences differently. We have already seen its first appearance. '*The "wherein" of an act of understanding [...] is that for which [Woraufhin] one lets entities be encountered [...] this "wherein" is the phenomenon of the world.*' But in the sentence immediately following Heidegger goes on to say, 'And the structure of that to which [woraufhin] Dasein assigns itself is what makes up the *worldhood* of the world.'<sup>79</sup> As Macquarrie and Robinson's sensitive translation implies, the world is the "upon-which" of both Dasein's disclosure and the discovery of entities, but the *manner* in which it serves as the "upon-which" of an understanding in each case differs. So as to incorporate this double aspect of the "upon-which" into the analysis, Heidegger now introduces a new and complementary terminology to that of projection. It is signalled by the phrase 'letting be encountered' (*Begegnenlassen*). In projecting itself into its possibilities Dasein *allows* entities to be encountered as the entities which they are. And it is this notion of 'allowing' that

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<sup>78</sup> *Being and Time*, p. 184.

<sup>79</sup> *Being and Time*, p. 119. The first sentence was embedded in the passage already quoted on page 80, see fn 69.

Heidegger now firmly hangs onto in providing an interpretation of the understanding of the Being of beings that underlies all comportment.

Previously letting something 'be' does not mean that we must first bring it into its Being and produce it; it means rather that something which is already an 'entity' must be discovered in its readiness-to-hand, and that we must thus let the entity which has this Being be encountered. This 'a priori' letting-something-be-involved [*Bewendenlassen*] is the condition for the possibility of encountering anything ready-to-hand.<sup>80</sup>

In *Basic Problems of Phenomenology* Heidegger states quite clearly that this 'a priori' is the understanding of beings already interpreted as projection upon their Being: 'This antecedent understanding of functionality [*Bewandtnis*], this projecting of equipment onto its functionality character, we call *letting-function* [*Bewendenlassen*].'<sup>81</sup> What does this letting-be amount to? In general the letting-be of a projection designates the fact that projection unfolds the 'space' in which entities may be encountered. This does not mean that the projection constitutes the Being of the entities encountered. Rather the projection itself constitutes the lee-way (*Spielraum*) for the encounter, but the Being of the entities determines the kind of 'upon which' which the projection provides for encounter. This is why Heidegger consistently, not just in the later work but already in *Being and Time*, links Being not to meaning but to truth as unconcealment. Being is not meaning, it is the possible relation to meaning.

This is the second way in which Heidegger approaches the problem of extending the analysis of understanding, eventually so as to include the understanding of Being. In *Being and Time* this approach runs unacknowledged in tandem with the formalisation of the concept of projection. But in *Basic Problems of Phenomenology* it is made explicit.

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<sup>80</sup> *Being and Time*, p. 117.

<sup>81</sup> *BPP*, p. 293. There, is of course, an unresolved tension in this double characterisation of understanding as projection and letting-be, a tension that comes explicitly to the fore when understanding of Being - that letting-be contained in projection as its condition of possibility - is itself characterised as projection. We shall examine this tension later on in chapter 6, when we come to examine more closely the understanding of Being.

‘An understanding of the being of existence in general is enclosed [*beschlossen*] in every existentiell understanding.’ Moreover, ‘*the Dasein understands, in equal originality with its understanding of existence, the existence of other Daseins and the being of intraworldly beings.*’<sup>82</sup> Thus the understanding of Being lies somehow enclosed within the existentiell understanding, that is to say, inherent within Dasein’s projection into its possibilities. ‘But,’ Heidegger goes on to tell us, ‘we do not wish to explain the understanding of being in regard to existentiell understanding [...] We shall try to *clarify the understanding of being* which relates to *beings which are not of the nature of Dasein.*’<sup>83</sup> In other words, the extension of the analysis of understanding is to proceed in this approach by examining *how* the existentiell projection of Dasein into its own possibilities already necessarily allows entities to be encountered. When it is seen how this is so, then the understanding of Being enclosed within existentiell understanding will have been uncovered.

This suggests that ‘letting-be’ is not merely an effect of projection, but rather that the understanding of Being enclosed within it, itself allows projection to be. In *Being and Time* the existentiell understanding has already been characterised as a letting-be: ‘projection, in throwing, throws before itself the possibility as possibility, and lets it *be* as such.’<sup>84</sup> What is *existentiell* about the projection is that it discloses Dasein to itself as *this* possibility. What is *existential* about it is that *lets* the possibility *be* as possibility. Letting-be expresses the ability-to-be of projection. Dasein is not merely able to be letting-be; letting-be is the only way in which Dasein could be ability-to-be. The temptation is always to think of projection as something which happens first, unfolding a network of significance relations upon which subsequently entities are allowed to

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<sup>82</sup> BPP, p. 279.

<sup>83</sup> BPP, p. 291.

<sup>84</sup> Being and Time, p. 185.

appear; but this is to forget that the possibilities into which Dasein projects itself are always possibilities of letting-be. World is indeed the self-understanding of Dasein, but Dasein is nothing other than the letting-be of other entities. This is no doubt what Heidegger means when he says that, 'Dasein only "has" meaning, so far as the disclosedness of Being-in-the-world can be "filled-in" by the entities discoverable in that disclosedness.'<sup>85</sup> Dasein discloses itself to itself as what it is in letting entities be - there is nothing else to be disclosed. This is why disclosure is nothing like the discovery of an entity. If Dasein could disclose itself apart from and prior to any discovery of entities, then disclosure would just be another kind of discovery. The *essential difference* between disclosure and discovery entails that there cannot be one without the other.

It now becomes clear why it was so important and so difficult to make the distinction between the context of involvements and the context of significance.<sup>86</sup> They are not separately existing frameworks, one framework within which Dasein understands itself, another within which it understands the ready-to-hand. Rather, the two 'exist' only insofar as they interpenetrate each other. Each is a context of relations to the other. Significance relations are assignments by Dasein of itself to involvement relations.

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<sup>85</sup> *Being and Time*, p. 193. Macquarrie and Robinson call this sentence 'puzzling' in a footnote, and offer the following gloss: "'erschliessen" ("disclose") is used in the sense of "opening something up" so that its contents can be "discovered". What thus gets "opened up" will then be "filled in" as more and more of its contents get discovered.' But what Macquarrie and Robinson mean by 'contents' is not at all clear. If they mean the contents of what is disclosed, the content of Dasein, as it were, the meaning that is articulated in the disclosure, then this is precisely what is not and cannot be 'discovered.' If on the other hand they mean the entities which are discovered in the context of Dasein's own disclosure, then these entities are not the contents of disclosure; if anything they are the contents of discovery. In fact, the very talk of 'content' points to a fatal misapprehension. The world does not have any content. World is *not* what Donald Davidson would call a conceptual scheme, rather world is Heidegger's way of getting out of the whole scheme-content way of thinking. 'Thus the significance-relationships which determine the structure of the world are not a network of forms which a worldless subject has laid over some kind of material.' *Being and Time*, p. 417.

<sup>86</sup> That this distinction was hard for Heidegger himself to make, we may suppose from the fact that, as Theodore Kisiel reports from his labyrinthine investigations into the Heidegger archive, the term *Bewandtnis* makes a very late entry into Heidegger's terminology, and was, moreover, at the start meant to replace the term *Bedeutsamkeit* ('significance') rather than be distinguished from it. Kisiel tells us that



‘Dasein always assigns itself from a “for-the-sake-of-which” to the “with-which” of an involvement.’<sup>87</sup> ‘The understanding lets itself make assignments both in these relationships and of them. The relational character which these relationships of assigning possess, we take as one of *signifying*.’<sup>88</sup> Letting-something-be-involved means that Dasein in projecting itself into its possibilities assigns itself to a context of involvements, and this is what constitutes significance, that is to say the worldhood of the world. This is why Heidegger says, ‘Dasein, in so far as it *is*, has always submitted itself already to a ‘world’ which it encounters, and this *submission* belongs essentially to its Being.’<sup>89</sup> Heidegger has already told us that when the term “world” appears in single quotation marks, he is using it in the everyday ontical sense of the totality of beings which can found within the world (in the existential sense).<sup>90</sup> World, then, would be nothing other than Dasein’s submission to the ‘world,’ beings as a whole. But the distinction between involvement and significance does not simply ward off the threat of subjective idealism. As we shall see in the next chapter, it opens up the necessary space within which the claim that there are different kinds of Being can be made at all comprehensible.

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*Bewandtnis* makes its first public appearance as an ‘oral interjection’ in the 1925 summer semester lecture course (The Genesis of Being and Time, p. 389.)

<sup>87</sup> Being and Time, p. 119.

<sup>88</sup> Being and Time, p. 120. This makes it clear, I take it, that the relation of signifying is precisely one of assignment to a relation of involvement.

<sup>89</sup> Being and Time, pp. 120-21.

<sup>90</sup> Being and Time, p. 93. Commentators regularly complain that Heidegger fails to stick to this rule and appears to stick the word into inverted commas fairly arbitrarily. But it may be that their interpretation of the existential meaning of world is blinding them to the possibility that Heidegger is being consistent, but simply saying something they don’t expect.

## Chapter Three

### The Existential Conception of Science

How, then, does science emerge from everyday circumspective concern? One possibility, advanced by Hubert Dreyfus, is that scientific activity depends upon the adoption of a peculiar attitude towards the entities that we otherwise encounter in our absorption in the everyday. 'Unlike the pragmatists, Heidegger accepts the Greek view that human beings are capable of getting into a mood of pure equanimity and wonder in which they can form theories that do not have any relation to their needs and purposes.'<sup>1</sup>

Let us call this attitude the theoretical attitude for convenience. The theoretical attitude is achieved - and only achieved. let it be said, at some cost - through a process of *decontextualisation*, whereby entities are progressively stripped of their involvements in our affairs, so that they may simply be observed. This account relies heavily upon paragraph 13 of *Being and Time*, where Heidegger first raises the question of the relation between knowing and Being-in-the-world. Not without justice, it has to be said. After all, Heidegger does declare at the end of the paragraph, 'this makes it plain that in knowing, Dasein achieves a new *status of Being* [*Seinsstand*] towards a world that has already been discovered in Dasein itself. This new possibility of Being can develop itself autonomously; it can become a task to be accomplished, and as scientific knowledge it can take over guidance for Being-in-the-world.'<sup>2</sup> This new *stance* towards the world treats entities in a completely different way from everyday concern. Entities are no longer encountered as ready-to-hand, but rather as simply there, lying before us in their brute bodily presence; no longer *zuhanden*, but *vorhanden*, present-at-hand, or

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<sup>1</sup> Hubert Dreyfus, Being-in-the-World, p. 253.

occurrent, as Dreyfus prefers to translate it. ‘In this kind of “dwelling” as a holding-oneself-back from any manipulation or utilisation, the *perception* of the present-at-hand is consummated.’<sup>3</sup> The present-at-hand, then, is the *object* of our perceptions, and perception is a cognitive comportment towards entities, that is arrived at by dwelling on them, that is to say, by holding back from one’s usual heedless rush onwards in the course of one’s pursuits, so as to stop off and tarry for a while at this one spot in the network of involvements, a stopping off that itself arrests, as it were, the normal movement of the entity in and out of the field of concerns, and that makes it in some sense containable, that is to say, delimitable as *this* element in the field of view.<sup>4</sup> Science, then, would be the progressive development and expansion of this ‘objective’ stance, until perhaps, having started forth from the intermittent and isolated perception of individual items of equipment in the course of our affairs, it might perceive everything as present-at-hand, and indeed become the guiding light for Dasein’s Being-in-the-world. Heidegger certainly appears to confirm this interpretation, when later on in paragraph 69b, having dubbed the totality of ways in which science articulates itself ‘thematization,’ he baldly states, ‘Thematizing Objectifies.’<sup>5</sup> Science is in the business of objectification, and objectification makes things present-at-hand. This view has now been enshrined in the text itself with the decision by Joan Stambaugh to translate *Vorhandenheit* by the term “objective presence” in her new translation of *Being and Time*.<sup>6</sup>

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<sup>2</sup> *Being and Time*, p. 90.

<sup>3</sup> *Being and Time*, p. 89.

<sup>4</sup> See Macquarrie and Robinson’s illuminating footnote on the multiple meanings embedded in the German word *Aufenthalt*, “dwelling,” which is hybridised from the verbs *aufhalten* and *enthalten* (*Being and Time*, fn. 2, p. 89).

<sup>5</sup> *Being and Time*, p. 414.

<sup>6</sup> See Joan Stambaugh translator’s foreword...

## Decontextualisation and Pragmatism

The term “decontextualisation” itself is not Heideggerian. It is Dreyfus’ gloss for the German *Entweltlichen*, which he translates as “deworlding.”<sup>7</sup> Though the term “deworlding” hardly features in *Being and Time* itself, Heidegger does use it on several occasions in the 1925 lecture course, which as we have already seen served as a first, and fairly substantive draft for division 1 of *Being and Time*. There it gets translated by Theodore Kisiel as ‘unworlding.’ What Heidegger has to say about *Entweltlichen* seems to fit very neatly with paragraph 13 of *Being and Time*, and to confirm Dreyfus’ contention that science arises through a process of decontextualisation:

It is only when we absent ourselves from the environing world by stepping out of it, as it were, that we gain access to the presumably authentic reality of the primary thing of nature. The mode of encounter of the natural thing in the character of bodily presence, a characteristic obtrusiveness which things of the world show insofar as they are merely perceived, this character of bodily presence has its basis in a specific “unworlding” of the environing world, a deprivation of its worldhood. Nature as the object of natural science is in general discovered only in such an “unworlding.”<sup>8</sup>

According to Dreyfus, however, decontextualisation is not enough in itself to account for scientific activity. In order for scientific investigation to proceed coherently, some order must be imposed upon the plethora of ‘facts’ now lying indifferently before us as present-at-hand. This order is provided by a theoretical framework. ‘Laws and formal models provide a new, essentially meaningless, context for occurrent properties.’<sup>9</sup> Only within such a context could a scientist decide what was worthy of investigation and what was not, what relevant to an explanation or an experimental set-up, and what not. ‘Scientifically relevant “facts” are not merely removed from their context by selective

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<sup>7</sup> *Being-in-the-world*, p. 256.

<sup>8</sup> *HCT*, p. 196.

<sup>9</sup> *Being-in-the-World*, p. 81.

seeing; they are theory-laden, i.e. recontextualised in a new projection.’<sup>10</sup> Dreyfus takes it that having dealt with decontextualisation in paragraph 13, Heidegger goes on to examine this second necessary condition for scientific activity in paragraph 69b of *Being and Time*. In this paragraph, Heidegger tells us, ‘we are asking which of those conditions implied in Dasein’s state of Being are existentially necessary for the possibility of Dasein’s existing in the way of scientific research.’<sup>11</sup> A paradigmatic example of such research is the development of classical mechanics from Gallileo to Newton. ‘What is decisive for its development does not lie in its rather high esteem for the observation of “facts”, nor in its “application” of mathematics in determining the character of natural processes; but rather in *the mathematical projection of Nature itself*.’<sup>12</sup> This projection is *a priori* in the sense that there could be no experimental facts, nor indeed any natural *processes* to which a mathematical description could subsequently be applied, without it. ‘Only “in the light of” of a Nature which has been projected in this fashion can anything like a “fact” be found and set up for an experiment regulated and delimited in terms of this projection. The “grounding” of “factual science” was possible only because the researchers understood that in principle there are no “bare facts”.’<sup>13</sup> Scientific research can only proceed on the basis of such a projection, which Heidegger dubs a scientific projection. Now, Dreyfus is very quick to insist that scientific projection has nothing whatsoever to do with the notion of projection developed by Heidegger in his discussion of understanding.<sup>14</sup> Though Dreyfus, significantly, does not explain or justify himself at this point, presumably this is because scientific projection as the projection of a theoretical framework is an

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<sup>10</sup> *Being-in-the-World*, p. 81.

<sup>11</sup> *Being and Time*, p. 408.

<sup>12</sup> *Being and Time*, pp. 413-14 (trans. slightly altered. The last clause reads in German, ‘sondern im *mathematischen Entwurf der Natur selbst*.’ *SZ*, p. 362).

<sup>13</sup> *Being and Time*, p. 414.

example of just that sense of projection which Heidegger explicitly excludes when introducing the notion of projective understanding - the sense of projection as a plan.<sup>15</sup> In understanding, Dasein projects itself upon its own possibilities *as* possibilities, and it is this projection that constitutes the intelligibility of the world. Scientific investigation, on the other hand, has the unintelligible as its object. In the absence of intelligibility, it must provide itself with an explanatory framework, but precisely a framework not another projection. Otherwise, in Dreyfus' view, the objects of scientific investigation would reveal themselves in exactly the same way as the ready-to-hand, and Heidegger's account of science would be misinterpreted as being purely pragmatist. Heidegger is not a pragmatist, however, but what Dreyfus terms 'a minimal hermeneutic realist' - a position which he compares to Arthur Fine's defence of the 'Natural Ontological Attitude' or NOA. A minimal realist does not feel the need for, nor accept the possibility of, a metaphysical demonstration that science *really* does describe reality.<sup>16</sup> A hermeneutic realist accepts that science is embedded within our social practices and cannot extricate itself from its background, but denies that its theories are therefore determined by those practices: 'shared scientific background skills are necessary for deworlding nature and for testing theories, but these skills do not determine what is to count as the objects of the theory. The scientists' background skills function precisely to free the science's objects from dependence on *all* practices, including the practices that reveal them. They thus reveal incomprehensible nature.'<sup>17</sup>

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<sup>14</sup> '(Note that Heidegger's account of theoretical projection has nothing to do with the notion of projection introduced in chapter 11.)' *Being-in-the-World*, p. 82.

<sup>15</sup> 'Projecting has nothing to do with comporting oneself towards a plan that has been thought out, and in accordance with which Dasein arranges its Being.' *Being and Time*, p. 185.

<sup>16</sup> 'What then of the realist, what does he add to his core acceptance of the results of science as really true? My colleague, Charles Chastain, suggested what I think is the most graphic way of stating the answer - namely, that what the realist adds on is a desk-thumping, foot-stamping shout of "Really!"' (Arthur Fine, 'The Natural Ontological Attitude,' *The Philosophy of Science*, ed. by Richard Boyd, Philip Gasper, and J.D. Trout, (Cambridge MA, and London; The MIT Press; 1991), p. 271.)

<sup>17</sup> *Being-in-the-World*, p. 207.

But a pragmatist, according to Joseph Rouse and William Blattner, is precisely what Heidegger should have been. These two commentators do not question the accuracy of Dreyfus' account of the early Heidegger's conception of science. Rather, accepting that account as Heidegger's own, they see Dreyfus as having, albeit unknowingly, exposed a fundamental incoherence in Heidegger's thinking on science. The problem, as far as they are concerned, is that decontextualisation makes no sense. In his book *Knowledge and Power*, Joseph Rouse claims that Heidegger is 'disturbingly vague about... *how* one can get from a breakdown of practical involvement to the theoretical attitude.'<sup>18</sup> This vagueness is due to the fact that Heidegger cannot actually follow his analysis through. In an earlier paper, Rouse declares, 'Heidegger does not account for the transition to a decontextualised viewing of the present-at-hand, because he cannot; it does not occur. Theoretical science does not decontextualise things from the world in which they are ready-to-hand... Science, we shall argue, discovers not the present-at-hand but new ways (that is, new contexts) in which things around us can be ready-to-hand.'<sup>19</sup> How is the present-at-hand supposed to emerge from our everyday dealings with the ready-to-hand? Heidegger most famously describes this process in his discussion of the breakdown of ready-to-hand equipment. But, according to William Blattner, if we consider carefully what actually happens when a piece of equipment breaks down, we see that something like the present-at-hand does not in fact emerge. 'Say my hammer breaks so severely that I can no longer go on with it as a hammer. What would I then be staring at? Presumably, the wood and metal out of which it is made. But that wood and metal are ready-to-hand, as Heidegger carefully points out in §15 (pp. 99-100).'<sup>20</sup> To see

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<sup>18</sup> Joseph Rouse, *Knowledge and Power - Toward a Political Philosophy of Science*, (Ithaca and London, Cornell University Press, 1987), p. 75.

<sup>19</sup> Joseph Rouse, 'Science and the Theoretical "Discovery" of the Present-at-Hand,' *Descriptions*, ed. by Don Ihde and Hugh J. Silverman, (Albany NY, State University of New York Press, 1985), p. 203.

<sup>20</sup> William D. Blattner, 'Decontextualization, Standardization, and Deweyan Science,' *Man and World*, vol. 28, issue 4, 1995, p. 325

entities as *material* is precisely not to decontextualise them, but to see them as material for our activities, stuff to be worked on and used. The ways in which we categorise and identify materials are determined by the uses we put them to and the activities we engage in. The hammer, now that it is broken, has not lost *all* involvement in our everyday activity, but rather acquired a new involvement in a new task - precisely the task of fixing the hammer so that we can get on with the old task. To be sure, the entity is no longer treated as a tool, but rather as material to be worked upon by other tools, but nonetheless it is still equipment, in the broad sense that Heidegger gives to that term. Even if the hammer proves irreparable that does not mean that we treat the stuff of which it is made as simply present-at-hand. 'It is not strong enough to get the job done. We then set out to study other metals with an eye to which ones could be strong enough. Language such as "strong enough for this task" is prototypical practical language.'<sup>21</sup> Entities are never entirely released from their involvement in our activities - rather the context of that involvement may change from the workshop of the carpenter to the laboratory of the metallurgist, say. Decontextualisation of entities cannot occur because an entity that was completely decontextualised would quite simply be unencounterable. The only complete decontextualisation that Heidegger envisages in *Being and Time* is that experienced in the state of anxiety. 'Here the totality of involvements... is, as such, of no consequence; it collapses into itself; the world has the character of completely lacking significance.'<sup>22</sup> But as Blattner observes, 'It is hard to see how the genesis of science could pass through anxiety on the way to the mathematical projection of nature.'<sup>23</sup>

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<sup>21</sup> Blattner, *op. cit.*, p. 328.

<sup>22</sup> *Being and Time*, p. 231.

<sup>23</sup> Blattner, *op. cit.*, p. 326.



Dreyfus himself appears to give the game away when, in describing the process of decontextualisation, he says, 'Once characteristics are no longer related to one another in a concrete, everyday, meaningful way, as aspects of a thing in a particular context, the isolated properties that remain can be quantified and related by scientific covering laws and thus taken as evidence for theoretical entities.'<sup>24</sup> But this surely prompts the question: Why should one think that any properties would remain, unless one presupposed that entities *really* were present-at-hand substances underneath the purely surface appearance of instrumental characteristics imposed upon them by their involvement in our affairs? An assumption that Heidegger is himself keen to disavow. 'The kind of Being that belongs to these entities is readiness-to-hand. But this characteristic is not to be understood as merely a way of taking them, as if we were talking such "aspects" into the "entities" which we proximally encounter, or as if some world-stuff which is proximally present-at-hand in itself were given "subjective colouring" in this way.'<sup>25</sup> Perhaps troubled by this question, Dreyfus later on tells us that 'we use skills and instruments to decontextualise things and their properties, which then appear as meaningless objects, colours, shapes, sounds, etc. Such data are independent of our for-the-sake-of-whichs but not independent of our senses.'<sup>26</sup> But this necessarily implies that our senses are independent of our for-the-sake-of-whichs (else the data dependent upon them would also be dependent upon our for-the-sake-of-whichs). And that would seem to make a mockery of Heidegger's claim in paragraph 13 of *Being and Time* that cognitive comportment towards entities in the form of perception is a *founded* mode of Being-in-the-world. We would seem to have fallen right back into a very traditional dualism of the practical and theoretical that has no very

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<sup>24</sup> Being-in-the-World, p. 81.

<sup>25</sup> Being and Time, p. 101.

<sup>26</sup> Being-in-the-World, p. 256.

clear idea of how to reconcile these two aspects of human being. Dreyfus's equanimity about the possibility of 'a mood of pure equanimity and wonder' in which entities could manifest themselves as entirely detached from our concerns is based upon an equivocation about the meaning of Being. On the one hand, Dreyfus equates Being unreservedly with intelligibility, so that he can write for instance, 'That would be to treat Being - intelligibility - as if it were in itself.'<sup>27</sup> On the other hand, he is quite willing to accept that the occurrent - the unintelligible - nevertheless has some kind of Being. So, for example, he quotes Heidegger's comment in *The Basic Problems of Phenomenology* that 'intra-worldliness does not belong to nature's Being,' without appearing to realise that this necessarily means that Being cannot simply be equated with intelligibility, since on Dreyfus' account intelligibility is tantamount to worldliness.<sup>28</sup> The sleight of hand is achieved by the judicious juggling of the two terms 'occurrent' and 'unintelligible' depending on whether the occurrent is being contrasted with the ready-to-hand or treated as something that has independent existence. 'But nature as *a* being, or as a set of beings, does not depend on us, for one way that Dasein can make sense of things - find them intelligible - is as occurrent, i.e. as not related to our everyday practices.'<sup>29</sup> In other words, one way in which Dasein can find things intelligible is that it finds they are unintelligible! But at least Dreyfus appears to have Heidegger's backing on this point. 'It should be observed here that all propositions and proofs given in physics or mathematics are certainly comprehensible as propositions, as discourse about something, but that about which they speak is itself the incomprehensible.'<sup>30</sup> No doubt the idea of a proposition about the incomprehensible is itself comprehensible; but one has to ask, exactly how many propositions could there be about the

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<sup>27</sup> *Being-in-the-World*, p. 257.

<sup>28</sup> BPP, p. 169. Quoted by Dreyfus, *Being-in-the-World*, p. 255.

<sup>29</sup> *Being-in-the-World*, p. 256.

incomprehensible? The notion of the unintelligible certainly has its place within the context of intelligibility, but only as a transcendental X pointing to that about which nothing further can be said. What is unintelligible about the concept of the unintelligible is how there could be anything intelligible to say about the unintelligible except that it is unintelligible. One might well experience anxiety in the face of the incomprehensible, but it is difficult to see how one could have a theory about it.

Dreyfus' younger colleagues, with a greater thirst for consistency, recognise the antimony and reject wholesale the very notion of the present-at-hand. Rouse boldly declares at the beginning of his paper outlining the inadequacy of Heidegger's philosophy of science:

I will propose not only that science does not discover things present-at-hand, but there is no genuine phenomenon corresponding to presence at hand. *Being and Time* can be read as the final development of the ontology of presence-at-hand. Heidegger still mistakenly reserves a place for the present-at-hand in his interpretation of what it means to be, but he also provides the basis for finally abolishing that place.<sup>31</sup>

Instead of decontextualisation, Rouse and Blattner prefer the idea of 'standardisation.' Science does not reveal entities as they are independent of human practices, but rather focuses upon characteristics of the ready-to-hand that are portable between different situations, features that are robust to context variation but not context-independent per se. Chairs and electrons are not ontologically different, electrons are simply more ubiquitous - which in the end simply means more useful. Whereas a chair is good for not much more than sitting in, electrons are good for just about everything, not just projecting TV images or transmitting power or even storing information, but, given our understanding of molecular bonding, gluing things like chairs and TV sets together. Of course, electrons have not always been part and parcel of the equipmental totality with

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<sup>30</sup> HCT, p. 218.

which we get on with our everyday lives, but then neither, presumably, have chairs. Ian Hacking provides a useful rule of thumb, when dealing with the entities discovered by science. Entities remain theoretical as long as one only performs experiments *on* them. As soon as one starts to experiment *with* those entities, however, they have become real. 'Electrons are no longer ways of organising our thoughts or saving the phenomena that have been observed. They are ways of creating phenomena in some other domain of nature. Electrons are tools.'<sup>32</sup>

Scientific research uncovers standardised features within standardised environments. This is what laboratories are - equipmental contexts which guarantee that experimental results will be the same (within some generally agreed margin of error) in each and every one of them. Moreover when entities and phenomena discovered by scientific research get incorporated into the world of everyday concern, it is not just a matter of the theories that describe them becoming sophisticated enough to deal with the complicated circumstances outside of the limited and constrained environment of the experimental set-up, it is also a matter of standardising the everyday environment so as to allow standardised phenomena to show up within it. The everyday world is now littered with mass-produced laboratories - light bulbs, cathode ray tubes, hard disk drives, internal combustion engines, refrigeration and heating systems, along with the offices whose temperature and humidity they maintain - which keep the conditions just right for standardised phenomena to occur. Indeed, Joseph Rouse points out that Heidegger's own description of the relation between mass production and craft production offers a far better account of the relation between scientific research and everyday circumspective concern than does any reliance upon some putative theoretical

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<sup>31</sup> Rouse, *Descriptions*, p. 200.

<sup>32</sup> Ian Hacking, *Representing and Intervening*, (Cambridge, Cambridge University Press, 1983), p. 263.

attitude.<sup>33</sup> Just as mass produced clothing is no less ready-to-hand than a hand-tailored suit, just because it bears reference not to a particular human being, but to a standard size, so too the products of scientific research. Indeed both Blattner and Rouse agree, that the logic of Heidegger's own methodology does not point towards the account of science he actually gives, but rather towards the conception that they espouse. Blattner can therefore claim that, 'We have found an internal critique of Heidegger that points towards Dewey's pragmatism.'<sup>34</sup> While Rouse believes that Heidegger himself rapidly came to realise the incoherence inherent in his earlier account of science, and sought in his later thinking to eliminate its dependence upon the traditional concept of presence-at-hand. By the late 1930s Heidegger, he writes, 'has abandoned the claim that science decontextualises things, and allows us to see them as merely present-at-hand. Instead, science is our way of practically engaging the world.'<sup>35</sup> This is indicated by the fact that, 'Heidegger no longer employs the same terminology as in *Being and Time*. Instead of "presence-at-hand" (*Vorhandenheit*) and "readiness-to-hand" (*Zuhandenheit*), he uses the terms *Gegenstand* (object) and *Bestand* (standing-reserve). But the important point is that he insists that the interpretation of things as autonomous objects (*Gegenstände*) is a misunderstanding which conceals their belonging to the essence of technology. We can represent things as present-at-hand, but in doing so we fail to see them for what they are.'<sup>36</sup>

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Dreyfus, Blattner, and Rouse all agree, then, that Heidegger's account of science as given in *Being and Time* relies upon the notion of decontextualisation. Blattner and

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<sup>33</sup> *Knowledge and Power*, p. 113.

<sup>34</sup> Blattner, *op. cit.*, p. 322.

<sup>35</sup> Joseph Rouse, 'Heidegger's Later Philosophy of Science,' *The Southern Journal of Philosophy*, Vol. 23 No. 1, 1985, p. 79.

<sup>36</sup> Rouse, *Descriptions*, p. 207.

Rouse simply disagree with Dreyfus that this idea of decontextualisation makes any sense. And given Dreyfus' own identification of Being with intelligibility, their critique appears watertight. If, however, we now examine carefully what Heidegger has to say about science in paragraph 69b of *Being and Time* and in other texts from the same period, Dreyfus' account begins to unravel. And it unravels because the notions of objectivity and presence-at-hand are quite explicitly decoupled. Once cut at this crucial point, Dreyfus' account unravels in two directions: both towards the description of the present-at-hand as the product of a decontextualisation and the description of scientific projection as the projection of a formal and arbitrary theoretical framework. This gives us three negative theses, which clearly need to be demonstrated, but that will help guide us to a richer and more coherent account of how Heidegger thought science emerges as an existential possibility for Dasein out of everyday circumspective concern. First, objectivity and presence-at-hand have nothing to do with one another. This means that science, which always does objectify beings, does not have to deal exclusively with the present-at-hand. Nor does the present-at-hand always have to be encountered as an object. Second, scientific projection does contra Dreyfus turn out to be intimately connected with the conception of projection detailed by Heidegger in his analysis of understanding. Third, decontextualisation is a bad, if understandable, gloss on Heidegger's own term deworlding. (One of the reasons why Heidegger barely uses the term in *Being and Time* after having used it extensively in the 1925 lecture course may be precisely because it proved susceptible to such misinterpretation.) Presence-at-hand is not the result of a decontextualisation. This third thesis does not simply undermine Blattner and Rouse's arguments against the coherence of the notion of the present-at-hand, it exposes a blindness in their own pragmatist account of science - a blindness to the genuine phenomenon of presence-at-hand which is masked by their enthusiastic critique of the flawed notion of decontextualisation.

## The Formal-Existential Definition of Science

In the very middle of paragraph 69b Heidegger asks rhetorically, 'But if, instead of deliberating circumspectively about something ready-to-hand, we "take" it as something present-at-hand, has a scientific attitude thus constituted itself? Moreover, even that which is ready-to-hand can be made a theme for scientific investigation.'<sup>37</sup> The implication is clear. There is no necessary linkage between science and the present-at-hand. On the one hand, we can and do encounter the present-at-hand, say, the hammer as merely heavy - not as too heavy for this or that task - prior to any scientific investigation of it as heavy. On the other hand, we can scientifically investigate entities that are not present-at-hand without thereby making them present-at-hand. Heidegger rubs this last point home by going on to say, 'The ready-to-hand can become the "Object" of a science without having to lose its character as equipment.'<sup>38</sup> This last remark has generated a certain amount of furore. Rainer A. Bast, for example, in his book *Der Wissenschaftsbegriff Martin Heideggers*, cites it with an exclamation mark, and considers that it marks a 'break' in Heidegger's thinking in which the earlier vocabulary of 'concern' and 'knowing' is illicitly replaced by the vocabulary of 'theory' and 'praxis' resulting in a degeneration of the originally serious attempt to grapple with the problem of world discovery into a commonplace separation of the theoretical and practical.<sup>39</sup> Hermann Philipse, similarly wedded to a 'patchwork' reading of *Being and*

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<sup>37</sup> *Being and Time*, pp. 412-13.

<sup>38</sup> *Being and Time*, p. 413.

<sup>39</sup> 'The break at SZ p. 361 is flagrant. There Heidegger against everything already said, observes "even the ready-to-hand [can] be made the theme of scientific investigation and determination" and: "The ready-to-hand does not need to lose its equipment character [!] to become the 'Object' of a science." The original problem 'Concern'-'Knowing' is not coarsened, but rather shifted over to the problem 'Praxis'-'Theory' until finally in GA25, where the term 'concern' no longer even occurs, the single process of levelling down the problem to one of "prescientific" - "scientific" reaches its end. The original serious problem: What is still ready-to-hand, what already present-at-hand? is replaced by handy, because diametrically opposed vocabulary. Thus, (1.) the originally *contrary* opposition of beings not of the character of Dasein

*Time*, thinks that Heidegger's 'equivocation' over what can and cannot be the object of scientific knowledge is the result of an undigested incorporation of incompatible Neo-Kantian (transcendental) and Husserlian (regional ontological) motifs.<sup>40</sup> Joseph Kockelmans, on the other hand, clearly perturbed by the implications of a too literal reading of this passage, wriggles uncomfortably:

From this text one might derive the view that in Heidegger's conception any scientific thematization is objectifying. With the help of the hints found in his later work, however, it can be made perfectly clear that already in 1927 Heidegger was convinced that not all thematization was objectifying and, secondly, that this particularly is not the case for our historical research.<sup>41</sup>

Whatever the later Heidegger may or may not have thought, it is perfectly clear on the contrary that Heidegger in 1927 did precisely think that *all* scientific thematization was objectifying, history included. In the 1927 lecture course, *The Basic Problems of Phenomenology*, he states categorically, 'The essential feature in every science [...] is that it constitutes itself in the objectification of something already in some way

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(readiness-to-hand - presence-at-hand) is replaced by a *contradictory* opposition of ways of being human (prescientific - scientific); (2.) in consequence of the bursting apart of the concept of concern through the extreme widening of its extension and finally its dissolution by the Praxis vocabulary, the originally fully untheoretical world-knowing gets narrowed down to theory; the concern-knowing opposition, which is at first still attached to the elementary level of world discovery and is employed in SZ §§ 12ff as such and with much weight, becomes in §69b the commonplace of theory and praxis.' ['Eklatant ist der Bruch dann SuZ 361 19ff, wo Heidegger wider alles bisher Gesagte konstatiert, „auch Zuhandenes [könne] zum Thema wissenschaftlicher Untersuchung und Bestimmung gemacht werden“ und: „Das Zuhandene braucht seinen Zeugcharakter [!] nicht zu verlieren, um ‚Objekt‘ einer Wissenschaft werden zu können.“ Das ursprüngliche Problem ‚Besorgen‘-, ‚Erkennen‘ ist nicht vergrößert, sondern vielmehr verlagert zum Problem ‚Praxis‘-, ‚Theorie‘, bis schließlich in GA25, wo es den Terminus ‚Besorgen‘ schon gar nicht mehr gibt, die einlinige Nivellierung auf ein ‚vorwissenschaftlich‘-, ‚wissenschaftlich‘ zu ihrem Ende kommt. Das ursprünglich schwierige Problem: Was ist noch zuhanden, was schon vorhanden? Ist durch griffige, weil Diametrale Vokabeln ersetzt. So ist (1.) der ursprünglich *konträre* Gegensatz von *nichtdaseinmäßigem Seiendem* (Zuhandenheit-Vorhandenheit) durch einen *kontradiktorischen* Gegensatz der *menschlichen Seinsweise* ersetzt (vorwissenschaftlich-wissenschaftlich); (2.) im Gefolge der Sprengung des ursprünglichen Besorgensbegriffs durch extreme Extensions-Erweiterung und schließlich seiner Ablösung durch die Praxis-Vokabel wird das ursprünglich völlig untheoretische Welterkennen zur Theorie verengt; der zunächst noch der elementaren Welt-Entdeckungs-Ebene verhaftete und in SuZ §§ 12ff als solcher und mit viel Gewicht verhandelte Besorgen-Erkennen-Gegensatz wird in § 69 b) zum Theorie-Praxis-Gemeinplatz.'] Rainer A. Bast, *Der Wissenschaftsbegriff Martin Heideggers*, (Stuttgart-Bad Canstatt, Friedrich Frommann Verlag, Günther Holzboog GmbH, 1986), pp. 165-66.

<sup>40</sup> See Hermann Philipse, *Heidegger's Philosophy of Being - A Critical Interpretation*, (Princeton, New Jersey, Princeton University Press, 1998), pp. 38-39 and pp. 144-45; but the whole book is dedicated to rooting out such supposed confusions.

<sup>41</sup> Joseph J. Kockelmans, *Heidegger and Science*, (Lanham, MD.; University Press of America; 1985), p. 204.



unveiled, antecedently given.’<sup>42</sup> And in the course he gave on Kant the next semester, he cites history specifically: ‘For example, the task of historical objectification of beings as history thus requires in itself an explicit understanding of what belongs to history as such.’<sup>43</sup> The discomfort or the glee, depending on the commentator’s disposition, that these assertions elicit is due solely to the stubborn persistence of the idea that objectification must have something to do with *making* entities present-at-hand by deworlding them; as Kockelmans amply demonstrates when he continues:

Only where the thematization implies a transition from the ready-to-hand to the present-at-hand and, thus, only where the thematization implies a demundanization, is the thematizing project objectifying. However, where the ready-to-hand is made a theme of scientific investigation and, a fortiori, when man himself or his world is made a subject of scientific research, no objectivation can take place because no demundanization is necessary or even possible.<sup>44</sup>

The point that, as Heidegger himself observes, ‘many and entirely different areas of beings can become an object of scientific investigation,’<sup>45</sup> may appear trivial, but it highlights a fundamental ambiguity. It will have been apparent that in the discussion so far no very clear distinction has been made between science and natural science. The impossibility of making such a distinction is endemic to any account of science that confuses science as such with simply treating entities as present-at-hand. It is clear, for example, that Dreyfus, Blattner and Rouse, bolstered no doubt by the connotations the word ‘science’ has acquired in the English language, are all primarily thinking of natural science when they describe science in terms of either decontextualisation or standardisation. What remains very unclear, however, is whether they think this description of science could be extended to other disciplines such as history or philology, disciplines which in German would be numbered amongst the

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<sup>42</sup> BPP, p. 281.

<sup>43</sup> PIK, p. 20.

<sup>44</sup> Kockelmans, Ibid.

*Geisteswissenschaften*, and if so, how; or whether on the contrary they are willing to bite the bullet and declare that the only real science is natural science.<sup>46</sup> Heidegger himself, however, is quite clear: the term *Wissenschaft* applies to all the academic disciplines traditionally designated as such in German, not just mathematics and the natural sciences, but history, philology, and even theology. In a lecture entitled 'Phenomenology and Theology' delivered at Tübingen in 1927, Heidegger steadfastly insists, 'Our thesis, then, is that *theology is a positive science*... It is immediately clear from the thesis that theology, as a positive science, is in principle closer to chemistry and mathematics than to philosophy.'<sup>47</sup> Moreover, lest anyone such as Kockelmans still hope that theology will be distinguished from the natural sciences as at least non-objectifying, Heidegger goes on to say, 'In summary, then, theology is a *historical science*, in accordance with the character of the *positum* objectified by it.'<sup>48</sup> The existential conception of science that Heidegger is seeking to clarify in paragraph 69b is, therefore, a conception that includes all the *Wissenschaften*, be they *Naturwissenschaften* or *Geisteswissenschaften*. Nonetheless, and this no doubt has helped to foster the confusion, the science which Heidegger chooses to examine as 'paradigmatic' of science as such is mathematical natural science - undoubtedly a science of the present-at-hand, given the fact that at least during this period Heidegger considered the kind of Being belonging to Nature to be indeed presence-at-hand. There is, however, nothing necessarily problematic about this

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<sup>45</sup> PIK, p. 19.

<sup>46</sup> Blattner, interestingly enough, early on in his paper lights upon Heidegger's claim that even the ready-to-hand can become the object of scientific investigation to bolster his argument against Dreyfus: '*The emergence of science and the emergence of the present-at-hand do not necessarily coincide.*' (Blattner, *op. cit.*, p. 324.); but appears to have forgotten about it later on when presenting the argument against the possibility of the present-at-hand: 'He [Rouse] too repudiates the "change-over" from the objects of practical use (the ready-to-hand) to the objects of pure, theoretical cognition (the present-at-hand).' (*Ibid.*, p. 330) The reason is clear. If the emergence of science does not coincide with the emergence of the present-at-hand, then the critique of the present-at-hand misses its target, namely the demonstration that *science* must be pragmatic.

<sup>47</sup> Martin Heidegger, 'Phenomenology and Theology,' *Pathmarks*, (Cambridge, Cambridge University Press, 1998), p. 41.

<sup>48</sup> *Ibid.*, p. 47.

choice of exemplar, as long as what is scientific about natural science can be separated out from what is specific to it as a science of the present-at-hand. What Heidegger is up to in paragraph 69b is akin methodologically to the procedure he adopts when analysing the phenomenon of guilt in paragraph 58. There he starts by examining the ordinary signification of the word and its relation to such notions as ‘debt’ and ‘responsibility.’ But he then goes on to warn:

The phenomenon of guilt, which is not necessarily related to “having debts” and law-breaking, can be clarified only if we first inquire in principle into Dasein’s *Being-guilty*... If this is our goal, the idea of “Guilty!” must be sufficiently *formalized* so that those ordinary phenomena of “guilt” which are related to our concerned Being with Others will *drop out*... Hence we define the formally existential idea of the “Guilty!” as...<sup>49</sup>

In precisely the same way, Heidegger is seeking in paragraph 69b to arrive at a *formal existential definition* of science, that is to say, of science as *a possibility of Dasein’s Being*, on the basis of an examination of a concrete science, which has then allowed all its ‘ontical’ characteristics, determined by its relation to its subject matter - in this case the present-at-hand - to ‘drop out.’ And indeed the formal existential definition that he ends up with makes no reference to the present-at-hand, just as the formal existential definition of guilt ends up making no reference to factual debts or responsibilities. Thus, in 69b, having examined the way in which the mathematical projection of Nature discloses something *a priori* about the present-at-hand, Heidegger makes the following generalisation:

The scientific projection of *any* entities, which we have somehow encountered already, lets their kind of Being be understood explicitly and in such a manner that it thus becomes manifest what ways are possible for the pure discovery of entities within-the-world.<sup>50</sup>

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<sup>49</sup> *Being and Time*, pp. 328-29.

<sup>50</sup> *Being and Time*, p. 414. [My emphasis.]

Contrary, then, to what Dreyfus is forced to claim by his insistence upon the link between decontextualisation and scientific projection, namely that scientific projection has nothing to do with projective understanding, it turns out that scientific projection has everything to do with projective understanding: it is precisely the explicit development of that projection of beings upon their Being that Heidegger has analysed in terms of 'letting-be.' That this is so, is made even clearer by Heidegger in *The Basic Problems of Phenomenology*, where he provides the following formal definition of objectification: 'The basic act of objectification [...] has the function of *explicitly* projecting what is antecedently given upon that on which it has *already* been projected in pre-scientific experience or understanding.'<sup>51</sup> The very use of the Kantian term 'experience' [*Erfahren*] in the phrase 'pre-scientific experience or understanding' should alert us to the fact that the 'cognitive perception' of the present-at-hand just as much precedes scientific investigation as does our everyday dealings with the ready-to-hand.<sup>52</sup> Natural science is the science of the present-at-hand, but that means that it objectifies the present-at-hand, not that the present-at-hand is the result of objectification as such. Both the natural and the historical sciences are included within the formal existential definition of science and proceed on the basis of an objectification. 'The genesis of a science originates in the objectification of a *realm* of beings, that is, in the development of an understanding of the constitution of the *being* of the respective beings.'<sup>53</sup> Contrary to what Kockelman believes, the difference between the natural and the historical sciences does not, according to Heidegger, lie in

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<sup>51</sup> BPP, pp. 281-82.

<sup>52</sup> In the introduction to *Being and Time*, Heidegger says that, 'the positive outcome of Kant's *Critique of Pure Reason* lies in what it has contributed to the working out of what belongs to any Nature whatsoever, not in a "theory" of knowledge. His transcendental logic is an *a priori* logic for the subject-matter of that area of Being called "Nature".' (Being and Time, p. 31.) These remarks, along of course with the whole ontological interpretation of the first critique elaborated in *Kant and the Problem of Metaphysics*, clearly indicate that the conditions of possibility of experience are thought of by Heidegger at this time in terms of the ontological constitution of the present-at-hand. (None of this, of course, commits Heidegger once and for all to a 'Kantian' determination of that constitution.)

the fact that one is objectifying while the other is not, but rather in the fact that the entities which they objectify have different kinds of Being.

That Heidegger should have been anxious to avoid a methodological distinction between the natural and the historical sciences, and should have sought instead to firmly entrench their difference in ontology itself, should not surprise us. The notion that the natural sciences are based upon an objectifying decontextualisation, while the historical sciences somehow manage to thematize the specific context of a unique historical situation without robbing it of any of its individuality, has an oddly familiar ring to it. It reproduces, within a pragmatic account of the constitution of meanings, the distinction between the nomological and the idiographic sciences first advanced by Wilhelm Windelband, and brought to its greatest theoretical coherence by Heinrich Rickert.<sup>54</sup> This distinction was introduced precisely so as to avoid an ontological demarcation of the natural and historical sciences. Windelband considered that the two kinds of science do not differ because of their subject matter, but rather because of their aims, or cognitive interests. These cognitive interests then determine the kind of concept formation proper to the two different kinds of science. The natural sciences aim at general laws and arrive at them through a process of conceptual abstraction. The historical sciences by contrast seek to preserve the singularity of individual events. The problem for Windelband was in explaining how there could be any kind of conceptual knowledge of individual phenomena if concepts were always abstractions. Rickert then set about solving this problem by a constructing a theory of the historical individual that revolved around the notion of value. But Rickert's theory of natural science, which he

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<sup>53</sup> PIK, p. 20.

<sup>54</sup> See Heinrich Rickert, The Limits of Concept Formation in Natural Science, trans. by Guy Oakes. (Cambridge, Cambridge University Press, 1986). The introduction to this translation by Guy Oakes contains a useful summary of Windelband's own formulation of the distinction, and its subsequent development by Rickert.

no doubt thought was relatively uncontroversial, was subjected to devastating critique by Ernst Cassirer in his book *Substance and Function*, first published in 1910. And we get some idea of what Heidegger himself thought of Rickert's theory of the sciences, if not the reasons why, from the following acerbic comments in the 1925 lecture course:

The initiatives of the Marburg school and of Dilthey were then taken up by Windelband and Rickert, who levelled and trivialized them and twisted their problems beyond recognition. In other words, inquiry understood as the theoretical clarification of science is reduced by this school to an empty methodology. The structure of knowledge itself, the structure of research, of the access to the realities in question, are no longer investigated, much less the structure of these realities. The sole theme is the question of the logical structure of scientific representation. This is carried to such an extreme in Rickert's philosophy of science the sciences under study are no longer even recognizable.<sup>55</sup>

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The formal existential definition of science does not, however, help answer the question with which we started this chapter: how does science emerge from everyday pre-scientific comportment? Indeed, insofar as it simply underlines the fact that the emergence of science does not coincide with the emergence of the present-at-hand, it re-opens it. The formal definition simply tells us, 'In other words, the core of objectification, its way of being, lies in the explicit enactment of *that* understanding of being by which the basic constitution of those beings which are to become objects becomes intelligible.'<sup>56</sup> The question that interests us is what does it mean to enact an understanding of Being *explicitly*? How is such an enactment possible? We have seen already that Heidegger characterises understanding as Dasein's fundamental mode of happening, but this was with reference to Dasein's *existentiell* understanding in which it projects itself upon its own possibilities. Concomitant with this *existentiell* understanding, Dasein projects entities upon their own kind of Being; in the case of the

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<sup>55</sup> HCT, p. 17.

ready-to-hand, upon their involvement relations. Heidegger calls this *ontical* understanding letting-be; again in the case of the ready-to-hand, letting-be-involved [*bewenden lassen*]. Dasein's projection of itself onto its possibilities in the world *allows* entities to be encountered *within* the world *as* the entities that they are. Understanding 'is as such the condition of possibility for all of Dasein's possible manners of comportment.'<sup>57</sup> The explicit enactment of the understanding of the Being of beings would seem to involve a step back from Dasein's comportments to their conditions of possibility. 'Thus an activity lies in scientific action, which has the character of stepping back before beings.'<sup>58</sup> Looking back at the structural schema of encountering comportment and the understanding that underlies it, we can see that the change from pre-scientific to scientific activity does not seem to involve a shift within the 'horizontal' plane of possible comportments, a shift from encountering one kind of entity to encountering another, but rather a step back from that plane to the plane of understanding, a step back from comportment to its condition of possibility. Nevertheless, if as Heidegger also tells us, 'the encounter of entities is the phenomenal basis, and the sole basis, upon which the being of entities can be grasped,'<sup>59</sup> then this step back is only possible on the basis of something already embedded within the plane of comportments. The condition of possibility of stepping back to the level of the condition of possibility must lie at the level from which one steps back. Moreover since the step back is itself an *enactment* by Dasein of its constitutive understanding of Being, the step back does not step *out of* the plane of comportments, but rather constitutes a modification of Dasein's comportment, a modification of the existentiell understanding of Dasein in which it projects itself upon its own possibilities. The step back amounts to

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<sup>56</sup> PIK, p. 20.

<sup>57</sup> BPP, p. 276.

<sup>58</sup> 'Eine Aktivität liegt also im wissenschaftlichen Handeln, die den Charakter des Zurücktretens vor dem Seienden hat.' G27, p. 183.

a structurally inherent deformation of the structure of comportment - a torsion that turns the plane of comportments on its axis and undermines the notion that conditions of possibility *underlie* that which they make possible. The condition of possibility of the transcendental is the difference that already inhabits the plane of immanence. The manifold is the condition of possibility of the unity of apperception.

### **The Genesis of Objectification - Paragraph 69b of *Being and Time***

Heidegger's discussion of 'the *ontological genesis* of the theoretical attitude'<sup>60</sup> in paragraph 69b is quite complex even though it only occupies 6½ pages of *Being and Time*. There are at least three stages in the discussion, each of which seeks to pick out and analyse a particular kind of 'change over' in the way that Dasein comports itself. Each of these change-overs might individually be mistaken for the emergence of scientific activity itself, or indeed mistaken for each other. This explains the confusion that has arisen about Heidegger's account of the ontological genesis of science. But we should not congratulate ourselves on having identified three necessary steps on the path to science. As always with Heidegger, it is not simply a question of analytically distinguishing elements that have tended to be confused, more importantly it is a question of understanding the relational unity of the elements once they have been distinguished.

#### *Step 1: Deliberation - Making present the ready-to-hand*

Heidegger begins by disabusing the reader of the impression that his account of the emergence of science rests upon a traditional distinction between theory and praxis. 'In characterising the change-over... to "theoretical" exploration, it would be easy to

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<sup>59</sup> HCT, p. 217.



suggest that merely looking at entities is something which emerges when concern *holds back* from any kind of manipulation.<sup>61</sup> But isn't this precisely what Heidegger himself suggested when discussing the possibility of cognition as a founded mode of Being-in-the-world in paragraph 13? 'When concern holds back from any kind of producing, manipulating, and the like, it puts itself into what is now the sole remaining mode of Being-in, the mode of just tarrying alongside. . . . This kind of Being towards the world is one which lets us encounter entities within-the-world purely in the way they look (*εἶδος*), just that [...] In this kind of "dwelling" as a holding-oneself-back from any manipulation or utilisation, the *perception* of the present-at-hand is consummated.'<sup>62</sup> On this account, 'What is decisive in the "emergence" of the theoretical attitude would then lie in the *disappearance* of *praxis*... the ontological possibility of "theory" will be due to the *absence* of *praxis* - that is, to a *privation*.'<sup>63</sup> Or in other words, as Heidegger put it paragraph 13, 'If knowing is to be possible as a way of determining the nature of the present-at-hand by observing it, then there must first be a *deficiency*' in our having to do with the world concernfully.'<sup>64</sup> Nevertheless, despite this earlier, apparently unequivocal assertion, Heidegger now holds that this account of theory as the simple absence of praxis - an account which suggests itself naturally [*liegt nahe*] - is at best naïve. Holding back from practical activity has nothing to do with the emergence of science - and not just because science has its own forms of praxis.

On the contrary, the tarrying which is discontinued when one manipulates, can take on the character of a more precise kind of circumspection, such as "inspecting", checking up on what has been attained, or looking over the "operations" which are now "at a standstill." Holding back from the use of equipment is so far from sheer "theory" that the kind of circumspection that

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<sup>60</sup> Being and Time, p. 408.

<sup>61</sup> Being and Time, p. 409.

<sup>62</sup> Being and Time, pp. 88-89.

<sup>63</sup> Being and Time, p. 409.

<sup>64</sup> Being and Time, p. 88.

tarries and “considers”, remains wholly in the grip of the ready-to-hand equipment with which one is concerned.<sup>65</sup>

But before we congratulate ourselves on having caught Heidegger out in a contradiction, and agree with Rainer Bast that Heidegger is attempting to juggle two mutually incompatible accounts of the emergence of the theoretical attitude, we should look at the evidence more carefully. In the first place, the very use of the vocabulary of ‘holding back’ [*sich enthalten*] and ‘tarrying’ [*verweilen*] here in paragraph 69b demonstrates that at the very least Heidegger is not guilty of unconsciously contradicting himself or surreptitiously substituting conceptual structures, but on the contrary is quite deliberately referring back to the account given in paragraph 13, so as perhaps not to contradict or disavow it, but instead to revise and sharpen it. Secondly, we should remember that paragraph 13 occurs very early on in the exposition, only just after the introduction of the concept of Being-in-the-world in paragraph 12, and before there has been any detailed exploration of the structure of circumspective concern or worldhood. At this stage, the present-at-hand and Dasein’s comportment towards it cannot even be contrasted with the ready-to-hand since the latter term has not even been introduced. It is only to be expected, then, that paragraph 13 is only meant to provide a preliminary sketch of the relation between concern and cognition, not the definitive existential analysis. Thirdly, a close reading of the relevant passage in paragraph 13 indicates that at the very least Heidegger is keeping his options open there. Heidegger does not say that ‘just tarrying alongside. . . .’ [*das Nur-noch-verweilen bei. . . .*] amounts in itself to knowing, or perceiving the present-at-hand. Rather, he says a good deal more judiciously: ‘*on the basis* of this kind of Being, and *as* a mode of it, looking explicitly at what we encounter is possible. Looking *at* something this way is sometimes a definite way of taking up a direction towards something - of setting our sights towards what is

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<sup>65</sup> Being and Time, p. 409.

present-at-hand.’<sup>66</sup> So even here in paragraph 13, the possibility of cognitive comportment towards the present-at-hand is separated by at least two steps from simply holding back from manipulative activity - first there has to be a *modification* of ‘tarrying’ into looking at something explicitly, and second there is the qualification that even then in looking at something we only *sometimes* set our sights on the present-at-hand, and so presumably sometimes look explicitly at the ready-to-hand also. ‘Practical dealings have their *own* ways of tarrying.’<sup>67</sup> To be sure, these two steps are not spelt out in paragraph 13, nor are they analysed, but the paragraph certainly keeps the space open for the more detailed analysis to come in 69b, and ensures that Heidegger cannot later be summarily accused of completely contradicting everything he has said earlier.

In the first instance, then, prior to any further modification, holding back from one’s activities does not allow entities to manifest themselves as present-at-hand. ‘Rather, our concern then diverts itself specifically into a just-looking-around [*ein Nur-sich-umsehen*].’<sup>68</sup> This is what we do when we pause to consider how to carry on with a task. We stop to take our bearings, to look back and see how far we have come, to get some idea of what still lies ahead. Heidegger calls this circumspective tarrying ‘deliberation’ [*Überlegung*]. It is characterised by the ‘if... then’ schema. ‘If I am to do this or that, then I will need the following.’ Even though it is a kind of holding back, deliberation brings the ready-to-hand closer. Deliberation allows the ready-to-hand to be seen *as* the particular piece of equipment needed for this task, to work on this thing, with these other tools. In other words, deliberation is a form of interpretation (seeing something *as* something), and interpretation makes understanding explicit. Heidegger says: ‘The involvement-character of the ready-to-hand does not first get discovered by

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<sup>66</sup> *Being and Time*, p. 88.

<sup>67</sup> *Being and Time*, p. 409.

<sup>68</sup> *Being and Time*, p. 409.

deliberation, but only gets brought close by it in such a manner as to let that *in which* something *has* an involvement, be seen circumspectively *as* this very thing.<sup>69</sup> Because the ready-to-hand is not something that happens to be embedded in a network of involvements, but rather *is* those involvements, it only gets discovered *through* them when it is seen *as* them. Now deliberation, in bringing the ready-to-hand closer, allowing it to be seen as what it is, is a making-present (*Gegenwärtigen*). 'It is grounded in a *retention* of that context of equipment with which Dasein concerns itself in *awaiting* a possibility.'<sup>70</sup> In other words, the making present of the ready-to-hand is only possible because the ready-to-hand is involved in the accomplishment of a future possibility of Dasein's own existence, an involvement that is itself only possible because a context of other equipment in which the ready-to-hand can function *has been* established. This is, so to speak, the temporal interpretation of the 'if... then' schema. The 'if... then...' makes the ready-to-hand 'present' on the basis of Dasein's thrown projection into the world.

*Step 2: The change-over [Umschlag] in the understanding of Being*

But where does this discussion of deliberation get us with regard to science? Heidegger says: 'Only that this elucidates the Situation in which circumspective concern changes over into theoretical discovery.'<sup>71</sup> The situation is precisely one of deliberation. The change is not from entirely unreflective absorption in the world, that dazed fixation Heidegger calls fascination (*Benommenheit*) with the world. That change has already occurred within circumspective concern through holding back from manipulation, and it has resulted in deliberation. The change over to theoretical discovery is rather a change from *one kind* of explicit awareness to *another*. It is deliberation itself, the making

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<sup>69</sup> *Being and Time*, p. 411.

<sup>70</sup> *Being and Time*, p. 411.

<sup>71</sup> *Being and Time*, p. 412.

present of the ready-to-hand *as ready-to-hand* through the 'if.. then' schema, that gets modified. The question is how?

Heidegger takes as his example the deliberative assertion: "The hammer is too heavy." This says something about the hammer in its involvement in a task. It is part perhaps of a deliberation about whether to use this hammer or another one. The assertion could be modified into "The hammer is heavy," and we might still be deliberatively weighing up its suitability for the task. But saying, "The hammer is heavy" can *also* mean simply that the hammer has weight or mass. The hammer is now being talked about not in terms of its involvements, but as a thing with properties. How is this possible? Heidegger says, 'Not because we are keeping our distance from manipulation, nor just because we are looking *away* from the equipmental character of this entity, but rather because we are looking *at* the ready-to-hand thing which we encounter, and looking at it 'in a new way' as something present-at-hand. *The understanding of Being* by which our concerned dealings with entities within-the-world have been guided *has changed over* [*hat umgeschlagen*].'<sup>72</sup>

It is at this point that Heidegger's account of the emergence of scientific research from everyday circumspective concern departs radically from the account given by Blattner and Rouse. Contrary to Dreyfus' version of what Heidegger has to say about the adoption of a 'theoretical attitude,' Blattner and Rouse were correct to maintain that, on Heidegger's own account, holding back from manipulation and taking a detached view of things can *only widen* the horizon of one's concerns; it *cannot step outside* of that horizon so as to discover the present-at-hand per se. On this basis, Blattner and Rouse discount any idea of something like presence-at-hand as incoherent. But it can now be seen that in his account of deliberation Heidegger has already pre-empted everything

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<sup>72</sup> Being and Time, p. 412.

Rouse and Blattner have to say about science in terms of standardisation. In other words, Heidegger would accept that what Rouse and Blattner describe can serve as the spring board for scientific research, but would insist that they fail to account for the specific difference between the deliberative 'if... then...' schema which still operates within the horizon of circumspective concern, and the kind of understanding that looks at entities as present-at-hand. This is made very plain in the lecture course Heidegger gave upon his return to Freiburg in 1928. There, in introducing once again the notion of a change-over in our understanding of Being, Heidegger explicitly contrasts the mere widening of the circumspective horizon, which would be equivalent to the identification of aspects of the ready-to-hand that are 'portable' between different contexts, through the establishment of 'rules' [*Regeln*] for comportment, and the establishment of 'laws' [*Gesetze*] that are universally valid for all 'material' entities whether or not they happen to be ready-to-hand. Heidegger takes as his example the resistance that the earth offers to a plough. Corresponding to this resistance the ploughshare must have a certain hardness and solidity in order to do its job. There is therefore a correlation between the earth and the ploughshare, but no further heed is usually paid to this correlation, and it does not need to be reflected upon as such. 'It is simply familiar within a particular kind of profitable use and working of the soil, the earth.'<sup>73</sup> The same relation between pressure and counter-pressure can be found, however, in many other contexts, house or bridge building, for example, where the foundations or the piers also require a corresponding solidity. In this way, Heidegger tells us, 'a certain savvy forms for dealing with things: As a rule it is ordered thus and thus with things. But this rulelikeness behaves less as a characterisation of things themselves, than as the guiding

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<sup>73</sup> '[E]r is nur bekannt innerhalb einer bestimmten Nutznießung und Bearbeitung des Bodens, der Erde.' G27, p. 181.

thread for comportment in the face of them.’<sup>74</sup> Nonetheless Heidegger insists that in addition to this gradual garnering of rules for comportment, ‘the possibility persists of contemplating the relations between pressure and counter-pressure without any consideration of the fact that account is taken of them in using things.’<sup>75</sup> This means that, ‘These relations, which befit every material thing, every mass, can come to light as such, and indeed so that they stand at the same time under a universal law of gravity.’<sup>76</sup> How is this possible? What is happening when entities reveal themselves as material bodies subject to natural laws? Heidegger asks rhetorically, ‘Is it enough to say: practical technical experience has been widened beyond the narrow circle of view offered by tilling the soil, or building houses and bridges?’<sup>77</sup> But that would simply mean that the sphere of application for the handy rules of comportment had been extended to include new activities and pieces of equipment. ‘Mere widening of the sphere of experience leads continuously only to things of use.’<sup>78</sup>

At first sight it might seem as if Heidegger’s objection to this notion of widening is that it is not wide enough. ‘If a widening plays a primary role here at all then it is obviously in the sense that it is said: these relations are not only present-at-hand where ground and stone are manipulated by us in practical working, but also there where our business doesn’t reach, and where also we do not need to get to... here the discourse is also about

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<sup>74</sup> ‘So bildet sich für den Umgang mit den Dingen ein gewisses Sichauskennen in ihnen: In der Regel ist es mit den Dingen so und so bestellt. Diese Regelmäßigkeit gibt sich aber weniger als ein Charakter der Dinge selbst, denn als Leitfaden des Verhaltens ihnen gegenüber.’ G27, p. 181.

<sup>75</sup> ‘[E]s besteht die Möglichkeit, die genannten Beziehung von Druck und Gegendruck ohne Rücksicht darauf ins Auge zu fassen, daß ihnen in der Verwendung Rechnung getragen wird.’ G27, p. 181.

<sup>76</sup> ‘Diese Beziehungen können sich als solche herausstellen, die jedem materiellen Ding, jeder Masse zukommen, und zwar so, daß sie dabei unter einem allgemeinen Gesetz der Schwerkraft stehen.’ G27, p. 181.

<sup>77</sup> ‘Genügt es zu sagen: Die praktische technische Erfahrung wurde erweitert über den engeren Gesichtskreis hinaus, den Landbestellung, Haus- und Brückenbau bieten?’ G27, p. 181.

<sup>78</sup> ‘Bloße Erweiterung des Erfahrungsbezirks führt stets nur zu Gebrauchsdingen.’ G27, p. 185.

things which indeed cannot and need not be affected by such comportment.’<sup>79</sup> But surely this appeal to entities that stand outside the circle of our concerns is naïve and simply begs the question of whether or not there is any phenomena akin to presence at hand, rather than answering it? Blattner and Rouse would no doubt claim that in speculating about the density of the chalk buried deep within a cliff face, or indeed the density of matter at the centre of a neutron star, one is already considering the entity as if it were, or at least might at some future date be, available for use. This would simply be a case of what Heidegger himself calls ‘envisaging’ [*Vergegenwärtigung*], which he says is just a special case of the kind of making present [*gegenwärtigen*] that belongs to deliberation. ‘In envisaging, one’s deliberation catches sight directly of that which is needed but which is un-ready-to-hand.’<sup>80</sup> What would it matter if the widening of the sphere of experience only ever led to things of use, if there were after all only things of use? But this is to misunderstand the point of Heidegger’s argument. He is not interested in identifying some set of entities that happen to fall outside of the current range of our concerns, rather he is interested in how it is that we can talk about them at all. In order to be able to envisage something as a possible object of future use, there must after all be something *the same* about it as those things which are already of use, and this something which is the same must transcend all determinations in terms of use, since it cuts right across them in pointing *beyond* them. ‘To lay bare what is just present-at-hand and no more, cognition must first penetrate *beyond* what is ready-to-hand in our concern.’<sup>81</sup> The very fact that we can thus gather in entities that lie beyond the horizon of our concern, points to something about those entities that already lie *within* the

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<sup>79</sup> ‘Wenn überhaupt hier eine Erweiterung primär eine Rolle spielt, dann doch offenbar in dem Sinne, daß gesagt wird: Diese Beziehungen sind nicht nur da vorhanden, wo Boden und Gestein uns bei der praktischen Bearbeitung zu schaffen machen, sondern auch dort, wo wir gar nicht hingelangen mit unseren Geschäften, und wohin wir auch gar nicht hinzugelangen brauchen. [...] auch von den Dingen, die gar nicht von solcher Verhaltung betroffen werden können und brauchen, ist hier die Rede.’ *G27*, p. 182.

<sup>80</sup> *Being and Time*, p. 410.



horizon of our concern that nevertheless *exceeds* it. In talking about entities in terms of mass rather than in terms of their suitability for this or that task, we rely upon a *different way of determining them*. 'It is a determination of beings qua nature. We do not bring any new beings thither, we do not turn ourselves towards other things, but rather that which is already manifest is newly determined, and indeed with regard to its Being-what and its Being-how, with regard to Being.'<sup>82</sup> The widening of the sphere of reference, whether it be merely the widening of the sphere of applicability of a rule for comportment or whether it be the widening to the sphere of all material things, widening as such is only possible because there is a way of determining things that runs counter to their involvements. 'Now does the new determination of beings as nature develop through the widening of the sphere, or on the contrary is the widening of the sphere a necessary consequence of the new determination of beings. Obviously the latter.'<sup>83</sup> But in what does this new determinability of things consist? Precisely in those correlations such as the correlation between the resistance of the earth and the hardness of the ploughshare which Heidegger identifies as inhabiting interstitially as it were the contexts of involvement. These relations are, if you like, second order relations. They are relations between entities already determined *as* their involvement relations; and this is what guarantees that they cannot themselves be involvement relations, not even as abstracted or standardised involvement relations. Abstraction or standardisation of involvement relations relies implicitly on such second order relations. These relations *guide the process* of abstraction or standardisation, *show the way* in which different aspects of different involvements may be gathered together. The earth insofar as it is to

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<sup>81</sup> *Being and Time*, p. 101.

<sup>82</sup> 'Es ist eine Bestimmung des Seienden qua Natur. Wir bringen nicht neues Seiendes hinzu, wir wenden uns nicht anderen Dinge zu, sondern die schon offenbaren selbst werden neu bestimmt, und zwar hinsichtlich ihres Was- und Wie-seins, hinsichtlich des Seins.' *G27*, p. 185.

be tilled corresponds in its heaviness, its stickiness, its intractability, to the weight, the sharpness, and the shape of the plough that *is* for tilling; and this correspondence is quite different from the reference relations between plough and earth within the context of tilling. It opens up a dimension that runs across every field and every plough. These correspondence relations run *through* the context of involvement, knitting together contexts in a pattern quite different from that hierarchical embedding of involvements that points towards a for-the-sake-of-which. On the basis of these relations entities can be determined in quite new configurations. This is, I take it, the point of Heidegger's somewhat cryptic remarks in *Being and Time* on the distinction between the ready-to-hand and the present-at-hand: 'the following structures and dimensions of ontological problematics... must be kept in principle distinct: 1. The Being of those entities within-the-world which we proximally encounter - readiness-to-hand; 2. The Being of those entities which we can come across and whose nature we can determine if we discover them in their own right by *going through* the entities proximally encountered - presence-at-hand.'<sup>84</sup> Going through [*Durchgang*] does not mean here something like going through a curtain to reach what lies on the other side; rather the present-at-hand itself goes through the ready-to-hand as the warp goes through the woof in a woven fabric. (This is partly indicated by the word itself, which means primarily 'passage' or 'way through' without any necessary connotation of exiting or leaving. A sign saying '*Kein Durchgang!*' does not tell you that there is no exit, it tells you that you are not allowed *on* a piece of land, are not allowed to walk *across* it.) One does not *arrive at* the present-at-hand at the end of a line that penetrates beyond the ready-to-hand, rather one encounters the present-to-hand in following the line which *it itself* traces through the

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<sup>83</sup> 'Erwächst nun die neue Bestimmung des Seienden als Natur durch die Erweiterung des Bezirks, oder ist umgekehrt die Erweiterung des Bezirks eine notwendige Folge der neuen Bestimmung des Seienden? Offenbar gilt das letztere.' *G27*, p. 185.

<sup>84</sup> *Being and Time*, p. 121 (my emphasis).

fabric of the ready-to-hand; a line that, if it can be said to penetrate the ready-to-hand, does not do so once and for all so as to make it clear to the other side, but punctures it repeatedly as it threads its way in and out of it, never getting clear of it.<sup>85</sup>

At this point we might recall that William Blattner, when describing the process of standardisation, claims that what science focuses upon are aspects of the ready-to-hand that are 'portable' between pragmatic contexts and which are in this sense somehow 'durable.' Now it may well be that such aspects could still be determined in terms of involvement, but what cannot be determined in terms of involvement is precisely their portability and durability. We can now see that it is 'portability' and 'durability' themselves that are present-at-hand determinations of entities. And it can be no accident that the concepts 'portable' and 'durable' echo so closely the very concepts that Heidegger identifies as fundamental to modern physics' objectification of the present-at-hand: motion as change of place, and mass as inertial resistance to change. What we are looking at when we look at entities as present-at-hand is precisely the portability and durability of ready-to-hand aspects, not the aspects themselves. We are looking at what makes standardisation possible, not standardisation itself. We are looking precisely at that which makes any substitution of one piece of equipment by another, any evaluation of better or worse, possible in the first place. To discard this hammer for that one, is already to move 'outside' the reference relations because it is to move *between* them, to switch tracks, as it were. This hammer is not related to that hammer by a for-which or an in order to (except perhaps when one uses a hammer to repair a hammer). This hammer does not have that hammer as its towards-which, rather both hammers move within their own involvements in parallel, as it were. The patterns of involvements that determine

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<sup>85</sup> Heidegger does speak earlier on in terms of penetration. 'To lay bare what is just present-at-hand and no more, cognition must first penetrate *beyond* [dringt über] what is ready-to-hand in our concern.' [Being and Time, p. 101.]

them as what they are, prove in some respects similar; they can be more or less mapped onto one another. The overall fabric of involvements in which both lie embedded - the context of the workshop in which both reside for example - can be folded to bring these two regions face to face and momentarily fuse. What else happens when one tool is substituted for another? How else to explain the possibility of those hyper-contextual leaps from one region of the environing world to another? As Heidegger himself says, 'The insight dawns that practical measures are therefore taken because in the end all material things have such properties.'<sup>86</sup> This insight is tantamount to the change-over in our understanding of the Being of beings. 'In distinction from things of use, there suddenly appears a universal sphere of material things, called physical nature. This changeover is thus based on a change in the determination of the Being of beings.'<sup>87</sup>

The 'if... then...' schema of deliberation proves to be ambiguous. On the one hand it speaks of the structure of involvements. On the other hand it contains hidden within itself a reference to the correlations that run through the context of involvements. This ambiguity is revealed in the difference between the two assertions 'The hammer is too heavy' and 'The hammer is heavy.' What has changed here is not simply the loss of an adverb, but the nature of the 'is' itself, that is to say, *what* is being determined, as well as *how* it is being determined. In the first assertion the hammer, still determined as a hammer by its functionality, is considered 'too heavy for this work.' The assertion occurs as *one side* of an 'if.. then...' schema ('If I'm going to hammer in this fragile pin, then this hammer is too heavy.') In the second assertion the hammer is no longer determined as something ready-to-hand at all, but rather is determined *as* simply heavy.

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<sup>86</sup> 'Es dämmert jetzt die Einsicht, daß die praktischen Maßnahmen deshalb getroffen werden, weil am Ende alle materiellen Dinge solche Eigenschaften haben.' G27, p. 182.

<sup>87</sup> 'Im Unterschied zu den Gebrauchsdingen zeigt sich plötzlich ein universaler Bereich von materiellen Dingen, genannt physische Natur. Dieser Umschlag beruht also auf einem Wandel der Bestimmung des Seins des Seienden.' G27, p. 189.

What does this mean? The assertion no longer occupies a place in an ‘if... then...’ schema. (‘If I’m going to hammer in this pin, then this hammer is heavy’ makes no sense), but rather *spans* it. The second assertion refers to what binds the two places of the ‘if... then...’ schema together, what correlates them - heaviness. The second assertion occurs in schemas of the form ‘Since the hammer is heavy, i.e. is the kind of thing for which heaviness is an appropriate predicate, as opposed to assertions, say, which are neither heavy nor not heavy, considerations such as “if I want to do X, then this hammer is too heavy” are possible.’ The assertion ‘the hammer is heavy’ tells you something about the kind of ‘if... then...’ schemas that are possible when considering what *to do* with hammers.

*Step 3: Scientific projection - the interpretation of the change-over*

But this change over [*Umschlag*] in our understanding of Being is still *not* what constitutes the scientific attitude, because, as we have already seen, on the one hand, taking something as present-at-hand is not necessarily scientific - you don’t have to do physics, to know that the hammer is heavy; while, on the other hand, it is possible for any kind of being, not just the present-at-hand, to become the object of a science. ‘A modification of our understanding of Being does not seem to be necessarily constitutive for the genesis of the theoretical attitude “towards Things”. Certainly not, if this “modification” is to imply a change in the kind of Being which, in understanding the entity before us, we understand it to possess.’<sup>88</sup> Why then bother to describe so painstakingly deliberation about the ready-to-hand and its modification into assertions about the present-at-hand? Because the *example* chosen to illuminate the genesis of the scientific attitude is mathematical physics, the science of Nature understood as present-at-hand. Heidegger’s point is this: The change over to understanding the entities before

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<sup>88</sup> Being and Time, p. 413.

us *as* present-at-hand simultaneously affords us the opportunity, as it were, of modifying the understanding *of* the present-at-hand, that is to say, of making *that* understanding itself explicit. This 'secondary' modification is precisely a modification of the *understanding* of Being, which does not imply any change in the Being of the entities before us. They simply remain present-at-hand before us, whether or not we investigate them scientifically. But this change in the *understanding* of the present-at-hand is *dependent* upon the change over to understanding them so, and not just for the trivial reason that a change in the understanding of the present-at-hand is clearly dependent on that understanding having actually occurred.

What does it mean to look at the hammer as present-at-hand, rather than deal with it as ready-to-hand? As well as ignoring the fact that it is a tool, it means overlooking its quite specific place within the context of involvements. Heidegger says, 'Its place becomes a matter of indifference.'<sup>89</sup> The entity has been released from its confinement within the totality of involvements. Instead of having a proper place determined by its specific relations with other tools and materials, the hammer now occupies a spatio-temporal position that is inherently arbitrary. Because of this arbitrariness, one present-at-hand thing can be replaced by another. They are inherently interchangeable; and because they are interchangeable, if you have one, essentially you have them all. Heidegger says: 'The aggregate [*das All*] of the present-at-hand becomes the theme.'<sup>90</sup> Now, in fact, in German *das All* is not used to mean 'the all,' 'the aggregate' - though that of course is what it would mean from its etymology. What it actually means in ordinary usage is the universe, or space - the cosmos. Indeed in modern usage it denotes specifically outer space (for example *Spaziergang im All* means "space walk"). *Das All* is the physical universe that Heidegger always contrasts with the phenomenon of the

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<sup>89</sup> Being and Time, p. 413.

world. For example, in *Basic Problems of Phenomenology*: ‘What we call the universe [*Weltall*] is, like everything that may be important or not important, not the world. Rather, the universe [*das All*] of beings is - or, to speak more carefully, can be - the *intraworldly*, what is *within the world*.’<sup>91</sup> What Heidegger is saying, then, in *Being and Time* is that *das All*, space as a whole, and the whole as space, the concept of the universe as a homogeneous totality belongs inherently to the meaning of the present-at-hand. It is not as if one first looks at something present-at-hand, and then one chooses or chooses not to think of it as belonging to a homogeneous spatial whole, rather to encounter something *as* present-at-hand *is* to encounter it as belonging to such a whole because it *is* interchangeable.

This need not, however, ever be explicit. After all, the statement ‘The hammer is heavy’ says nothing about the aggregate of the present-at-hand. The cosmos as a whole would not seem to be involved (unless, of course, one were a Machian, but one can’t be a Machian without being a physicist) in deciding the issue.<sup>92</sup> But what does concern itself explicitly with the aggregate of the present-at-hand, and necessarily so, is physics. If the *aggregate* of the present-at-hand becomes the *theme* then one is doing physics. And this begins to indicate what constitutes science as science.

Any science whatsoever takes a ‘whole’ as its theme. But it takes a specific type of ‘whole’ as its theme, a ‘whole’ inherent to the Being of the beings under investigation.

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<sup>90</sup> *Being and Time*, p. 413.

<sup>91</sup> *BPP*, p. 165; ‘Was wir Weltall nennen, ist wie jedes belanglose oder belangvolle Ding nicht die Welt. Das All des Seienden ist vielmehr das *Innerweltliche*, vorsichtiger gesprochen, kann dieses sein.’ *G24*, p. 235.

<sup>92</sup> In fact *das All* was precisely the term that Mach himself chose to use in expressing his holistic empiricism. ‘Nature does not begin with elements, as we are obliged to begin with them. It is certainly fortunate for us, that we can from time to time, turn aside our eyes from the over-powering unity of the All, and allow them to rest on individual details. But we should not omit, ultimately, to complete and correct our views by a thorough consideration of the things which for the time being we left out of account.’ (Ernst Mach, *The Science of Mechanics*, trans. T.J. McCormack, (Chicago, Open Court, 1907), pp. 287-88; quoted in Pierre Kerzberg, *The Invented Universe*, (Oxford, Oxford University Press, 1989),

The fact that this particular kind of 'whole,' in this case *das All*, is inherent to the Being of the beings under investigation, in this case the present-at-hand, follows from *the way* in which the entities are determined. Science engages explicitly with what belongs inherently to the meaning of the beings with which it deals. In the case of physics, it deals explicitly with what belongs inherently to the meaning of the present-at-hand: interchangeability and aggregate. The crucial question is: How? The release of the ready-to-hand from its confinement within the context of involvements is part and parcel of the way in which the understanding of Being changes over to looking at entities as present-at-hand. This release from confinement is what determines that the aggregate, *das All*, belongs to the meaning of the present-at-hand. Therefore, Heidegger says, this release can become 'at the same time a delimitation of the "realm" of the present-at-hand, if one now takes as one's guiding clue the understanding of Being in the sense of presence at hand.'<sup>93</sup> Science can only proceed on the basis of such a delimitation.

If one looks at the historical beginnings of modern physics, then, according to Heidegger, what is decisive for its constitution as a science, is not so much its empiricism, nor even its application of mathematical methods, but rather '*the mathematical projection of Nature itself*.'<sup>94</sup> This mathematical projection uncovers the present-at-hand as such, along with the various basic attributes that make it quantitatively determinable. Only on the basis of such a projection is anything like a physical fact discoverable, or a physical experiment performable. '[W]hat is decisive is not primarily the mathematical as such; what is decisive is that this projection *discloses*

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p. 83.) It may be that Heidegger's use of the term is a deliberate allusion to the Machian tradition in German physics, in particular Einstein - see next chapter.

<sup>93</sup> *Being and Time*, p. 413.

<sup>94</sup> *Being and Time*, p. 413-14; trans slightly altered, '*mathematischen Entwurf der Natur selbst*.' *SZ*, p. 362.



*something that is a priori*. Thus the paradigmatic character of mathematical natural science [...] consists in the fact that the entities which it takes as its theme are discovered in the only way in which entities can be discovered - by the prior projection of their state of Being.<sup>95</sup>

Now it is important to realise that Heidegger is not proposing here something like a constructivist philosophy of science; that is to say, a philosophy of science which claims that, since there are no 'bare facts,' no empirical data without some backing theory, every science, or at least every scientific investigation, rests in the end upon an irreducible core of presuppositions about its subject matter, which themselves can never be fully justified. Heidegger's concept of scientific projection would in that case be something like Thomas Kuhn's notion of a paradigm. But that would be to assume that Heidegger's idea of the *a priori* is Kantian, i.e. that it is epistemological, something like the necessary conditions for empirical knowledge. A better example of the kind of a priori Heidegger has in mind is the truism, 'You can't make an omelette without breaking eggs.' Translated into philosophical jargon, this means that breaking eggs is a condition of possibility for an omelette, i.e. a necessary a priori. But this a priori is not epistemological. If anything it is ontological: there can *be* no omelette otherwise. Similarly, the a prioris disclosed by scientific projection might be of this kind, for example: 'You can't treat something as present-at-hand without releasing it from its involvement in your everyday concerns.' Our acceptance of, indeed certainty about, the impossibility of it being any other way rests in both cases upon the fact that we already know to some extent what it means to make an omelette or treat something as present-at-hand. Any kind of encounter with a being already demonstrates an implicit understanding of its kind of Being. But making this understanding of Being *explicit* in a

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<sup>95</sup> Being and Time, p. 414.

scientific projection can only follow on *after* the encounter with beings, and it can only follow on after because the encounter *already* involves a change over in the understanding of Being. It is not enough that the encounter be based upon an understanding of Being, that understanding must somehow be *enacted* in the encounter, not just passively relied upon. The change over is precisely that enactment. And scientific projection is the *explicit* enactment of the change-over. Scientific projection is, if you like, deliberation about the change-over: “If I am to view things as present-at-hand, then I must do so and so.”

To get a clearer understanding of what might be involved in an explicit enactment of the change-over to understanding an entity as present-at-hand we need to reconsider what Heidegger might have meant by the term ‘deworlding.’ The word has largely dropped out of Heidegger’s vocabulary by the time of *Being and Time*, but he does use it on just three occasions. They are interesting because they link the talk in paragraph 69b about the aggregate [*das All*] of the present-at-hand back to the examination of the most familiar ways in which presence-at-hand shows up within the everyday world of circumspective concern. In paragraph 24 on ‘Space and Dasein’s Spatiality,’ Heidegger tells us, ‘The homogeneous space of Nature shows itself only when the entities we encounter are discovered in such a way that the worldly character of the ready-to-hand gets specifically *deprived of its worldhood*.’<sup>96</sup> The homogeneous space of Nature is precisely that aggregate [*das All*] of the present-at-hand in which entities are inherently interchangeable because they are determined *as* their correlations. But how does the worldly character of the ready-to-hand get deprived of its worldhood? The most familiar and everyday situations in which this happens, are when the ready-to-hand breaks down, gets in the way of what we are doing, or is found to be simply missing. In such events

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<sup>96</sup> Being and Time, p. 147.

the ready-to-hand loses that peculiar invisibility that is attendant upon the smooth running of our affairs. We do not notice the ready-to-hand until it stops, in various different ways, being handy. 'The modes of conspicuousness, obtrusiveness, and obstinacy all have the function of bringing to the fore the characteristic of presence-at-hand in what is ready-to-hand.'<sup>97</sup> And Heidegger adds later, 'whenever the world is lit up in the modes of concern which we have been interpreting, the ready-to-hand becomes deprived of its worldhood so that Being-just-present-at-hand comes to the fore.'<sup>98</sup> In its most everyday and familiar guise, deworlding happens *despite* our best efforts. Only an armchair pragmatist could suppose that our practical activities are only ever suspended when we take a tea-break and lean back to take disinterested, but no doubt complacent look at the results of our efforts. We might remember at this point that both Rouse and Blattner dismiss this example of an enforced interruption in our activities as an example of 'decontextualisation' because they claim that the ready-to-hand does not thereby *become* present-at-hand. Rather the ready-to-hand becomes ready-to-hand in a different way, within a different context. We start trying to repair it, or set about looking for it, or simply shove it out of the way; all of which are ways of dealing with it. But Heidegger is, of course, aware of this. 'Pure presence-at-hand announces itself in such equipment, but only to withdraw to the readiness-to-hand of something with which one concerns oneself - that is to say, of the sort of thing we find when we put it back into repair.'<sup>99</sup> Heidegger's point is not that the ready-to-hand becomes present-at-hand when it breaks down, or is found to be missing, or gets in the way, as though readiness to hand and presence-at-hand were states of a thing which itself persisted through the process of change. Rather, Heidegger's point is that the present-at-hand announces itself *in*

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<sup>97</sup> Being and Time, p. 104.

<sup>98</sup> Being and Time, p. 106.

<sup>99</sup> Being and Time, p. 103.

breaking down, *in* being missing, *in* being in the way. Deworlding does not clear the stage of all involvements so that the bare present-at-hand thing may then appear. Rather deworlding itself is the way in which the present-at-hand *confronts* us. Deworlding is the Being of the present-at-hand.

Where both Dreyfus and his more pragmatist disciples go wrong in their account of the present-at-hand is revealed perhaps by Dreyfus' use of the concept of deworlding. For Dreyfus it is entirely clear, indeed so clear that he never explicitly comments upon it, that deworlding, or decontextualisation, is an *activity* carried out *by* Dasein. 'Occurent beings are revealed when Dasein takes a detached attitude towards things and decontextualises them - in Heidegger's terms, deworlds them.'<sup>100</sup> But perhaps this is precisely what doesn't happen. If the present-at-hand is precisely that which is not necessarily intraworldly, and thus 'unworldliness' belongs to the very Being of the present-at-hand, then perhaps the 'agent' of de-worlding is not Dasein itself, which is after all condemned to be in the world whether it likes it or not, but the present-at-hand itself. The present-at-hand is not reached at the end of a process of de-worlding (initiated by a Dasein who suddenly and for no apparent reason decides to stop being in the world, as if we could, and become a classical subject confronted by objects of cognition), rather the present-at-hand *is* deworlding. The Being of the present-at-hand is that it deworlds itself - and of course there are many ways in which it may deworld.

But how is this description of the Being of the present-at-hand to be reconciled with that description we have already obtained in terms of the correlations within a context of involvements that correspond across contexts? Deworlding doesn't destroy the world. In fact, according to Heidegger, it announces it. When an item of equipment is unavailable or unusable, its assignment within the context of involvements becomes explicit. The

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<sup>100</sup> Being-in-the-World, p. 256.

prefix *Ent-* in *Entweltlichung* may be similar to the *ent-* in *entfernen* and *entschlossen*, i.e., both privative and intensifying. A ready-to-hand thing is perceived, becomes conspicuous, when it 'leaps out' out of its context of involvements. It does not, to be sure, leap nowhere. Blattner and Rouse are right in suggesting that it must leap into another context. But what is the line that it follows in so leaping from one context to another? The line mapped out by the correspondence relations. Just as Dasein de-severs [*ent-fernt*] a distance by crossing it, that is to say by eliminating and enacting it, so the present-at-hand de-worlds the environment. This would mean that just as the *Umwelt* is the arena of our dealings with the ready-to-hand, the *Entwelt* is the 'arena' of our perception of the present-at-hand. But the *Entwelt* is not outside the *Umwelt*, nor is it nowhere, rather it lies 'perpendicular' to the *Umwelt* on the axis of the conspicuous/inconspicuous that pierces and runs through everything ready-to-hand.

The relation between deworlding and the correspondence relations that have already been used to characterise the Being of the present-at-hand is the same as that between readiness-to-hand and involvement: deworlding characterises the 'how' of presence-at-hand, correspondence relations characterise the 'what.' The present-at-hand manifests itself in deworlding; it is determined as what it is by the correspondence relations that run through the contexts of involvement. The fact that the determinations of the present-at-hand show up both within the philosophical tradition and common sense as 'properties' is phenomenologically due, I take it, to the *prior* constitution of the entity as an entity by its involvement relations. Heaviness looks like a property which attaches to a thing because in the assertion, 'The hammer is heavy,' the hammer is already implicitly interpreted as ready to hand. It is instructive, that in the history of modern mathematical physics there has been a progressive move away from such 'properties' to purely functional descriptions, until finally in quantum mechanics entities themselves become eigenfunctions of operators which represent 'observables' such as energy and

momentum, i.e. what in classical physics were still regarded as the properties of occurrent things.

The explicit enactment of the change-over in the understanding of Being should not, then, be read as a process of decontextualisation initiated by a Dasein, who happens for whatever reason to have a predilection for the theoretical attitude, but rather as something more like the interpretation of break down. Heidegger famously introduces his notion of interpretation in terms of repairing or improving something ready-to-hand. 'All preparing, putting to rights, repairing, improving, rounding out, are accomplished in the following way: we take apart in its "in-order-to" that which is circumspectively ready-to-hand and we concern ourselves with it in accordance with what becomes visible through this process. That which has been circumspectively taken apart with regard to its "in-order-to", and taken apart as such - that which is *explicitly* understood - has the structure of *something as something*.'<sup>101</sup> Interpretation [*Auslegung*] lays out the structure of involvement which determines the ready-to-hand *as* the entity which it is, so as to see *how* it is involved in its involvements. 'The "as" makes up the structure of the explicitness of something that is understood. It constitutes the interpretation.'<sup>102</sup> Interpretation is the *articulation* of an understanding, both its development, that is to say, its working out and its laying out in disclosure. But here it is not a question of an interpretation of the ready-to-hand that is implicit in repairing or setting the ready-to-hand to rights; it is a question of the interpretation of the break down itself, an articulation and working out of those modes - conspicuousness, obtrusiveness, and obstinacy, among others - in which presence-at-hand shows itself. Heidegger, unlike Cassirer, is not just interested in the logical theory of the concept formation appropriate to different kinds of scientific research, he is also, as he tells us in the 1925 lecture

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<sup>101</sup> Being and Time, p. 189.

course, interested in exhibiting ‘the kind of access which they have to the pre-given reality.’<sup>103</sup> And indeed it is the kind of access that determines the kind of concept formation that accrues to such research. Access to the present-at-hand is gained by interpreting the modes in which it comes to the fore, and interpretation does not just mean a discursive interpretation; it means primarily the kind of interpretation exemplified by repairing or setting to rights a piece of equipment. We begin to see why natural science is not just mathematical but also and necessarily experimental. Experimenting interprets the conspicuousness of the present-at-hand by laying out and going through the structure of breaking-down. Experimental apparatus are carefully constructed items of equipment designed to elicit failure. They are machines for failure.<sup>104</sup>

But why is the scientific projection of the present-at-hand, that is to say, the explicit enactment of the change over in the understanding of the Being of entities within the world from letting-be-involved to letting-be-deworlding, a *mathematical* projection of Nature? On what basis does Heidegger assume that the Being of the present-at-hand is in fact articulated by mathematics? Is he just taking it for granted because in fact natural science has ‘successfully’ operated with a mathematical projection of Nature? Or has he in mind some alternative definition of mathematics that would make the scientific

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<sup>102</sup> Being and Time, p. 189.

<sup>103</sup> HCT, p. 2.

<sup>104</sup>. This phrase is meant to echo Nancy Cartwright’s term of art “nomological machine”. Cartwright argues that natural laws do not obtain universally, but rather occur only within and as a result of fixed arrangements of components with stable capacities that allow regular behaviours to arise. ‘Sometimes the arrangement of the components and the setting are appropriate for a law to occur naturally, as in the planetary system; more often they are engineered by us, as in a laboratory experiment. But in any case, it takes what I call a *nomological machine* to get a law of nature.’ The Dappled World - A Study of the Boundaries of Science, (Cambridge, Cambridge University Press, 1999), p. 49. Cartwright, then, takes capacities to be basic, and laws to result only when we use our knowledge of the capacities that entities have to construct situations in which they will behave with law-like regularity. ‘What is important about capacities is their open-endedness: what we know about them suggests strategies rather than underwriting conclusions.’ Ibid, p. 59. In coining the phrase “machine for failure” all I am trying to suggest is that the only kinds of capacity that an entity could display within the context of ready-to-hand involvements would

projection of Nature inevitable. The answer lies, I think, in a highly coded passage at the end of Heidegger's analysis of the worldhood of the world in *Being and Time*.

And only if entities within-the-world can be encountered at all, is it possible, in the field of such entities, to make accessible what is just present-at-hand-and-no-more. By reason of their Being-just-present-at-hand-and-no-more, these latter entities can have their 'properties' defined mathematically in 'functional concepts.' Ontologically, such concepts are possible only in relation to entities whose Being has the character of pure substantiality. Functional concepts are never possible except as formalized substantial concepts.<sup>105</sup>

The reference here is to Ernst Cassirer's *Substanzbegriff und Funktionsbegriff* of 1910, the work which, as we have already noted, provided such a devastating criticism of Rickert's theory of concept formation within the natural sciences. Cassirer opposes the traditional theory of concept formation through abstraction, in which concepts are treated as genera formed by the progressive elimination of specificities. The most universal concept is also the most empty. This theory only has meaning, according to Cassirer, within Aristotelian metaphysics. There the hierarchy of abstractions reflects the real form of things. Substance really can be articulated in terms of generic commonalities and specific differences. Thus the definition of the concept through abstraction only has meaning for a metaphysics of substance, where the properties of things are fundamental, relations between them merely secondary. But the theory of concept formation by the isolation of similarities hides within itself its undoing. In order for two impressions to be found similar they must first be compared, i.e. they must be selected. They must be run through one by one, i.e. ordered in a series, and this presupposes a principle of selection. According to Cassirer, it is the identity of the generating principle that constitutes the concept. Instead of vaguely describing the organising principle of the series as 'similarity', which merely obscures the issue and

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be the capacities to surprise us, to disappoint us, or to annoy us - those capacities to disrupt our activities that Heidegger refers to as conspicuousness, obtrusiveness and obstinacy.

<sup>105</sup> *Being and Time*, p. 122.



begs the question, the point of logical theory is to set out the possible categorical functions, that is to say, ordering principles. The functional concept has what Cassirer calls 'concrete universality' as opposed to the abstract and empty universality of the generic concept. In mathematics, for example, a general formula does not lose any of the content of the specific instances which it covers, because they can all be derived from it. A mathematical concept gives a rule for the particularities covered by it. The more universal the concept, the richer it is in content. This is the concept thought of on the model of the mathematical function. In this model particularities are not erased in a process of abstraction but retained and organised as variables of the function; these variable will always be defined over some concrete range.

The implied criticism in Heidegger's comments on 'functional concepts' is not, I take it, that the traditional notion of the concept in terms of abstraction wins out, but that Cassirer's theory of the concept remains a theory of 'substantial' concepts, albeit a theory that deals with the matter better than an Aristotelian theory of generic concepts. Heidegger's argument with Cassirer is not over his theory of mathematics and natural science, but over Cassirer's claim that the notion of the functional concept is capable of synthesising via a theory of symbolic forms the whole disparate field of cultural activity. This is because, at the very least, the relations determinative of the context of involvements are not of the kind that can be expressed in functional concepts. 'The phenomenal content of these 'Relations' and 'Relata' - the "in-order-to", the "for-the-sake-of", and the "with-which" of an involvement - is such that they resist any sort of mathematical functionalization.'<sup>106</sup> But these comments indicate equally that within the realm of the present-at-hand Heidegger is perfectly happy to accept Cassirer's notion of the functional concept.

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<sup>106</sup> Being and Time, pp. 121-22.

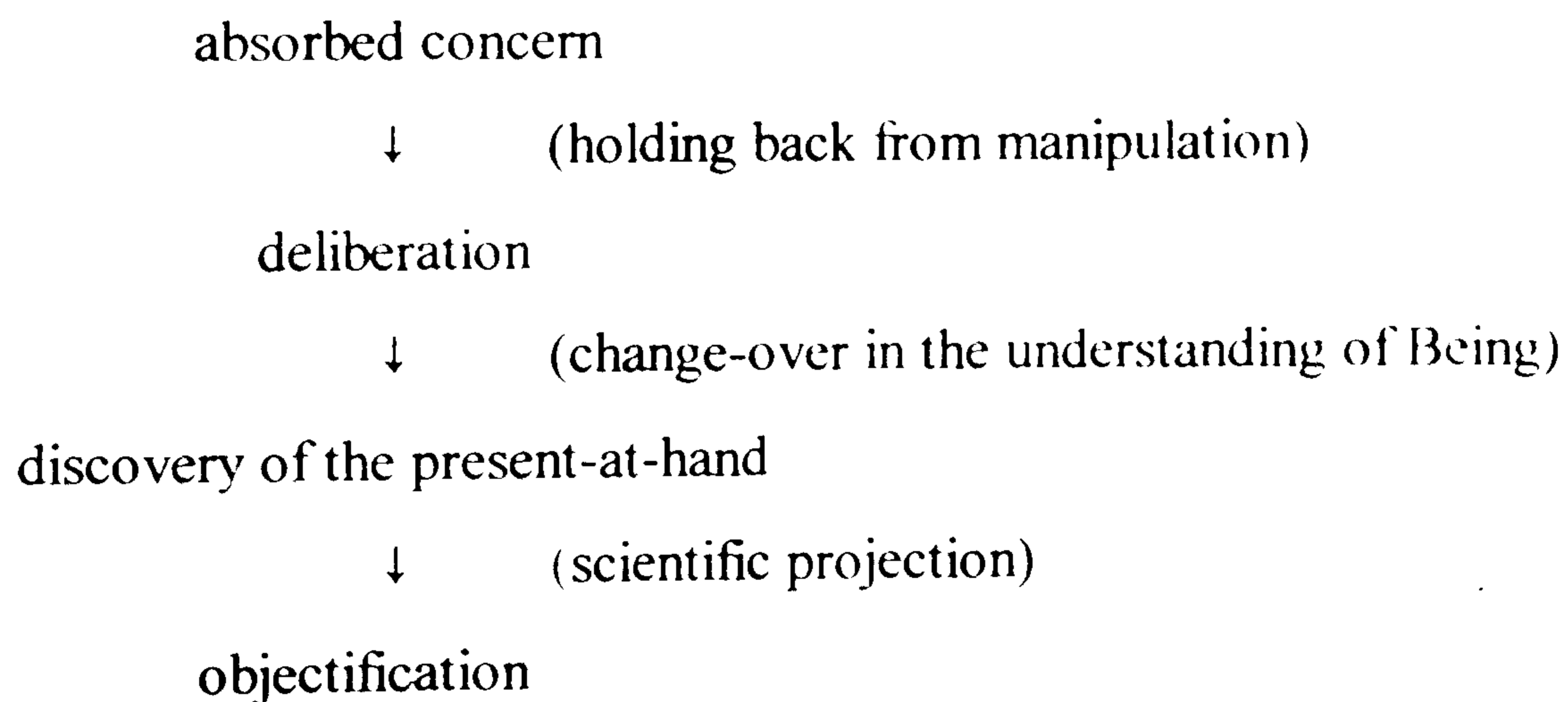
As we have seen, 'heaviness' is not a predicate of the hammer, but a word for a correlation, perhaps one among many, between the hammer and what it is hammering. Present-at-hand 'properties' are correlations *within* contexts of involvement that run through *all* contexts of involvement. It is this 'running through' that makes functional concepts appropriate for their expression. The functional concept is the generating principle of a series, it has concrete universality because the particularities it subsumes are maintained within it as variables. But this describes precisely the structure of the present-at-hand relations. The property 'heaviness' is something like the generating principle for each of the correlations within specific contexts of involvement which when run through as a series give the correspondence across contexts. The correlations can be expressed as the variable of a functional concept because they are already levelled off from the context references themselves.

Mathematics then would be nothing other than the formal articulation of possibilities of functional relations, relations that are equivalent to the correspondence relations Heidegger has already identified as the possible determinations of the present-at-hand. Hence mathematics would be nothing other than the formal articulation of the possible determinations of the present-at-hand. And if one wanted then a more detailed analysis of the kinds of relations constitutive of the present-at-hand one could do worse than go away and read Cassirer's *Substance and Function* - a book well worth reading anyway.

## **Conclusion**

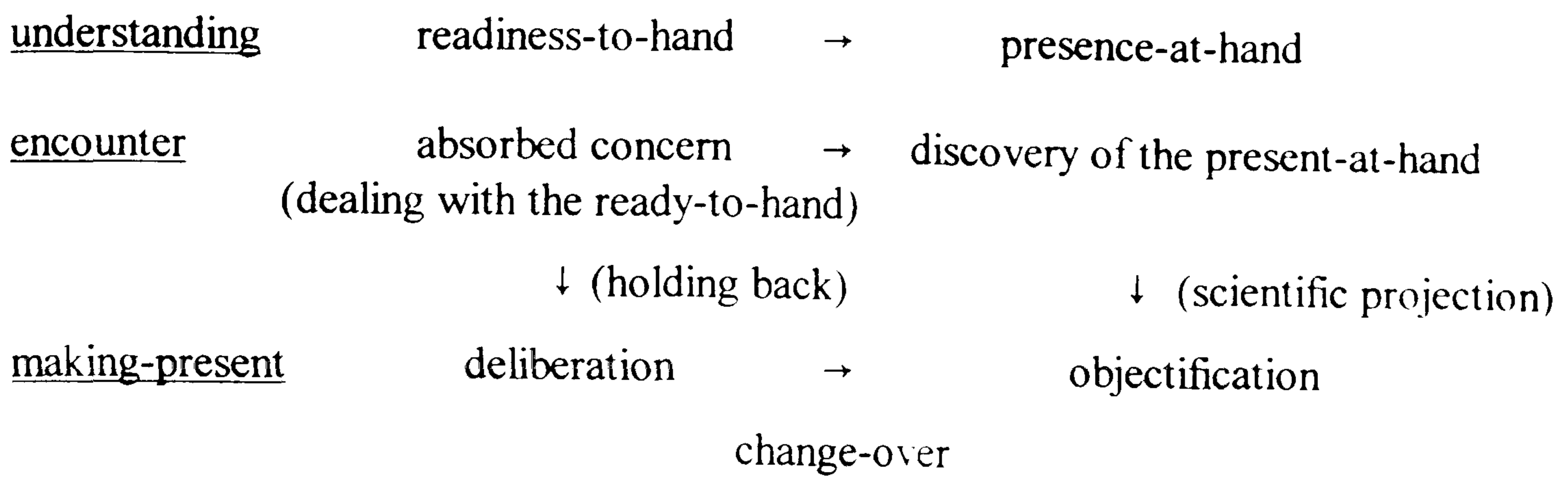
It looks, then, as if Heidegger's account of the way in which the possibility of scientific research emerges from everyday practical activity has three stages, and that part of the problem with previous readings of this account has been that they have either focused only on one of the stages or confused two or more of them. This confusion arises, in

turn, because the concepts of objectification and presence-at-hand are taken to be noetically-noematically correlative. The identification of objectivity and presence-at-hand appears to have become structurally engrained within the Anglo-Saxon reception of Heidegger's work, no doubt because that reception was backwards and largely determined from the start by the later Heidegger's strictures against 'objectifying thinking.' Matters are only made worse when full account is not taken of the distinction between natural science and science in general. Heidegger's account of the ontological genesis of *mathematical physics* is then taken to be an existential description of science per se, with no recognition of the fact that the formal-existential definition of science must be *extracted* from the phenomenological account of natural science by allowing *all* reference to the present-at-hand to drop out. Summarising schematically, then, the ontological genesis of mathematical physics looks like this:



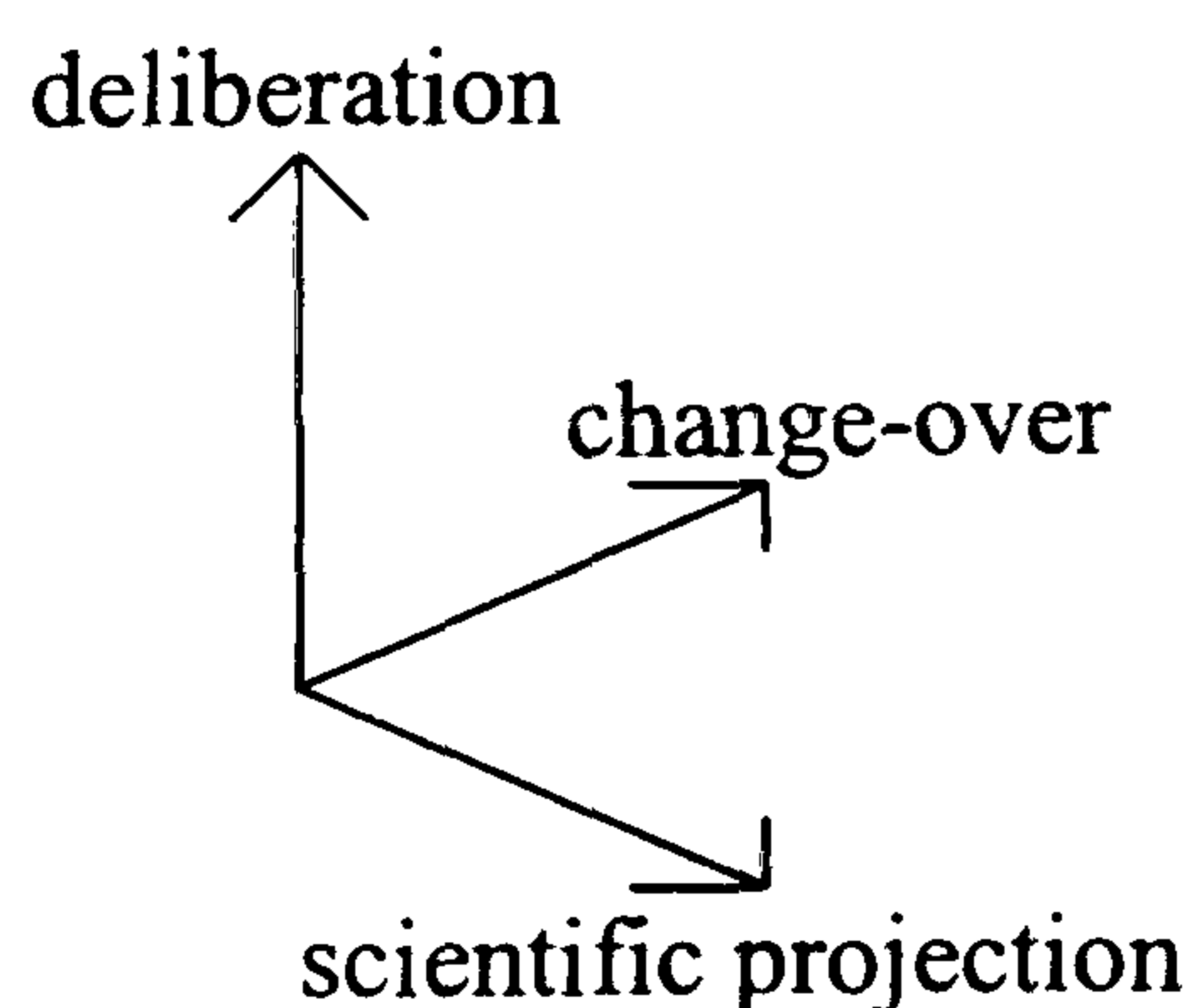
But this linear sequence does not fully capture the situation. It gives the impression that the various stages in the sequence might be simply amplifications of an underlying and single tendency - towards greater and greater objectivity, say. It does not express the fact that deliberation as the making-present of the ready-to-hand and the change-over in the understanding of Being are modifications that occur in completely independent dimensions. A better way of schematising what is going on, then, would be perhaps:

*Umschlag*



However this still doesn't do justice to what is going on. From this schema it looks as if objectification is to the present-at-hand as deliberation is to the ready-to-hand. Scientific projection would as far as the discovery of the present-at-hand is concerned be something like the holding-back from manipulation that allows circumspective concern to interpret the ready-to-hand, and make it present through deliberation. Scientific projection still appears to be specifically linked to the present-at-hand, not to be sure as that which constitutes it as present-at-hand, but rather that which brings it closer through interpretation. Objectification would simply be the thematic articulation of *the present-at-hand* based upon an explicit understanding of its kind of Being. But this contradicts Heidegger's assertion that objectification is not restricted to the present-at-hand, but is a possible mode of comportment towards beings with many different kinds of Being. What is missing in this schema is any indication of the connection between the change-over in the understanding of the Being of beings and the possibility of scientific projection at all. It looks as if scientific projection could occur simply on the basis of a *primary* encounter with the present-at-hand and the understanding of Being that such an encounter presupposes. That there can be a change-over in the understanding of Being is simply a consequence of the fact that there is more than one way of determining what and how a being is, but it appears to be strictly irrelevant to the question of making a particular understanding of Being explicit. That appears to occur within the ontological region itself as the result of something like a reflection about the encounter with beings

allowed by such an understanding of Being. But for Heidegger there could be no such 'reflection' if it weren't for the change-over in the understanding of Being. There could be no access whatsoever to Being, if Being were monistic. If there were only one background for our comportments within the world then that background would necessarily always be in the background. It is only because the background changes that backgrounds can come to the fore. The stepping-back from the encounter with beings to its condition of possibility occurs only as a turning back to the change-over - a twisting round from the encounter with entities to the passage from one kind of encounter to another. Scientific projection is not simply another kind of deliberation conducted within the confines of another ontological region - the field of present-at-hand entities as opposed to the field of ready-to-hand ones, say - rather it is something like a deliberation about the change-over itself. Scientific projection follows on after both deliberation and the change-over in the understanding of Being in the linear sequence we started out with, because it is dependent upon both, but is not simply a version of either. To borrow an analogy from mathematics, scientific projection is something like the vector cross-product of the two:



As in the second schema, deliberation and the change-over in the understanding of Being occupy separate dimensions, but now scientific projection is not portrayed as the result of doing one then the other, i.e. their vector addition, but as their vector *product*, occupying a third and independent dimension which is nonetheless determined by the 'plane' which the first two occupy. This third dimension is, perhaps, the 'step back'

from the plane of comportments which Heidegger tells us is inherent in scientific activity.

There is, however, one kind of encounter that doesn't seem to involve any change over, and that is precisely the encounter we *first* have with beings, the encounter *out of which* all other kinds of encounter seem to arise, namely the encounter with the ready-to-hand. And this is, in a sense, true. It explains precisely the peculiar 'shyness' of the ready-to-hand, and provides an answer to the question Heidegger poses at the end of *Being and Time*: 'Why does Being get "conceived" "proximally" in terms of the present-at-hand and not in terms of the ready-to-hand, which indeed lies *closer* to us?'<sup>107</sup> Precisely because we "proximally and for the most part" (*zunächst und zumeist*) encounter the ready-to-hand, we "proximally and for the most part" objectify the present-at-hand as the product of that change over in our understanding of Being that "proximally and for the most part" occurs in our everyday comportment. Scientific projection of the ready-to-hand could only occur by going backwards, as it were, through the change over to the present-at-hand. This would be dependent not only upon a prior projection of the present-at-hand, but also upon an explicit understanding of that projection's dependence upon the change over. This means that a science of the ready-to-hand would exhibit a peculiar reliance upon the kinds of investigation that make up the existential analytic itself.

But far more worrying than the tardiness of a science of the ready-to-hand, is the premature exhaustion of a science of nature. If scientific projection simply makes explicit an understanding of Being that is already fully enacted in our pre-scientific encounter with beings, then it seems that there is very little for science actually to do. As in some peculiarly trite subjective idealism in which the I posited whatever it liked as

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<sup>107</sup> Being and Time, p. 487.

the not-I, science would seem to be completed by and within its initial projection. Scientific projection, however, even of the present-at-hand, does not happen in one fell swoop. Rather the articulation of the understanding of Being, tied as it is to the continual encounter with beings, has a history. For example, the history of physics from Galileo to Einstein is not simply an accumulation of successful results all based on the same initial projection, rather it should be viewed largely as the struggle to articulate that projection, i.e. the gradual and arduous laying out of what exactly it means to treat something as present-at-hand. This process of articulation is what Heidegger calls thematization.

In the development of this understanding of being, those concepts emerge which circumscribe what is, for instance, historical reality as such, or what basically distinguishes a being as a living being, i.e., the *basic concepts* of the respective sciences. With the development of the basic concepts the respective basis and ground of a particular science and its realm become circumscribed. What is determined thus through objectification as a realm can now, as object, become a *theme*. The objective context can be investigated in various aspects and be established as the object of investigation. The respective thematization is built upon objectification as such.<sup>108</sup>

Objectification, even the objectification of physics, does not make things present-at-hand. Rather beings, whether or not present-at-hand, have already been encountered; scientific projection by making their kind of Being explicit allows them to become objects.

“Beings” becoming objects” does not mean that through this objectification beings become beings for the first time. Rather, as the beings which they already are, beings are to respond to the knowing which is making the inquiry. By responding to the question as to what, how, and whence beings are, they stand *vis-à-vis* the inquiry which reveals them.

With objectification we face the task of demonstrating, i.e. determining, beings which encounter us from out of themselves, of their own accord as they stand over against us.<sup>109</sup>

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<sup>108</sup> PIK, p. 20.

<sup>109</sup> PIK, p. 19.

It is this 'standing over against us' that constitutes the beings as objects (*Gegenstände*). This concept of object (*Gegenstand*) then does not arise in contrast with the concept of subject, but rather in contrast with the encounter (*Begegnung*) out of which it arises. Like deliberation, then, objectification is a kind of making-present, but it is a distinctive kind of making-present.

Being which Objectifies and which is alongside the present-at-hand within-the-world, is characterized by a *distinctive kind of making-present*. This making-present is distinguished from the Present of circumspection in that - above all - the kind of discovering which belongs to the science in question awaits solely the discoveredness of the present-at-hand. This awaiting of discoveredness has its existentiell basis in a resoluteness by which Dasein projects itself towards its potentiality-for-Being in the 'truth'. This projection is possible because Being-in-the-truth makes up a definite way in which Dasein may exist. We shall not trace further how science has its source in authentic existence.<sup>110</sup>

A superficial reading of this passage would assume that the making present of objectification is to be distinguished from the making-present of circumspection in that one is the making-present of the present-at-hand, the other the making-present of the ready-to-hand. But all making-present is inauthentic.<sup>111</sup> What on earth then can this distinctive kind of making-present belonging to science have to do with authenticity and resoluteness? All the more so in that all that distinguishes it from the inauthentic making-present of circumspection is an *awaiting* - precisely the inauthentic mode of the futural. The key to this bizarre about turn (the inauthentic present becomes authentic through being inauthentically futural!) is that the discovering which belongs to the science in question - i.e. mathematical physics - awaits solely *the discoveredness* of the present-at-hand. Here we see the turn about, and why science has its source in authentic existence. The making present of circumspection, that is to say deliberation, conforms 'to what is encountered within the horizon of awaiting retaining', but what is awaited is

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<sup>110</sup> Being and Time, p. 415.



the towards-which of the piece of equipment's involvement.<sup>112</sup> Now, on the contrary, what is awaited is discoveredness itself, not some entity that may or may not be discovered; what is awaited is the *unconcealment* of the present-at-hand as such, as it is laid out in the movement of the *Umschlag*. Thus, when Heidegger says that this awaiting has its existentiell basis in a resoluteness by which Dasein projects itself towards its potentiality-for-Being in the truth, he is saying the same thing as when in the winter of 1928/29 he says, 'Science means: To be in the unconcealment of beings for the sake of the unconcealment.'<sup>113</sup> The question of *how* science can be resolute and project itself upon the possibility of unconcealment as such will be our concern in the next chapter.

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<sup>111</sup> 'When we use the expression "making present" without adding anything further, we always have in mind the inauthentic kind, which is irresolute and does not have the character of a moment of vision.' *Being and Time*, p. 388.

<sup>112</sup> *Being and Time*, p. 411.

<sup>113</sup> 'Wissenschaft besagt: In der Unverborgenheit des Seienden sein um der Unverborgenheit willen.' *G27*, p. 179.

## Chapter Four

### Science and Crisis

Throughout the 1920s Heidegger was fond of making, by way of an introductory preamble, passing reference to the contemporary crisis afflicting seemingly every one of the sciences from mathematics to theology. But how significant, really, were these crises to Heidegger's analysis of scientific activity? What role is crisis supposed to play in the existential conception of science? In 1925 Heidegger tells his students that the crisis in the sciences attests to the fact that even the sciences themselves admit 'that they are in need of an original interpretation which they themselves are incapable of carrying out.'<sup>1</sup> So recently boasting of their independence, the sciences are back, tugging at their mothers apron strings. Crisis merely licenses philosophy to take charge again. Yet, in the opening paragraphs of *Being and Time* Heidegger observes, almost incidentally, that: 'The "real" movement of the sciences takes place when their basic concepts undergo a more or less radical revision which is transparent to itself. The level which a science has reached is determined by how far it is *capable* of a crisis in its basic concepts.'<sup>2</sup> This has a definite Kuhnian ring to it. Science is not simply the accumulation of data, nor even the articulation of ever more sophisticated and general theories. Science has its own 'real' movement, independent one assumes of the urgings of philosophy, but it does not simply progress. Its history is punctuated by periods of revolutionary change, when theories are not refined or broadened but thrown away. However, the remark is off the cuff. The thought is not expanded and apparently leads nowhere. Indeed, as we have seen, when Heidegger does at last discuss science in

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<sup>1</sup> HCT, p. 3.

paragraph 69b, the concept of crisis does not figure in his description at all. This might be because the discussion focuses upon the genesis of a science, while crisis is supposed to be an aspect of its maturity. But, even odder, it seems as if the concept of scientific projection elaborated there is in fact antithetical to any notion of *scientific* crisis. This is because scientific projection is supposed to make explicit the understanding of Being already implicit in our everyday comportments. Given that the basic concepts of a science articulate the conditions of access in *pre-scientific* activity to the entities under investigation, it is difficult to see how these basic concepts could ever be subject to radical revision, unless the way in which we encountered beings in everyday pre-scientific existence were itself subject to radical change. Quite apart from the question of whether Heidegger did or did not think that such radical changes in the structure of our everyday existence were even possible, this means that crisis could never strictly speaking be *scientific* crisis. A crisis in the foundations of the sciences would only ever be a reflection of an existential crisis in the manner of our comportments towards beings as a whole. A crisis in science would attest to a more profound crisis of Being-in-the-world. It would be impossible, then, for crisis to determine anything about a science at all, let alone the level it had reached, since crisis would be essentially pre-scientific, and science would only ever react to it as and when it happened.

But, then again, this may be all that Heidegger really meant by crisis. It is, after all, well known that 'crisis' was a popular, well-nigh inescapable, motif for academic hand-wringing in Weimar Germany. In the chaos following the first world war everything appeared to be in crisis, and throughout the twenties no intellectual, academic, or scientist seems to have been able to refrain from writing at least one article on the crisis in something or other. This truly astonishing flood of publications has been well

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<sup>2</sup> Being and Time, p. 29.

documented by, amongst others, Fritz Ringer in his book *Decline of the German Mandarins* and the historian of science, Paul Forman, in his long article 'Weimar Culture, Causality, and the Quantum Theory, 1918-1927.'<sup>3</sup> And funnily enough, Forman's thesis, which he argues at length in his essay, is precisely that this cultural crisis had nothing intrinsically to do with science at all. Natural science, in Germany in the twenties, simply got infected by the enthusiasm for crisis raging all around, and felt compelled, for appearance's sake, to put one on, with the admittedly unfortunate consequence, according to Forman, that it really did, thereby, fall into a crisis from which it has not yet recovered; namely, the incorporation at its very centre of an irrational and unscientific element represented by Heisenberg's uncertainty principle. As early as 1921 the political economist, A. Salz, was already complaining that, 'The phrase "Krisis der Wissenschaft" had already become a popular slogan in everyone's mouth.'<sup>4</sup> Given the climate of the times, it may simply have been impossible to have delivered a lecture course devoid of any reference to the crisis facing the sciences for fear of inciting student unrest. Heidegger's brief comments on the crisis in the sciences might be nothing other than genuflections to the national mood.

### **Crisis Rhetoric and the Revolution in the Sciences**

As Fritz Ringer has emphasised, one of the chief characteristics of the crisis mentality that beset Weimar Germany, was an extreme vagueness as to what exactly constituted crisis. 'Nobody felt the need to define the exact nature of the crisis, to ask where it came

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<sup>3</sup> Fritz Ringer, *Decline of the German Mandarins*, (Cambridge MA, Harvard University Press, 1969); Paul Forman, 'Weimar Culture, Causality, and the Quantum Theory, 1918-1927,' *Historical Studies in the Physical Sciences*, Vol. 3, 1971; see also Charles R. Bambach, *Heidegger, Dilthey, and the Crisis of Historicism*, (Ithaca and London, Cornell University Press, 1995), pp. 37-47.

<sup>4</sup> A. Salz, *Für die Wissenschaft - Gegen die Gebildeten unter ihren Verächtern*, (Munich, 1921). Quoted by Paul Forman, *Ibid*, p. 27.

from or what it involved.’<sup>5</sup> Nor could anybody agree on what the crisis signified for Germany or the academic disciplines. For some, such as Oswald Spengler, it was a symptom of a more general and inevitable decline. For others, such as Arthur Liebert, in his book *Die geistige Krisis der Gegenwart* [‘The Spiritual Crisis of the Present’], it was a condition of vitality. ‘A time without crisis,’ he exclaimed, ‘is a dead time, as a man without crisis is a dead man.’<sup>6</sup> What is certain, however, is that the phrase ‘crisis in the sciences’ did not denote, at first at least, a revolution in the sciences, such as we now see relativity theory and quantum mechanics to have been. From Max Weber’s influential and pessimistic address ‘Wissenschaft als Beruf,’ given in 1919, it was taken for granted that the crisis in the sciences was a crisis of confidence and of standing. Through ever increasing specialisation the individual sciences were losing all contact with the public realm. Esoteric and increasingly scholastic, they were in danger of losing any living meaning. In a way that was never very clearly explained, specialisation and professionalisation were supposed to lead inevitably to ossification. The sciences were not caught up in a ferment of revolutionary change; they were dying on their feet. The young especially were supposed to be tired of science, to have rejected its ideals, and turned instead to various forms of irrationalism that promised more excitement. Science and rationality were popularly identified with the old, discredited order that had led the nation to disaster. The Social Democrat education minister, Carl Heinrich Becker, for example, could write in a report on reform of secondary schools, ‘The basic evil is the overvaluing of the purely intellectual in our cultural activity, the exclusive predominance of the rationalistic mode of thought, which had to lead, and has led, to egoism and materialism of the crassest form.’<sup>7</sup> In his autobiography, the retired Nobel

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<sup>5</sup> Fritz Ringer, *op. cit.*, p. 245.

<sup>6</sup> Arthur Liebert, *Die geistige Krisis der Gegenwart*. (Berlin, Pan-Verlag Rolf Heise, 1924), p. 5; quoted in Charles R. Bambach, *op. cit.*, p. 39.

<sup>7</sup> Carl Heinrich Becker, *Gedanken zur Hochschulreform*. (Leipzig, 1919), p. ix. Quoted in Forman, p. 24.

laureate for chemistry, Wilhelm Ostwald, warned, 'In Germany today we suffer again from rampant mysticism, which [...] turns against science and reason as its most dangerous enemies.'<sup>8</sup> In 1922 the physicist, Max von Laue, felt compelled to publish an attack upon the anthroposophical school of Rudolf Steiner, which, he claimed, 'raised the most serious charges against today's natural science. It is represented as bearing the guilt for the world-crisis in which we stand at present, and the whole of the intellectual and material misery bound up with that crisis is charged to natural science's account.'<sup>9</sup> Whether the crisis is applauded or decried, it is seen as a crisis that threatens science's very future, a crisis that might mark the end of science as such.

The most extreme example of the apocalyptic tone was also one of the earliest, and by far the most successful. Oswald Spengler's *The Decline of the West*, published just before the end of the war in July 1918, had sold 400,000 copies by the time of the revised second edition in 1923.<sup>10</sup> The sensation that this work caused was immense. Everybody, even the natural scientists who one would have thought would be most antipathetic to it, seems to have read it, and been fascinated by it. Einstein, writing to Max Born in 1920, captures nicely the insidious appeal of this monumentally over-researched amalgam of omniscience and fatalism: 'Spengler has not spared me either. Sometimes in the evening one likes to entertain one of his propositions, and in the morning smiles about it.'<sup>11</sup>

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<sup>8</sup> Wilhelm Ostwald, *Lebenslinien. Eine Selbstbiographie*, (Berlin, 1926-27), Bd. 2, p. 442. Quoted in Forman, p. 12.

<sup>9</sup> Max von Laue, 'Steiner und die Naturwissenschaft,' *Deutsche Revue*, 47 (1922), pp. 41-9; reprinted in von Laue, *Aufsätze und Vorträge [Gesammelte Schriften]*, Bd. 3, (Braunschweig, 1962), pp. 48-56. Quoted in Forman, p. 12.

<sup>10</sup> Oswald Spengler, *The Decline of the West*, trans. by Charles Francis Atkinson, (London, George Allen and Unwin Ltd., 1926), 2 Vols. First published in German as *Untergang des Abendlandes*, (Berlin, 1918, 2<sup>nd</sup> ed. 1923).

<sup>11</sup> 'Der Spengler hat auch mich nicht verschont. Man laßt sich gern manchmal am Abend von ihm etwas suggieren und lachelt am Morgen darüber...' Einstein to Born, 27 June 1920, in Albert Einstein, Hedwig und Max Born, *Briefwechsel, 1916-55*, ed. and annotated by Max Born, (Munich, 1969), pp. 42-5.

Spengler's thesis is as startlingly simple as it is elaborately developed. Every aspect of human cultural life, all art and all science, all religion and all politics, is the product of a single animating idea, strictly one per Culture. This idea, or Soul-image as Spengler calls it, first arises in a myth of becoming. This myth of origin founds a specific Culture. Gradually the Soul-image works itself out of the realm of pure becoming into the various realms of 'the become,' that is to say, of reality; this constitutes the history of the Culture. Once this elaboration of the Soul-image into concrete forms has been completed, and the possibilities of its manifestation have been exhausted, the Culture is finished and declines into impotent old age. Cultures, therefore, follow a strict cycle from spring through summer and autumn into winter; and every aspect of the Culture marches in strict step.<sup>12</sup> There is, no advance guard and there are no stragglers. Like an infantry assault in the 1<sup>st</sup> World War, everything goes over the top together, and plods in melancholy line towards oblivion.

The crisis in the sciences is simply one sign among many that we are now entering into the winter of our Culture. Spengler, it is true, cites relativity theory and certain aspects of the old quantum theory as proof of the crisis in the sciences, but only because he does not regard them as revolutionary theories, but rather as self-evident absurdities that illustrate science's inability to remain true to its own ideals of objectivity and rigour.<sup>13</sup>

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<sup>12</sup> For example, the sciences always progress in tandem with the arts: 'If, then, we review the successive stages through which the central idea of force has passed since its birth in the Baroque, and its intimate relations with the form-worlds of the great arts and mathematics, we find that (1) in the 17<sup>th</sup> Century (Galileo, Newton, and Leibniz) it is pictorially formed and in unison with the great art of oil painting that died out about 1630; (2) in the 18<sup>th</sup> Century (the "classical mechanics of Laplace and Lagrange) it acquires the abstract character of the fugue style and is in unison with Bach [...].' The Decline of the West, Vol. I, p. 417.

<sup>13</sup> The following quotes give the flavour of Spengler's diatribe against contemporary physics as being in fact the destruction of the spirit of Western science: 'the ruthlessly cynical hypothesis of the Relativity theory strikes to the very heart of dynamics. [...] *it has abolished the constancy of those physical quantities into the definition of which time has entered*, and [...] the Western dynamics knows *only* such quantities.' Ibid, p. 419. 'if we observe how rapidly card-houses of hypothesis are run up nowadays, every contradiction being immediately covered over by a new hurried hypothesis; if we reflect on how little heed is paid to the fact that these images contradict one another [...] we cannot but realise that the *great style of ideation is at an end*.' Ibid, pp. 419-20. 'Above all, this is manifested in the bizarre hypotheses of atomic disintegration [...] according to which uranium atoms that have kept their essence unaltered, in spite of all

Science was once great and noble, but today it is a sorry sham. Thus Spengler is, on the face of it, not so much anti-science as anti-now. Spengler's hatred for everything modern is only alleviated by his insistence that nothing can be done about it - 'all these things betoken the definite closing-down of the Culture and the opening up of a quite new phase of human existence - anti-provincial, late, futureless, but quite inevitable.'<sup>14</sup> Since this is an inevitable stage in the cycle of cultures, blame can hardly be laid at science's door. It is a *destiny* that befalls science along with everything else, rather than an event *caused* by science. One might even suppose that what Spengler was impotently railing against was precisely our modern culture's rejection of scientific objectivity and decline into irrationality and superstition, what Spengler himself calls 'second religiousness.' However, according to Spengler, it is precisely science that causes a Culture's decline, because it is science that is opposed to destiny. 'In the Destiny-idea the soul reveals its world-longing, its desire to rise into the light, to accomplish and actualize its vocation.'<sup>15</sup> Destiny is the force of history. But in driving the Soul-image of a Culture out into concrete expression in the realm of Nature, destiny itself becomes concrete. Causality, 'is - so to say - destiny become, destiny made inorganic and modelled in reason-forms.'<sup>16</sup> Science, as the actualisation of the principle of causality, represents the death of destiny; it is the motor of decline.

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Paul Forman in his detailed examination of German natural scientists response to the endemic sense of crisis in the surrounding culture, is keen to cast Spengler as the arch-villain in the sorry tale. It is not just that Spengler wilfully misdiagnosed the causes of

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external influence, quite suddenly without assignable cause explode [...] Only a few individuals in an aggregate of radioactive atoms are struck by Destiny thus [...] Here too, then is a picture of history and not "Nature." Ibid, p. 423.

<sup>14</sup> Ibid, p. 34.

<sup>15</sup> Ibid, p. 118.



the crisis to suit his own ends. Spengler did not misinterpret the crisis in the sciences at all; he created it. Forman argues that the revolutionary change in the theoretical *content* of physics was, at least as far as quantum mechanics is concerned, the direct *causal* result of the sense of crisis in the sciences triggered by the hostile, irrationalist intellectual milieu.<sup>17</sup> Thus the introduction of quantum indeterminacy into physics was never scientifically justified but resulted from the philosophical prejudices of scientists who had been exposed to and educated within an intellectual culture dominated by Spenglerian thinking. Forman, thereby, hopes to pull the rug from beneath the feet of those modern day heirs of Spengler who claim that their relativism is backed up by the

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<sup>16</sup> *Ibid*, p. 119.

<sup>17</sup> For detailed historical criticism of Forman's argument, see John Hendry, 'Weimar Culture and Quantum Causality,' *Darwin to Einstein - Historical Studies in Science and Belief*, ed. by Colin Chant and John Fauvel, (Harlow, Longman in assoc. with the Open University Press, 1980), pp. 303-326. But Forman highlights a more basic problem in his own summation of his thesis. 'The readiness, the anxiousness of the German physicist to reconstruct the foundations of their science is thus to be construed as a reaction to their negative prestige. Moreover the nature of that reconstruction was itself virtually dictated by the general intellectual environment: if the physicist were to improve his public image he had first and foremost to dispense with causality, with rigorous determinism, that most universally abhorred feature of the physical world picture. And this, of course, turned out to be precisely what was required for the solution of those problems in atomic physics which were then at the focus of the physicist's interests.' Forman, *op. cit.*, pp. 7-8. The 'of course' heavily sign posts the hinge and lacuna in Forman's argument. His supposedly causal explanation for the incorporation of acausality into physics in fact relies upon a synchronicity (between external and internal pressures) that cannot itself be explained causally without jettisoning either the claim that the external milieu was irrational or the claim that it caused the fundamental revision. (To explain the synchronicity causally either one has to assume that the internal dynamic of physics caused the external milieu to be in sync with it, in which case the supposed irrationalism of the milieu was in fact a rational response to developments within physics, or one has to assume that physics was already contaminated with the irrationalism that is supposedly only incorporated at the moment when the external and internal pressures coincide.) Here we find inscribed within the structure of the argument its motivation. Forman turns back to the twenties so as to show how a hostile intellectual milieu can force science to incorporate irrational ideas, because in his own day, the early seventies, a hostile intellectual milieu (represented by environmentalism and feminism) is using those very irrational ideas embedded in the sciences as a justification for its attack upon them. If only those ideas could be rooted out, be shown to have been somehow improperly planted, then the hostile milieu will have no purchase upon the sciences, its attacks will wash off them like water off a duck's back. And yet, even at the moment when supposedly for very the first time science allowed itself to be swayed from its proper path, Forman finds that it was, of course, that is to say, as a matter of *course* (its own proper course, of course) perfectly ready to be swayed. Forman, therefore, seems at the very moment of cause and effect to invoke something very like the notion of destiny in Spengler, who he so savagely pillories - that is to say the notion of an acausal harmony between all aspects of a culture, which means that they march rigorously in step on the long slope of decline. But this notion of destiny does not merely contaminate Forman's own historiography, belying his claim to be writing a causal history, it contaminates the very idea of science, whose course of development can no longer be seen as autonomous, dictated solely by the demands of its own investigations, and therefore rational, but now must be seen as following a mysterious line somehow destined for it by the machinations of wicked fairies such as Spengler. It hardly need be said that this contamination cannot be condemned without incurring the risk of similar contamination.

latest scientific theory. The irony is, of course, that Forman's article is now regularly cited by the very cultural relativists he so despises, as proof that scientific theory is not rationally justified but socially determined. And why not? That is after all, what he set out to prove so as to defend the autonomy of the sciences. Clearly, a scientific purist such as Forman is always on the look out for social determinations of scientific practise precisely in order to keep science pure. But what the social determinist doesn't notice in her eagerness to turn the tables on the scientific purist is that it takes a scientific purist like Forman to 'prove' that science is socially determined. How else is one supposed to detect the social forces working within and on a science except by measuring the 'deviations' these forces impose on the science's 'natural' path, the path that it would have followed *just as a science*.

However what Forman does demonstrate convincingly enough in the course of his perversely self-defeating argument is that German scientists not only responded to the anti-scientism of the times, but in fact embraced the idea of crisis as a way of making science more acceptable to the general mood. But in so doing, they altered the sense of the crisis afflicting the sciences. No longer was the crisis seen to be one of ossification and loss of meaning, rather the crisis was itself to be salvation from ossification. Crisis demonstrated science's ability to transform itself, and promised to set science on a new footing that would better please its critics. There can be little doubt, reading the material that Forman amasses, that the physicists' appropriation of the rhetoric of crisis was initially at least a quite craven attempt to curry favour and garner funding, but that it then provided opportunely enough a model to understand and justify what was going in the field itself. After all, German physics had just been through one major conceptual transformation, which, whether coincidentally or not, had become public knowledge and the subject of fevered debate at the very same time that Spengler published *The Decline of the West*.

Forman does not consider relativity theory in his examination of the cultural pressures on German science because as far as he is concerned, being fully deterministic, it is unobjectionably objective and scientific. But this is not how it seemed to many people at the time. The news of Sir Arthur Eddington's confirmation of the gravitational bending of light in November 1918 made the front page of *The New York Times*. The controversy which it stirred, and the flood of publications denouncing or celebrating Einstein's theory that followed in its wake, were at least as great as the furore generated by Spengler's work. Indeed, while every German intellectual worth his salt appears to have published an article on the crisis facing Western culture, everybody throughout the world, from leading philosophers such as Cassirer and Bergson to simple madmen, appears to have published a book on relativity theory. The chief criticism levelled at the theory was that it defied common sense.<sup>18</sup> Put more philosophically, it appeared that the theory relativity could not be objectively true because it contradicted the very conditions of objective experience. Oskar Krauss, a neo-Kantian in the school of Hans Vaihinger, claimed for instance, 'The statement that the relative velocity of light, unaffected by the motion of the light source, remains the same with respect to every system which is in rectilinear uniform motion is false. It does not violate our thinking habits, but violates *a priori* necessary judgements.'<sup>19</sup> The criticism was not restricted to neo-Kantianism, however. In 1921, Ernst Mach, whose own positivism had been the acknowledged

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<sup>18</sup> This criticism had already been levelled, within the scientific community at least, at the special theory of relativity. In 1911 William F. Magie in his presidential address to the American Physical Society, complained that special relativity did not conform to the standards required for a physical model of reality: 'The elements of which the model is constructed must be of types which are immediately perceived by the senses and which are accepted by everybody as the ultimate data of consciousness. It is only out of such elements that an explanation, in distinction from a mere barren set of formulae, can be constructed. [...] A solution to be really serviceable must be intelligible to everybody, the common man as well as the trained scholar. All previous physical theories have been thus intelligible.' William F. Magie, 'The Primary Concepts of Physics,' *Relativity Theory: Its Origin and Impact on Modern Thought*, ed. by L. Pearce Williams, (New York, John Wiley and Sons Inc., 1968), pp. 119-120.

<sup>19</sup> Oskar Krauss, 'Fiktion und Hypothese in der Einsteinschen Relativitätstheorie,' *Annalen der Philosophie*, vol. II, No. 3, pp. 335-96, Leipzig 1921, pp.363-4. Jonathan Reé has pointed out to me that this is odd since Vaihinger's own doctrine of the categories as necessary fictions would seem to allow

inspiration for Einstein's work, publicly disassociated himself from the theory in the introduction to his *The Principles of Physical Optics*.<sup>20</sup> Joseph Petzold, Mach's chosen successor, objected to the theory, on the grounds that it went beyond the 'range of our sense organs.'<sup>21</sup> Both the assertion of the impossibility of faster than light travel in special relativity, and the possibility of a finite unbounded geometry for space-time in the general theory, constituted a 'retrogression to the rationalistic mistake of Kant.'<sup>22</sup> The problem for the scientific community, and those philosopher's who chose to champion relativity theory, such as Cassirer and the nascent logical empiricists, such as Moritz Schlick, Rudolf Carnap, and Hans Reichenbach, was not just to provide a philosophical justification for the transformation of the basic concepts of space and time, but also to find a redescription of scientific activity, insofar as reformulation of basic concepts had not hitherto been seen as a proper part of that activity. Justification of the reformulation could not occur without such redescription. And the vocabulary of crisis picked up from the surrounding culture provided just the tools for such a redescription. This explains the otherwise completely bizarre fact that Forman ends up in his article accusing even logical-empiricists, such as Reichenbach, of having succumbed to the anti-rationalist contagion because of their adoption of 'crisis rhetoric.' Forman cannot admit that there could have been any good 'internal' reasons for adopting crisis thinking in the sciences, for fear of losing his argument that the irrationality supposedly inherent in quantum mechanics was entirely caused by 'external' factors. But what in fact seems a good deal more credible is that driven by the internal pressures of a 'crisis' that predates crisis rhetoric, and which Forman refuses to

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precisely for such transformations of the conditions of possibility of experience. Nevertheless it appears that his disciples did not think so, in this case at least.

<sup>20</sup> Ernst Mach, *The Principles of Physical Optics*, trans. by John S. Anderson and A.F.A Young, (New York, Dover Publications, 1953), p.13.

<sup>21</sup> Joseph Petzold, 'Kausalität und Relativitätstheorie,' *Zeitschrift für Physik*, 1920, p.473.

<sup>22</sup> *Ibid.*

consider, the physicists were forced to do things that did indeed seem in some sense unscientific, and that flailing around for some justification of their desperate measures they gratefully grabbed the idea of crisis from their enemies. By the mid-twenties the scientists' reinterpretation of the crisis as a transformative and creative crisis had itself been reincorporated into the general sense of crisis, complicating it still further.

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The sense of crisis prevailing in Weimar Germany appears to have been thoroughly confused. Moreover attempts to disentangle the confusion, to distinguish the genuine crisis from a mere sense of crisis, or to impute that there was in fact no crisis, only a sense of crisis that led to crisis, appear to fall prey to the very confusion they strive against. Forman adopts relativism to denounce relativism. Spengler ends up the epitome of the late Alexandrian scholar, a mere collector and arranger of fossilised knowledge, that he mocks in the present age.<sup>23</sup> All of which suggests that when it comes to scientific crisis, it could never be a question of social causation nor the mere working out of a cultural destiny. As Heidegger himself says:

This transformation of seeing and questioning is misunderstood when it is taken as a change of standpoint or as a shift in the sociological conditions of science. It is true that this is the sort of thing which mainly or exclusively interests many people in science today - its psychologically and sociologically conditioned character - but this is just a facade. Sociology of this kind relates to real science and its philosophical comprehension in the same way in which one who clammers up a facade relates to the architect or, to take a less elevated example, to a conscientious craftsman.<sup>24</sup>

And equally witheringly on Spengler:

Yet we ourselves are not at all concerned, let alone affected by this world-historical determination of where we are, by the settling of accounts with our culture. On the contrary, the whole affair is something sensational, and this

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<sup>23</sup> 'In physics as in chemistry, in biology as in mathematics, the great masters are dead, and we are now experiencing the *decrescendo* of brilliant gleaners who arrange, collect and finish-off like the Alexandrian scholars of the Roman age.' Spengler, *op. cit.*, p. 424.

<sup>24</sup> *FCM*, p. 261.

always means an unconceded, yet once again illusory appeasement, albeit of a merely literary and characteristically short-lived kind. The whole approach of cultural diagnosis, which is non-binding and is interesting for just this reason, then becomes even more exciting by being developed and reconstituted, whether explicitly or not, into *prognosis*. Is there anyone who does not wish to know what is coming, so that they can prepare themselves for it, so as to be less burdened, less pre-occupied and affected by the present! These world-historical diagnoses and prognoses of culture do not involve us, they *do not attack us*. On the contrary, they release us from ourselves and present us to ourselves in a world-historical situation and role.<sup>25</sup>

None of which is to say that there is no connection between 'internal' and 'external' crises -that scientific crisis is an entirely internal affair - just that in their interconnection the two might have to be rethought, because the connection might be more 'internal,' more central to the determination of what scientific crisis actually *is*, than was ever thought.

### **The Three Crises of Science**

In 1928 Heidegger returned to the University of Freiburg to take up the chair vacated by Husserl upon his retirement. A year and a half after the publication of *Being and Time* and now ensconced in one of Germany's most prestigious academic positions, it was a good time to sit back and reflect upon what had been achieved and what still remained to be done. Interestingly, in both the inaugural address to the university, published as the essay 'What is Metaphysics?', and his first lecture course, entitled *Einleitung in die Philosophie*, Heidegger chose to concentrate upon the relation between philosophy and science.<sup>26</sup> In the opening sessions of the lecture course he allows himself the indulgence

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<sup>25</sup> *FCM*, p. 75. This should scotch the temptation to think of Heidegger as simply an academically sanitised version of Spengler, as Forman accuses him of being.

<sup>26</sup> As an introduction [*Einleitung*] to philosophy, or rather, since as he explains in the introduction [*Einführung*] an introduction assumes that what it is introducing already exists and therefore is already determined, as an initiation [*Einleiten*] into philosophising, Heidegger proposes at the beginning of the lecture course to examine the relation between philosophy and science, world-view, and history (see *G27*, p. 10). Characteristically, however, two thirds of the course is devoted to the question of science, while the final question of the relation between philosophy and history is never even touched upon.

of reminiscing a little about his own student days, the intellectual milieu before the war, and the growing sense even then that there was something moribund, and increasingly irrelevant about the academic disciplines. 'It could no longer remain hidden that, despite all the progress of the individual sciences, the connection between them and their content on the one hand, and on the other a living powerfully effective cultural ideal had been torn asunder; and that this rift was only artificially hidden.'<sup>27</sup> But for his own generation this unease had not lead to a rejection of science or its ideals, but on the contrary to a renewed dedication. 'This uncertainty as to the existentiell position of science in Dasein was especially sharp for us before the war, since we were convinced of the positive inner possibilities of science and its central function for Dasein, and therefore did not allow ourselves to slacken the intensity of our work, even if it were participation in ossified specialisations.'<sup>28</sup> Heidegger makes this personal confession in order to emphasise two points. First, the crisis in the sciences 'is not an accidental post-war phenomenon, as most think, but lies latent in science.'<sup>29</sup> But second, this means that the impression that the crisis is a crisis which threatens science or somehow invalidates it, *is* a consequence of the peculiar transformation the crisis underwent after the war. 'After the war the critical situation was not strengthened, but only so to speak popularised. These internal troubles with respect to science, which we did not play off against it, now became the theme of pamphlets, and soon, as such infection spreads, everybody was dissatisfied with science. [...] The crisis was not sharper or more

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<sup>27</sup> 'Es konnte nicht länger verborgen bleiben, daß bei allen Fortschritten der Einzelwissenschaften der Zusammenhang zwischen den Wissenschaften und ihrem Gehalt auf der einen und einem lebendigen wirkungskräftigen Bildungsideal auf der anderen Seite abgerissen war, und dieser Riß nur noch künstlich verdeckt wurde.' G27, p. 28.

<sup>28</sup> 'Diese Unsicherheit in der existenziellen Stellung der Wissenschaft im Dasein hatte aber für uns vor dem Krieg dadurch noch eine besondere Schärfe, als wir von den positiven inneren Möglichkeiten der Wissenschaft und ihrer zentralen Daseinsfunktion überzeugt waren und uns deshalb die Intensität der Arbeit, auch der Mitarbeit im Erstarrten und Spezialisierten, nicht abschwächen ließen.' G27, p. 28.

<sup>29</sup> 'diese Krisis keine zufällige Nachkriegerscheinung ist, wie die meisten meinen, sondern latent in der Wissenschaft liegt.' G27, pp. 26-27.

serious, but had become only louder.’<sup>30</sup> Thus the sense of crisis is a double-edged sword. On the one hand: ‘If the crisis belongs to the essence of science, a reflection upon it can bring us closer to the essence of science.’<sup>31</sup> On the other hand, the sense of crisis has become so confused and multifarious in its popularisation, the slogan and the weapon of so many pamphleteers and propagandists (‘the momentary disruption due to Oswald Spengler’<sup>32</sup>), that it is as likely to obfuscate as to clarify. This is why Heidegger now undertakes a lengthy and painstaking examination of what the crisis in the sciences might actually mean.

He starts by distinguishing three different senses in which the phrase is used:

1. The crisis in the internal construction of the essence of science itself.
2. The crisis of science with regard to its position in the whole of our historical-social Dasein.
3. The crisis in the relation of the individual to science itself.<sup>33</sup>

Heidegger then proceeds to consider these crises in reverse order. At first it seems that each crisis taken in this order is a product of the next, and upon reflection dissolves into it. Thus the crisis of the individual’s relation to science turns out ‘in the end to be grounded upon the fact that it is entirely unclear and undetermined how science stands essentially in human Dasein as such.’<sup>34</sup> i.e. the second crisis in the list. The crisis of the individual’s relation to science arises as a kind of misinterpretation of the second crisis,

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<sup>30</sup> ‘Nach dem Krieg wurde diese kritische Situation nicht verschärft, sondern gleichsam nur popularisiert. Diese innere Not gegenüber der Wissenschaft, die wir nicht gegen sie ausspielten, wurde jetzt Thema von Broschüren und nun, wie solche Ansteckung sich verbreitet, war jeder mit der Wissenschaft unzufrieden. [...] Die Krisis war nicht schärfer und ernster, sondern nur lauter geworden.’ G27, p. 29.

<sup>31</sup> ‘Wenn die Krisis zum Wesen der Wissenschaft gehört, kann eine Besinnung auf sie uns dem Wesen der Wissenschaft näherbringen.’ G27, p. 27.

<sup>32</sup> ‘[die] Krisis der Geisteswissenschaften in der momentanen Erschütterung durch Oswald Spengler.’ G27, p. 26.

<sup>33</sup> ‘1. Die Krisis im inneren Wesensbau der Wissenschaft selbst.

2. Die Krisis der Wissenschaft hinsichtlich ihrer Stellung im Ganzen unseres geschichtlich-gesellschaftlichen Daseins.

3. Die Krisis im Verhältnis des Einzelnen zur Wissenschaft selbst.’ G27, p. 27.

<sup>34</sup> ‘Daß die Stellung der einzelnen Existenz zur Wissenschaft in eine Krisis kommen kann, hat doch am Ende darin seinen Grund, daß überhaupt unbestimmt und ungeklärt ist, wie denn so etwas wie Wissenschaft im menschlichen Dasein als solchem wesensmäßig steht.’ G27, p. 29.



or rather as a mistaken solution to the second crisis. Science's place in the cultural whole is in doubt, therefore it must be given a place. Science must be forcibly reincorporated into the fabric of our lives. But this effort to give science some meaning, what Heidegger describes as 'the romantic attempt to reorganise science from the outside through an artificial overpowering and surmounting with worldviews and suchlike,' is based upon 'the fantastic belief in the ability to change science according to a programme.'<sup>35</sup> This is a quite impossible task, and all that is actually achieved is a sense that science is something with which the individual has a personal relation as he or she sees fit. What the crisis in this individual relation speaks of, just as much as it disguises, is not whether or not this relation can be forged or the danger that it might be broken, but that irrespective of such relation and indeed despite it, 'the essence of science obviously must be understood in connection with the human Dasein and in terms of its essential constitution, that therefore all definitions of science, which are not created in this direction, are essentially misguided.'<sup>36</sup> In other words the crisis in the individual's relation to science is not that such a relation is difficult to forge, but that the very idea of forging such a relation involves treating science as something in the first place outside of human Dasein. Therefore, the relation between the individual and science is always in crisis precisely because it always offends, obscurely at least, against the truth of the matter. The crisis is not *in* the relation, rather the very idea of a relation is symptomatic of a crisis quite outside the relation.

Similarly, when Heidegger comes to examine the second crisis, the crisis in the position of science within culture as a whole, the crisis from which the third crisis, the crisis of

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<sup>35</sup> 'die romantischen Versuche [...], Wissenschaft von außen her und gar durch eine künstliche Überwältigung und Überwindung mit Weltanschauung und dergleichen umbilden zu wollen.' G27, p. 30  
'dem phantastischen Glauben, mit Hilfe von Programmen die Wissenschaft ändern zu können.' p. 29.

<sup>36</sup> 'das Wesen der Wissenschaft offenbar im Zusammenhang des menschlichen Daseins als solchen und aus dessen Grundverfassung begriffen werden muß, daß demnach alle Definitionen der Wissenschaft, die nicht in dieser Richtung geschöpft sind, in einem Wesentlichen versagen.' G27, p. 30.

the individual's relation to science, arises as a symptomatically misconceived solution, here too he finds that the crisis arises from a misconception. 'Thus the crisis with regard to the position of science in the whole of culture springs from a peculiar misjudgement of the essence of science, of the essence of the truth peculiar to it.'<sup>37</sup> Heidegger reaches this conclusion by focusing upon one of the chief symptoms of the crisis: the constant demand, and the ever renewed attempts, to popularise science. This desire to popularise is a genuine response to the feeling that science has lost its cultural importance. It is as ardent today as it clearly was back in the twenties, and yet seems to have made surprisingly little progress. The complaints by scientists that the liberally educated cultural elites actually take pride in their ignorance of science remain as loud today as ever.<sup>38</sup> Maybe a few more people have heard of the second law of thermodynamics than in C.P. Snow's time, but who really has any clear understanding of, say, modern genetics? And yet the need to communicate these things, to place science right back in the centre of our cultural activity, is clearly urgent. What could be more pressing than the practical consequences of gene technology? This connection between the practical consequences of science and the need for its popularisation is so self-evident as to go almost unnoticed, and yet it is the source, according to Heidegger, of the very crisis which popularisation is supposed to solve. Popularisation does not merely inform the public, it gives to science once more the chance of meaning - that meaning, the meaning it has *for us*, is precisely the impact it has *upon us*. 'This tendency to popularise is

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<sup>37</sup> 'So entspringt auch die Krisis hinsichtlich der Stellung der Wissenschaft im Ganzen der Kultur aus einer eigentümlichen Verkennung des Wesens der Wissenschaft, des Wesens der ihr eigentümlichen Wahrheit.' *G27*, p. 33.

<sup>38</sup> For a not untypical example, I promise you, take this: The linguist and evolutionary psychologist Steven Pinker writes, 'In a gathering of today's elite, it is perfectly acceptable to laugh that you barely passed Physics for Poets and Rocks for Jocks and have remained ignorant of science ever since, despite the obvious importance of scientific literacy to informed choices about personal health and public policy. But saying that you have never heard of James Joyce or that you tried listening to Mozart once but prefer Andrew Lloyd Webber is as shocking as blowing your nose on your sleeve or announcing that you employ children in your sweatshop, despite the obvious *unimportance* of your tastes in leisure-time activity to just about anything.' *How the Mind Works*, (Harmondsworth, Penguin Books, 1997), pp. 522-23.

supposed to remedy a clearly felt and understood need and create a replacement for what is lacking, providing science in turn with meaning, in actual fact by means - this is almost self-evident - of documenting its practical consequences.<sup>39</sup> But in spite of its genuine motivation and all its serious intent, popularisation in fact represents 'a growing annihilation and burial [*Verschüttung*] of the possibility of giving back to it [science] the primordial position in the history of Dasein;' and this is because 'it fails to understand that science may never be equated with its results, which can then be passed around ready-prepared in any old mixture.'<sup>40</sup> Popularisation, in its urge to make science relevant, in fact latches onto what is most irrelevant to it *as* science. In its urge to make science living, it ensures that all that is preserved is what is dead in it. And yet there would be no crisis, if science were simply dead and the attempt to revive it, therefore, merely wrong-headed. In fact, the attempt is not wrong-headed, but perverse, speaking eloquently of something alive in science as surely as it buries it, therefore burying it alive [*verschüttet*]; and conversely, what is living in science remains living, despite the misconceived attempt to revive it, precisely because it is not something that can be added on to science, or injected into it, applied or administered in any way, but rather is essential to it.

Popularisation goes against the essence of science because the essential thing about science does not lie in what is merely tradable, what can be passed from hand to hand, but rather in that which is always appropriated anew. This primordial appropriation of the essential is only possible, however, in the method which is inseparably bound up with, and deeply rooted in subject matter and results. Admittedly method means more than is commonly designated by it; method is itself more than technique [*Technik*].<sup>41</sup>

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<sup>39</sup> 'Diese Tendenz zur Popularisierung soll einer deutlich gespürten und verstandenen Not abhelfen, für einen Mangel einen Ersatz schaffen und der Wissenschaft wiederum Bedeutung verschaffen, und zwar auf dem Wege, der fast selbstverständlich ist, indem man ihre praktische Wirkung ausdrücklicher dokumentiert.' *G27*, pp. 31-32.

<sup>40</sup> 'weil sie verkennt, daß die Wissenschaft nie gleichgesetzt werden darf mit ihren Resultaten, die dann in irgendeiner Zubereitung von Hand zu Hand weitergegeben werden.' *G27*, p. 32.

<sup>41</sup> 'Popularisierung geht gegen das Wesen der Wissenschaft, weil das Wesentliche der Wissenschaft nicht in dem liegt, was bloß tradierbar ist, von Hand zu Hand gegeben werden kann, sondern was immer neu

The truth which the urge to popularisation expresses is that science cannot be purely theoretical, it must have some essentially *practical* nature. 'The question remains, however, whether the genuinely practical character of science consists of its possible benefits.'<sup>42</sup> The crisis, which popularisation is both a symptom of and response to, itself attests to deeply held assumptions about the theoretical that, as a matter of course, make it seem 'removed from life.' But the problem is that these unexamined and implicit notions ensure that any attempt to reintegrate science with life always appear to force it to deviate from its theoretical nature. On the other hand: 'If our assertion that science is in itself practical is correct, then it must have its own explanation [*Bewandtnis*] in the theoretical character of science.'<sup>43</sup> But this in turn means that the 'theoretical' no longer necessarily means what we have always assumed it to mean. It has been opened up to question. 'What "theoretical" means must itself be determined then from the essence of the truth of science.'<sup>44</sup> In this way, the second crisis of science, the crisis of its separation from the rest of culture, the crisis of its practical import, points back to the first crisis of science - the crisis in the internal construction of its essence. This crisis, Heidegger tells us, 'announces itself in what today we like to epitomise by a slogan as foundational crisis.'<sup>45</sup> It seems pretty clear, therefore, that though Heidegger is keenly aware of the many meanings attaching to the phrase 'crisis of science,' and indeed the historical priority of those which high light the social and 'existential' crisis of science,

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angeeignet wird. Diese ursprüngliche Aneignung des Wesentlichen ist aber nur möglich in der mit Sachgehalt und Resultat unzertrennlich verwachsenen Methode. Methode meint freilich mehr, als was gemeinhin damit bezeichnet wird; Methode selbst ist mehr als Technik.' G27, p. 32. For an extended discussion of what Heidegger means by '*verwachsen mit Sachgehalt*' see the next chapter, pp. 209ff.

<sup>42</sup> 'Die Frage bleibt aber, ob der eigentliche praktische Charakter der Wissenschaft in der möglichen Nutznießung besteht.' G27, p. 33.

<sup>43</sup> 'Wenn unsere Behauptung, daß die Wissenschaft in sich selbst praktisch ist, zurecht besteht, muß es mit dem theoretischen Charakter der Wissenschaft eine eigene Bewandtnis haben.' G27, p. 34.

<sup>44</sup> 'Was >theoretisch< besagt, muß sich dann aus dem Wesen der Wahrheit der Wissenschaft bestimmen.' Ibid.

<sup>45</sup> 'Die Krisis im Wesensbau der Wissenschaft bekundet sich in dem, was man heute mit einem Schlagwort gern als Grundlagenkrise bezeichnet.' G27, p. 35.

he is intent upon wresting from them the sense of crisis as foundational crisis. This sense will be the primary and original one, from which all the others stem. 'It appears, therefore, that we hit upon the root of the crisis immediately, if we reflect upon the first crisis listed.'<sup>46</sup>

However, this first crisis will prove no more immune to critical questioning and reduction than the other two. It too will turn out to be something of a misunderstanding - not this time a crisis that arises, as both symptom and exacerbation, out of a misunderstanding of the essence of science, but rather a misunderstanding *of crisis*, which will turn out to be the essence of science. To begin with, though, as was the schema with the other crises, the crisis of foundation calls into question our concept of foundation.

Outwardly it seems curious at first that the sciences which are subject to foundational crisis [*Grundlagenkrisis*] don't cave in upon themselves, but on the contrary - we only have to think of contemporary physics and also biology - often undergo major development. One speaks of a crisis of ground laying [*Grund-lagen-krisis*], shaking of the foundations, and yet the structure does not begin to totter. Because the picture of basis, foundation, and structure does not say too much, it is right to determine more closely what basis of a science means here.<sup>47</sup>

The structure does not totter, not because the crisis is illusory, nor even because the crisis is not in fact in the foundations, but because the relation between the foundations and the structure is not that in a building, because what we confidently call foundation may be very different from what we thus take it to be, because the basis of a science (not what makes up the basis, but what constitutes its 'basisity' as such) remains clouded in mystery. However, because the picture of basis, foundation, and structure is compelling

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<sup>46</sup> 'Es scheint demnach, daß wir die Wurzel der Krisis unmittelbar treffen, wenn wir uns auf die an erster Stelle genannte Krisis besinnen.' G27, p. 35.

<sup>47</sup> 'Von außen gesehen ist es zunächst merkwürdig, daß die Wissenschaften, die der Grundlagenkrisis unterliegen, nicht in sich zusammenbrechen, sondern im Gegenteil oft - denken wir nur an die heutige Physik und auch die Biologie - in einer großen Entwicklung stehen. Man spricht von Grund-lagen-krisis,

and clear, even if upon inspection it doesn't turn out to say too much, the solution to the crisis of foundations appears self-evident: new foundations. The only question is, who is to provide them? The scientist, appalled at the prospect of the reintroduction of metaphysics and mysticism, the hazy, ill-judged, enthusiastic babble about a change in world-views, which in fact grounds nothing but only muddies the waters, either denies that any fundamental revision is necessary, or 'believes that the already available means developed by science so highly on its own, will suffice to carry out this work itself - thus, for example, the essence and basis of mathematics is capable of being known mathematically.'<sup>48</sup> The philosophers, for their part, balk at this effrontery, and laugh at the idea of a mathematically founded mathematics, and indeed the scientists find that to get anywhere they have to make use of concepts and ideas imported from outside their science. But this does not confirm those who believe that the sciences need a philosophical foundation. 'Neither the individual science from out of itself in its customary self-knowledge, nor a philosophy brought in from the outside, can so much as awake the crisis. This either-or does not get to the root of the crisis at all. ...both philosophy and science operate with an idea of science which is not sufficient to understand the problem.'<sup>49</sup> Part of the problem is that precisely by trying to solve it, neither takes the crisis seriously enough. 'The crisis should not be overcome, but rather should become alive, and not only so that the sciences should become better and faster

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Erschütterung der Fundamente - und dennoch gerät der Bau nicht ins Wanken. [...] das Bild von Grundlage, Fundament und Bau nicht allzuviel aussagt.' G27, p.35.

<sup>48</sup> 'glaubt man jedoch, die bisherigen Mittel der so hoch entwickelten eigenen Wissenschaft reichten aus, diese Arbeit selbst zu erledigen - also z.B. das Wesen und die Grundlagen der Mathematik mathematisch begreifen zu können.' G27, p. 37.

<sup>49</sup> 'Vielleicht ist es in der Tat so, daß weder die einzelne Wissenschaft von sich aus in der üblichen Selbstkenntnis noch eine von außen herangebrachte Philosophie die Krisis auch nur wecken kann. Mit diesem Entweder-Oder wird die Wurzel der Krisis überhaupt nicht erreicht. Die Frage bleibt freilich, ob es nur das Versagen der Philosophie auf der einen und das Nichtwollen der Wissenschaft auf der anderen Seite sind, was die echte Krisis nicht wach werden läßt, - oder aber ob es daran liegt, daß sowohl die Philosophie als auch die Wissenschaften mit einer Wissenschaftsidee operieren, die nicht zureicht, das Problem zu verstehen. Das letztere ist in der Tat der Fall.' G27, p. 38.

and more unimpeded in their progress, but so that the sciences may become existent in accordance with their essence at all.’<sup>50</sup>

‘We must first learn to understand what foundation of a science means and to what extent crisis of foundations reveals directly the essential limits of a science.’<sup>51</sup>

Heidegger’s examination of the three crises is not designed to decide in favour of one or the other. Rather, he shows how each is the product of a misconception about the essence of science generated by the next one in the sequence, *and* that the relation is circular. The misconception about foundational crisis in the end leads back to the existential conception of science attested to by the first. ‘This foundational crisis is the one, which if it is rightly understood, makes clear the finitude of science in a primordial sense, i.e. it makes obvious the fact that science is an essential possibility of the existence of men.’<sup>52</sup>

In the lecture course given the following year (WS 1929-30) Heidegger is still insisting upon the same ambiguity. On the one hand, science thrives on crisis. It is only in crisis that it can transform its fundamental conceptions. ‘This transformation of seeing and questioning is always the decisive thing in science. The greatness and vitality of a science is revealed in the power of its capacity for such transformation.’<sup>53</sup> Yet science is always trying to avoid crises. It seems positively embarrassed by them, as though they might bring it into disrepute, or call the validity of its results into question. As soon as it gets into one it tries to get out of it again as quickly as possible. ‘[C]risis cannot break

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<sup>50</sup> ‘Denn die Krisis soll nicht überwunden, sondern lebendig werden, und nicht dazu, daß Wissenschaften nur besser und in ihren Fortschritten ungehemmter und schneller würden, sondern dazu, daß die Wissenschaften überhaupt so existent werden können, wie sie es ihrem Wesen nach wollen.’ G27, p. 39.

<sup>51</sup> ‘Wir müssen erst verstehen lernen, was Grundlage einer Wissenschaft heißt und inwiefern Krisis der Grundlage gerade die wesenhaften Grenzen der Wissenschaft als solcher offenbart.’ G27, p. 39.

<sup>52</sup> ‘Diese Grundlagenkrise ist diejenige, die, wenn sie recht verstanden wird, die Endlichkeit der Wissenschaft in einem ursprünglichen Sinne klarmacht, d.h. sie macht offenbar, daß die Wissenschaft eine wesentliche Möglichkeit der Existenz des Menschen ist.’ G27, p. 41.

<sup>53</sup> FCM, p. 261.

through in the serious and above all enduring manner that is required, because we are not sufficiently willing to let ourselves be shaken.'<sup>54</sup> The scientific reaction to scientific crisis, just as much as the philosophical or general cultural reaction, is by and large conservative. 'Today admittedly - contrary to the situation a few years ago - it is once again clearly recognisable that one tries to avoid this dawning crisis and keep one's distance from all disquiet. The general conservatism has once again the upper hand.'<sup>55</sup> And this conservatism does not just apply to those scientists, such as Mach, who cling on to the old ways, and never accept the new theories, rather new theory itself is to some extent always a conservative response to crisis. As we shall see in the next section, Heidegger has a profoundly ambiguous attitude towards the theoretical products of scientific crisis. On the one hand they are its only document, on the other they inevitably cover it up.

Science is as regressive as it is progressive. It consolidates and stabilises, even as it drives for constant change. But this stability, which Heidegger always equates with ossification, comes not so much from a rigid adherence to fixed fundamental principles and concepts, but is due rather to a kind of evacuation of the metaphysical ground floor, a running away into the upper storeys of science.

The regressions of a science are not generally obvious, but they are much more central than the advances, insofar as they always involve a failure of proper questioning in the science concerned. They imply a displacement of the proper metaphysical import of the science onto the outer surface of more specific areas of research, areas that may be left to support one another in mid-air.<sup>56</sup>

Clearly all our usual pictures have been inverted. What is most stable has no foundations but floats contentedly in mid-air. What has foundations is in crisis yet does

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<sup>54</sup> FCM, p. 191.

<sup>55</sup> 'Freilich heute - gegenüber der Lage vor wenigen Jahren - ist schon wieder deutlicher zu erkennen, daß man versucht, dieser erwachenden Krisis auszuweichen und alle Beunruhigung fernzuhalten. Die allgemeine Biederkeit hat wieder die Oberhand.' G27, p. 26.

<sup>56</sup> FCM, p. 188.



not fall. 'What announces itself in the slogan foundational crisis, belongs to the essence of science.'<sup>57</sup> But this means that in some sense crisis is itself foundational. The slogan "foundational crisis" would no longer refer to a crisis besetting a foundation thought of as a framework of concepts and fundamental principles upon which the rest of science could be built, but rather crisis would be seen now as lying at the very basis of science. But if science arises on the basis of an initial scientific projection, as detailed in the previous chapter, then crisis must inhabit, must be part and parcel of, scientific projection, not just something that happens to it. Crisis must be an inherent part of the very idea of scientific projection. To return to the question posed at the very beginning of this chapter: How can this be so?

Unfortunately Heidegger never returns to the question explicitly. In the 1928/29 lecture course, he concludes his discussion of the three crises in science by extracting three questions that will guide the subsequent investigations into the essence of science.

- 1.) How overall does something like science stand in human Dasein?
- 2.) In what sense is science "practical"?
- 3.) What does foundation of science mean, and to what extent is there revealed by it an inner limit in the essence of science?<sup>58</sup>

However, just as in *Being and Time*, when he finally uncovers scientific projection, that is to say the antecedent projection of the constitution of the Being of the beings to be investigated, as the founding basis of science, he does not then return to the question of crisis, that is to say, how foundational crisis can be said to inhabit this founding projection, but moves on instead to the question of transcendence, that is to say,

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<sup>57</sup> 'Was sich in dem Schlagwort Grundlagenkrise anzeigt, gehört zum Wesen der Wissenschaft.' G27, p. 35.

<sup>58</sup> 1. Wie steht so etwas wie Wissenschaft überhaupt im menschlichen Dasein?  
2. In welchem Sinne ist die Wissenschaft »praktisch«?  
3. Was heißt Grundlage der Wissenschaft, und inwiefern offenbart sich an ihr eine innere Grenze im Wesen der Wissenschaft?' G27, p. 40.

understanding of Being as such.<sup>59</sup> This means that it is necessary to reconstruct the role that crisis plays within scientific projection.

### **The Philosophical Interpretation of Relativity Theory**

For Heidegger, like all his philosophical contemporaries in the 1920's, the crisis in physics was represented by relativity theory. Though it was generally known that there were problems in the old quantum theory and with the Bohr theory of the atom, in other words, that something was going on in atomic physics, quantum mechanics itself was only first formulated in 1927/28 and did not begin to receive widespread philosophic attention until the mid thirties.<sup>60</sup> Heidegger too appears not to have considered the

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<sup>59</sup> See §26, 'The change in the understanding of Being in scientific projection. The new determination of being as Nature.' ['Der Wandel des Seinsverständnisses im wissenschaftlichen Entwurf. Die neue Bestimmung des Seienden als Natur'] G27, pp. 185-97. Heidegger sums up his investigation at the beginning of the next chapter thus, 'We have now indeed achieved an elucidation of the essence of science: it is positive knowledge and has the character of positivity [...] we do not say simply: scientific knowledge as theoretical is positive, but rather we have emphasised what belongs to positivity, i.e. we have found what makes positivity possible as such. It is the antecedent, unobjective, founding projection of the state of Being of beings, which stakes out a field. This projection is, as projecting of the Being of beings, nothing other than the letting-be of beings which we were asking after. This projecting as letting-be of beings is the primordial action of Dasein we sought after, in which the theoretical attitude, i.e. the making manifest of beings for the sake of their unconcealment, is alone made possible. In the projection which makes positivity possible, lies the primordial praxis, the primordially practical character of the theoretical. Still more: The projection of the state of Being of beings as the inner making-possible of positivity, i.e. the essence of science, is nothing other than the primordially grasped essence of the theoretical.' ['Zwar gelang uns jetzt eine Erhellung des Wesens der Wissenschaft: Sie ist positive Erkenntnis und hat den Charakter der Positivität. [...] Wir sagen ja nicht einfach: Wissenschaftliche Erkenntnis als theoretische ist positive, sondern wir haben herausgestellt, was zur Positivität gehört, d.h. wir haben das gefunden, was die Positivität als solche ermöglicht. Es ist der vorgängige, ungegenständliche, feldabsteckende, begründende Entwurf der Seinsverfassung des Seienden. Dieser gekennzeichnete Entwurf ist als Entwerfen des Seins des Seienden nichts anderes als das Seinlassen des Seienden, dem wir nachfragten. Dieses Entwerfen als Seinlassen des Seienden ist die gesuchte Urhandlung des Daseins, in der theoretische Einstellung, d.h. Offenbarmachen des Seienden unwillen seiner Unverborgenheit allein ermöglicht wird. Im Entwurf, der die Positivität ermöglicht, liegt der ursprüngliche  $\pi\rho\alpha\xi\iota\varsigma$ , der ursprünglich praktische Charakter des Theoretischen. Mehr noch: Der Entwurf der Seinsverfassung des Seienden als innere Ermöglichung der Positivität, d.h. des Wesens der Wissenschaft, ist nichts anderes als das ursprünglich gefaßte Wesen des Theoretischen.'] G27, pp.198-99. The move then on to transcendence, and the ontological understanding of Being ['ontologisches Seinsverständnis'], is the same move made in *Being and Time* from ¶69b to ¶69c.

<sup>60</sup> Reichenbach provides a good example, as he can hardly be accused of being unaware of contemporary developments in physics. During the twenties he concentrates his attention upon relativity theory, publishing *Axiomatik der relativistischen Raum-Zeit-Lehre* (1924) [*Axiomatization of the theory of relativity*, trans. and ed. by Maria Reichenbach, (Berkeley: University of California Press, 1969)] and *Philosophie der Raum-Zeit-Lehre* (1928) [*The Philosophy of Space and Time*, trans. by Maria Reichenbach and John Freund, (New York, Dover Publications, 1957)]. It is not until the thirties that he addresses the problem of probabilistic causality, culminating after he had left Germany in the publication of *Philosophic Foundations of Quantum Mechanics*, (Berkeley and Los Angeles, University of California Press, 1944).

implications of probabilistic quantum theory until 1936, when at his request a series of meetings were arranged between him and Werner Heisenberg by Carl von Weisäcker.<sup>61</sup> It is hardly surprising then that in the lecture courses of the '20s and in *Being and Time*, Heidegger should have consistently cited relativity theory when referring to the crises in the sciences. What is interesting, however, is that what he had to say about it was quite unlike the rest of the contemporary philosophical discussion. In fact, as we shall see, it was much more like what some of the scientists were saying themselves.

Of course, much of the philosophical (and non-philosophical) discussion centred on the counter-intuitive and supposedly paradoxical aspects of the theory: time dilation, the equivalence of energy and mass, the non-Euclidean geometry of space-time. Both Cassirer and the nascent logical empiricists were interested in relativity theory as a successor to the Euclidean geometry of absolute space and time underlying Newtonian mechanics because it demonstrated, as far as they were concerned, that there are no *a priori* forms of intuition. Cassirer, because he had already rejected the Kantian dualism of sensibility and understanding, and opted instead for what he himself called logical idealism, interpreted relativity theory as confirmation of his own epistemology.<sup>62</sup> The logical-empiricists, who called themselves logical empiricists precisely because they all started out as logical idealists, wished to demonstrate that even the form of the manifold is empirically determined. Strictly speaking then both Cassirer and the logical empiricists are philosophically neutral about relativity theory as a theory of nature. As

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<sup>61</sup> See Carl Friedrich von Weisäcker, 'Beziehungen der theoretischen Physik zum Denken Heideggers', *Martin Heideggers Einfluss auf die Wissenschaften*, (Bern, A Francke AG Verlag, 1949), pp. 172-174. Catherine Chevalley provides an interesting interpretation of the effect this encounter had on Heidegger's thinking in her article, 'Heidegger and the Physical Sciences', trans. by Christopher Macann, *Martin Heidegger - Critical Assessments: Vol. IV Reverberations*, ed. by Christopher Macann, (London, New York, Routledge, 1992), pp. 342-364.

<sup>62</sup> Going so far as to publish in 1921 a supplement to his *Substanzbegriff und Funktionsbegriff* of 1910 entitled *Zur Einstein'schen Relativitätstheorie* [see Substance and Function and Einstein's Theory of Relativity, trans. by William Curtis Swabey and Marie Collins Swabey, (New York, Dover Publications, 1953)].

an event in the history of science it simply provides the opportunity to break the stranglehold of more traditional neo-Kantian epistemology.

Cassirer sees the historical progress of science as the embedding of formal relational structures one within the other. This series is convergent to a limit and is governed by regulative principles. Thus, though it is never possible at any stage in the progress of science to say what the 'content' of the *a priori* form of space is, nevertheless the form of space is still governed by *a priori* principles, precisely those regulative principles governing the series within which the historically specific formal structure of the science is embedded.

Rudolf Carnap by contrast begins on the slow road to the rejection of *a priori* form altogether by distinguishing in his doctoral dissertation between formal, physical and intuitive space.<sup>63</sup> Physical space, as an object of sensible intuition, must share the form of intuitive space, but this does not exhaust the form of physical space. As intuitive space, space is necessarily infinitesimally Euclidean, but this says nothing about the metrical form of physical space. The metric is determined neither by empirical evidence nor by *a priori* principles, but rather is conventionally chosen. It cannot arise from empirical observation because empirical observation depends itself upon a choice of the method of physical-spatial measurement. The method of physical-measurement and the metrical form of space are mutually determinative, and thus are determined together only by convention.

Cassirer's notion of a convergent series of embedded formal relational structures clearly still clings to a structural notion of the *a priori*. But what persists even in the logical-empiricists' attempts to break with the Kantian concept of the synthetic *a priori* right up

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<sup>63</sup> Michael Friedman, A Parting of the Ways - Carnap, Cassirer, and Heidegger, (Chicago and La Salle, Open Court Publishing Company, 2000) p. 66

to the end point of Carnap's *Logical Syntax of Language* is the idea, the prejudice that what is *a priori* is *form* - even if form is relativised to the point where all that can be stipulated is that the syntactic rules of various logical forms be at least clearly and unequivocally expressed. But what is here missing is any consideration of the 'motivation' for the adoption of a particular formal relational structure in the description of nature. Moritz Schlick, for instance, in a very early paper from 1915 is unable to find any criteria for the adjudication of which theoretical description of the results of the Michelson-Morley experiment, special relativity or a modified aether theory, is the better, and so falls back upon a form of conventionalism.<sup>64</sup> Yet, nonetheless, it is a brute 'empirical' fact that the scientists themselves were in no doubt as to which was the better 'theory.' The scientists must have been applying, tacitly at least, some set of criteria which remain entirely outside the purview of the logical empiricists. Schlick in 1915 admits this. Einstein's theory appears to be 'simpler' and less 'ad hoc' than its aether theory rivals, and that is no doubt why the scientific community has adopted it. But there appears to be no way of giving these purely subjective criteria real epistemological meaning. The logical empiricists do not however pursue this problem, rather they set about codifying and formalising their indifference to it. The conventionalism which they picked up from Poincaré via Hugo Dingler hardens by the end of the 20s into the verifiability principle, which states that you shall know a theory by its consequences. Two theories which make exactly the same empirical predictions are in fact equivalent, and therefore not conflicting. Whatever differences there are between them are either differences in the definition of higher level orderings of the basic empirical facts, that are therefore purely conventional and will reduce out upon

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<sup>64</sup> Moritz Schlick, 'Die philosophische Bedeutung des Relativitätsprinzips', *Zeitschrift für Philosophie und philosophische Kritik*, Vol. 159, no. 1 (1915), pp. 129-175. [See Michael Friedman, 'Philosophy and the Exact Sciences - Logical Positivism as a Case Study', *Inference, Explanation, and Other Frustrations* -

analysis, or are extraneous metaphysical interpretations that are to be discarded as meaningless.

The scientists, on the other hand, *knew* that Einstein's general theory of relativity was the better theory because it *explained* the identity of inertial and gravitational mass. Now, strictly speaking, the general theory does not itself explain this identity; rather it is in a sense the consequence of *the identification*. What explains the identity is the necessity of such an identification within a new articulation of the notion of universal law. The identification of gravitational and inertial mass is necessary because within *non-inertial* frames of reference *the difference* cannot be measured. But that this fact should matter is due to an extension or modification of the notion of universality to include non-inertial frames of reference.

How does Heidegger interpret relativity theory? The evidence is sparse, but in the end I think adequate. From what little Heidegger has to say about relativity theory, I think it is clear that he relies upon Hermann Weyl's interpretation of relativity theory, principally worked out in his book *Space, Time, Matter*. That this is historically plausible is shown both by Heidegger's remarks about Weyl in the context of the debate between intuitionism and formalism in the foundations of mathematics, and the fact that Weyl was also one of Husserl's research students. In the end though the proof of the pudding will be in the eating. The interpretation of relativity theory produced will be recognisably, I think, Heideggerean.

The first thing to notice is that true to his word Heidegger does not concern himself with the *results* of relativity theory. This does not just mean its empirically verifiable predictions, nor any of its more counter-intuitive claims about the structure of space-

time that excited so much comment elsewhere. Rather it above all means strangely that Heidegger does not concern himself with the *theory* of relativity at all, if by that we mean the mathematical formulation of both the special and general theories, i.e. in the case of the general theory the mathematical formulation in terms of tensor calculus of the relation between mass distribution and space-time curvature - those equations whose solutions would in normal parlance be said to be the results of relativity theory. In this Heidegger appears to be quite distinct from all other philosophers of the time who concerned themselves with understanding relativity theory, rather than merely railing against it (Cassirer, Carnap, Schlick, Reichenbach, Bergson, et. al.) and he seems to have set himself apart from all other philosophers precisely by taking a lesson from the scientists themselves, Einstein and Weyl in particular. What concerns him is the specific relation between the principle of relativity and the theory of relativity. This represents for him a specific transformation not of scientific theory but rather of the concept of scientific explanation. In 1924 Heidegger, addressing a bunch of Marburg theologians, provided the following brief digression on relativity theory:

Space is nothing in itself; there is no absolute space. It exists merely by way of the bodies and energies contained in it. (An old proposition of Aristotle's:) Time too is nothing. It persists merely as a consequence of the events taking place in it. There is no absolute time and no absolute simultaneity either. In seeing the destructive side of this theory, one readily overlooks what is positive about it, namely, that it demonstrates precisely the invariability, with respect to arbitrary transformations, of those equations describing natural processes.<sup>65</sup>

It is not very much, but it is enough. In a very characteristic manner, without any trumpets blaring, with a matter of factness that belies the extreme conceptual distillation, Heidegger goes right to the heart of the matter. He simply by-passes everything that at the time, and indeed still now, was well-known and controversial about the theory - space and time dilation, the relativity of simultaneity, the twins

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<sup>65</sup> Martin Heidegger, The Concept of Time, trans. by William McNeill, (Oxford, Blackwell, 1992), p. 3.

paradox (known then as the *voyage au boulet* after a thought experiment proposed by Paul Langevin in 1911) that exercised Bergson so much,<sup>66</sup> and the use of non-Euclidean geometry - in other words, all those aspects which were supposed to constitute the revolutionary, and indeed as Heidegger wryly notes 'destructive', character of the theory. Instead Heidegger focuses entirely upon the fact that relativity theory 'demonstrates precisely the invariability, with respect to arbitrary transformations, of those equations describing natural processes.' Now this is an extremely accurate paraphrase of the principle of relativity, the absolute keystone of both theories.<sup>67</sup> In the special theory of relativity, the constancy of the speed of light in all inertial frames, from which all the other consequences, even  $e = mc^2$ , flow, is itself merely a special case of the principle of relativity. Since the speed of light is a physical constant determined by Clerk Maxwell's equations for the electromagnetic field, it must share in their invariance. In the general theory, the requirement that there be no privileged frames of

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<sup>66</sup> Paul Langevin, 'L'Evolution de l'espace et du temps,' Revue du Métaphysique et de Morale, Vol. XIX (1911), pp. 124-125. The date is significant because it means that the paradox became well-known prior to the publication of the *general* theory of relativity. This means that confusion reigned over whether the paradox was to be resolved, or indeed could be, using only the resources of special relativity. But those who sneer at Bergson for not having understood that general relativity, and its treatment of acceleration, resolve the apparent contradiction between the equivalence of the two frames of reference and the difference of outcome in each frame, should consider that since the paradox arises within the special theory, it is reasonable to assume that it should be resolved within it. For a full discussion of Bergson's arguments with the physicists see Milic Capek, Bergson and Modern Physics: a Reinterpretation and Re-evaluation, Boston Studies in the Philosophy of Science Vol. VII, (Dordrecht-Holland, D. Reidel Publishing Co., 1971), and Robin Drurie's introduction to Bergson's Duration and Simultaneity.

<sup>67</sup> A typical text book formulation of the special principle is: '*The laws of nature are identical in form for any two observers S, S' who are in relative uniform motion.*' [R.H. Atkin, Mathematics and Wave Mechanics, (London, William Heinemann Ltd., 1956), p. 154.] Einstein provides a non-technical formulation of the general principle of relativity as follows: 'All bodies of reference K, K' etc., are equivalent for the description of natural phenomena (formulation of the general laws of nature), whatever may be their state of motion.' [Albert Einstein, The Special and General Theories - A Popular Exposition, trans. by Robert W. Lawson, (London, Methuen and Co., 1920), p.61.] Equivalence between frames of reference is translated into talk of invariance under arbitrary transformation for technical reasons. Briefly put, the set of all possible transformations between frames of reference form a mathematical object known as a group (in special relativity the Lorentz group). The structure of this group governs invariance under the transformations belonging to it. The notion of invariance is crucial to relativity theory, because in some sense it replaces the notion of property. To take the most obvious and basic example, the Minkowski interval between two events in space-time ( $dx^2 + dy^2 + dz^2 - c^2dt^2$ ) is often introduced as being the relativistic replacement for the distance between two points in Euclidean geometry. But the reason that the Minkowski interval says something about space-time as such is *not* that it is a geometrical property of the 'real' space-time underlying all the frames of reference, but merely the fact that it is *the same* in all frames of reference.



reference at all, that the laws of nature should appear the same for all observers, irrespective of their relative motions, whether uniform or not, means that inertial and gravitational forces are equivalent. For an observer only able to make local observations, there is no way of telling if the weight that keeps him anchored to the floor, is due to the gravitational attraction of a large mass beneath him, or the fact that the room he is standing in is moving with constantly increasing velocity through space. As Einstein says, 'we see that our extension of the principle of relativity implies the *necessity* of the law of the equality of inertial and gravitational mass. Thus we have obtained a physical interpretation of the law.'<sup>68</sup> Einstein's use of the word 'physical' here is interesting. It reveals a lot about what he thinks physics does. The equality of inertial and gravitational mass does not receive a physical explanation by being grounded in some other physical fact, nor even by becoming a special instance of some wider ranging pattern found in physical phenomena, but rather is *physically* interpreted as the direct consequence of the invariance of *law* across *all observations*. It is often pointed out that in the general theory of relativity gravitation is no longer treated as a force exerted by bodies on one another but instead is interpreted as a curvature of the geometry of space-time that is determined by the mass distribution through space-time. But what is not so often pointed out is that this curvature is not arbitrarily posited, so as for instance to produce

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<sup>68</sup> Einstein, *op. cit.*, p.69. Of course, what we have here is Einstein's own account of the development of general relativity as an extension of special relativity designed *after the event* to make the extension appear as natural as possible. In particular, the extension of the special principle of relativity to the general principle of covariance under arbitrary transformations is presented as primary and as providing the physical explanation for the equivalence of inertial and gravitational mass. In fact, the route to general relativity was not that easy, and while the principle of equivalence was held fast throughout as the guiding light of Einstein's theoretical efforts, it was not until 1915 that he realised covariance was even possible for the equations of the gravitational field. In other words, for most of the time Einstein was working on general relativity, he was searching for a theory of gravitation that would *not* have satisfied the general principle of relativity, though it was supposed to show why inertial and gravitational mass were *wesensgleich* (essentially equal). (see Pierre Kerszberg, *The Invented Universe*, (Oxford, Oxford University Press, 1989), pp. 68-78.) But this does not affect the importance of Einstein's testimony for the story I am telling here. I take it that Heidegger's interpretation of relativity theory was based on an understanding gleaned precisely from the published works of Einstein and Weyl in which the general principle of relativity was presented as the natural extension of the special principle. The more

results that fit with the observed orbits of the planets round the sun, rather it is precisely this curvature that is invariant under arbitrary transformation of the frame of reference, in much the same way that the interval between space-time points (defined as  $ds^2 - c^2dt^2$ ) is invariant in special relativity. In other words, space-time has to be curved in order to look the same from all points of view. Gravitation is just the observed result of this requirement that space-time 'look' the same in all frames of reference. And it turns out that this invariance condition, the condition that the relation between mass distribution and space-time curvature should be invariant under arbitrary transformation of the frame of reference, is strong enough to determine what that relation actually is.<sup>69</sup>

Now given this description of the structure and logical motivation of relativity theory - the fact that it arises from a sustained reflection upon the consequences of a very abstract, what one might even want to call, a metaphysical principle about the constitution of natural law - it is not surprising that many have reacted against the idea of relativity theory as revolutionary, particularly in the Kuhnian sense of representing an incommensurable paradigm shift. Thus the historian of science Gerald Holton declares, on the basis of his examination of the genesis of the special theory, that *'the so-called scientific "revolution" turns out to be at bottom an effort to return to a classical*

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complicated story of Einstein's solitary struggle to formulate the general theory between 1907 and 1915 only emerged from historical research conducted in the 1980s.

<sup>69</sup> Einstein thought that the tensor equations given in the general theory arose uniquely from the general principle of relativity. In fact, a whole class of theories is compatible with the general principle, as was shown in the '60s and 70s by Robert Dicke, Carl Brans, and Nathan Rosen among others. But the class is extremely restricted and all theories within it share certain basic characteristics with general relativity. In particular, the following conditions must apply: 1.) Space-time has a curved, i.e. non-Euclidean geometry; gravitation is the observed consequence of this curvature. 2.) Free, unperturbed motion is along the shortest distance between points as determined by this curved geometry. 3.) In freely moving frames of reference special relativity determines the mechanics of a system. Technically, the different theories arise as the result of different possible parameterizations of the tensor field that defines the relation between mass and space-time curvature. Nonetheless, the general principle still massively restricts, prior to all experimentation and theoretical speculation, the possible descriptions of nature. [see Clifford Will, 'The Renaissance of General Relativity', *The New Physics*, ed. by Paul Davies (Cambridge, Cambridge University Press, 1989), pp.8-12]

*purity.*<sup>70</sup> Clearly for Holton a return to classical purity and revolution are incompatible descriptions, the one replacing the other. But Heidegger seems to accept relativity theory's classicism, while never abandoning the characterisation of it as revolutionary. In which case, what kind of *return* to classical purity does relativity theory represent?

A year after his lecture to the theologians, at the beginning of the summer semester of 1925, Heidegger provides another succinct description of relativity theory:

Relativity theory is a theory of relativities, a theory of the conditions of access and modes of conception, which are to be arranged so that in this access to nature, in a specific mode of space-time measurement, the invariance of the laws of motion is preserved. Its aim is not relativism but just the opposite. Its real aim is to find the in-itself of nature by way of the detour through the problem of gravitation, concentrated as a problem of matter.<sup>71</sup>

Here the emphasis upon the principle of relativity is paired with something else, the claim that the theory of relativity is 'a theory of the conditions of access.' These conditions of access are themselves linked to 'a specific mode of space-time measurement.' What Heidegger has in mind is clearly the way in which much of relativity theory proceeds by a careful consideration of exactly *how* physical measurements can be made. Indeed the concept of a frame of reference itself arises precisely out of the realisation that the measurement of a physical event is always itself a physical process. A frame of reference is *not* simply a co-ordinate system, instead it should be thought of as an actual physical framework, a set of measuring rods extended throughout space with clocks located at every intersection. In fact, in his own popular expositions, Einstein prefers the term 'reference body' to 'frame of reference' so as to emphasise the fact that the length, say, of some physical body can *only* be measured by

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<sup>70</sup> Gerald Holton, 'On the Origin of the Special Theory of Relativity,' pp. 100-107, Relativity Theory: Its Origins and Impact on Modern Thought, ed. by L. Pearce Williams. (New York, John Wiley and Sons, Inc., 1968), p. 103.

<sup>71</sup> HCT, p. 4.

comparing it to the length of some other physical body, that is to be taken as a unit.<sup>72</sup> Similarly the time of some physical event can only be measured by comparing it to some other regular physical event, that is to be taken as a clock. It is from this ineluctable fact - that the means of measurement are always themselves physical, always embedded in the world they measure - that time and space dilation, for instance, get deduced in special relativity. It seems then that the theory of relativity in fact rests upon two quite separate things: one, a principle about the mathematical expression of natural law; the other, an insistence upon the materiality of measurement. Not only is it difficult to see what they have got to do with one another, but each is in some danger of seeming arbitrary. Why after all should the mathematical expression of natural laws be equivalent in different frames of reference? Is there any justification for this principle, or is it merely a dogmatic claim? And surely the insistence that physical measurement is always itself physical can have no real content unless one arbitrarily closes off the possibility of further physical discovery. Who is to say that faster than light communication might not be possible, thus making the observation of simultaneity in other frames of reference possible?

Heidegger, however, clearly links the two issues together. It is precisely, so he claims, the theory of the conditions of access that preserves the invariance of the laws of motion. In *Being and Time*, where a condensed version of these remarks appears, the linkage is even clearer. 'As a theory of the conditions under which we have access to Nature itself, it [relativity theory] seeks to preserve the changelessness of the laws of

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<sup>72</sup> Another reason why Einstein prefers the idea of a reference body, is that the notion of a frame doesn't work too well for general relativity. The geometry of an inertial frame in special relativity is Euclidean, and so the frame of reference can be conceived of a rigid lattice work of inextensible rods of unit length. This corresponds with our common sense notion of a frame. But in a general non-inertial frame the geometry is non-Euclidean. Both time and space are warped, and there are dilation affects *within* the frame, not just between frames. The notion of a rigid frame no longer has any meaning. One has to try and conceive of a *non-rigid* frame. Einstein comes up with the truly inspired notion of a mollusc. The non-rigid reference body, which might appropriately be termed "reference-mollusk", is in the main equivalent

motion by ascertaining all relativities, and thus comes up against the question of the structure of its own given area of study - the problem of matter.'<sup>73</sup> The principle of relativity is not arbitrarily posited, but rather is justified by the theory of the conditions of access to nature itself. What does this mean? Well, it could mean something like this. The principle of relativity does not specify a condition to which natural laws are supposed to hold in addition to being already natural laws, rather the principle of relativity specifies what it means to be a natural law at all. A natural law, if there are such things, is universally valid - that means it holds in all instances. Force *always* equals mass times acceleration. But the question that arises is - universal over what? To Newtonian science the answer was obvious - nature, and that meant absolute time and space. A natural law holds throughout the whole of time and space. It inheres, if you like, in the fabric of the universe; that is its universality. Dispensing with the notion of absolute time and space, Einstein has to reopen the question of the universality of natural laws. Starting from the Machian proposition that natural laws are nothing more than generalisations from empirical data, finally reducible to that data, Einstein then stands this position on its head, producing what might be called a realist interpretation of Machian empiricism, by recognising that every observation must be the result of a *physical* measurement. Since a physical frame or body of reference is necessary for such measurement, natural laws are by definition so to speak universal over all such frames of reference. Laws of nature do not inhere in frames of reference, they are what is common to them - and this means are features of the group algebra describing the transformations between them. The mathematician and physicist, Hermann Weyl, attempted in 1918 to extend this way of founding natural law upon the means of measurement via invariance conditions to electromagnetism. 'What is done by

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to a Gaussian four-dimensional co-ordinate system chosen arbitrarily [...] the laws themselves must be quite independent of the choice of mollusk.' (Einstein, *op. cit.*, p.99)

Einstein's theory of gravitation with respect to the equality of inertial and gravitational matter, namely, that it recognises their identity as necessary but not as a consequence of an undiscovered law of physical nature, is accomplished by the present theory with respect to the facts that find expression in the structure of Maxwell's equations and the laws of conservation.'<sup>74</sup> In so doing he came to a very strong formulation of the way in which natural laws are nothing more than the expressions of the conditions of physical measurement. 'We thus arrive at the inference: **The world is a (3+1) dimensional metrical manifold; all physical field phenomena are expressions of the metrics of the world.** (Whereas the old view was that the four-dimensional metrical continuum is the scene of physical phenomena; the physical essentialities themselves are, however, things that exist "in" this world, and we must accept them in type and number in the form which experience gives us cognition of them: nothing further is to be "comprehended" of them.)'<sup>75</sup>

As Einstein himself expressed it, if all objects were to be removed from the universe, 'According to Newton the Galilean space of inertia remains, while according to my conception *nothing* at all.'<sup>76</sup> The space-time manifold and the collection of objects within it are inseparable aspects of the same phenomenon, which can justly therefore be designated by the one term, *das All*. General relativity and its proposed extension to electro-magnetism by Weyl make explicit the fact that the theme of physical research is the aggregate of the present-at-hand, and that all physical phenomena are determinate manifestations of the structure of the aggregate. Moreover the structure of the aggregate

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<sup>73</sup> Being and Time, p. 30.

<sup>74</sup> Hermann Weyl, Space-Time-Matter, trans. by Henry L. Brose, (London, Methuen and Co., 4<sup>th</sup> ed. 1922; republished unaltered and unabridged, New York, Dover Publications Inc., 1952), p. 294. Originally published in German as Raum, Zeit, Materie - Vorlesungen über allgemeine Relativitätstheorie, (Berlin, 1918, 3<sup>rd</sup> ed. 1919, 4<sup>th</sup> ed. 1920).

<sup>75</sup> Space-Time-Matter, pp. 283-284.

<sup>76</sup> Letter from Einstein to K. Schwarzschild, 9 Jan. 1916, quoted in Pierre Kerzberg, The Invented Universe (Oxford, Oxford University Press, 1989), p. 82.

is not discovered within the field of the present-at-hand upon inspection, rather as the *metrical* structure of the aggregate it is precisely the structure of discovery - the structure of possible access to the present-at-hand through measurement. As Pierre Kerzberg points out in his book examining the genesis of modern cosmology, 'it is essential to realise that, if Einstein did undoubtedly move on to the recognition of principles of rational significance as forming the root of all physical science, he did not depart, at least in the first instance, from the conviction that these principles somehow communicate with the 'All' as it was envisaged by Mach.'<sup>77</sup> The communication is effected through the problem of physical measurement, a problem that unites the 'rational' with the 'empirical.' Measurement is a rational activity, indeed it might be said to be the institution of rationality in human behaviour, but at the same time it is only rational insofar as it submits itself to the physical exigencies of the situation. Measurement is not the arbitrary imposition of a rational ordering upon an inchoate manifold of sense data, rather it is measuring one's own activity by a yardstick found within the field one is working in.

### **Crisis as Repetition**

How does this interpretation of relativity theory help us to determine what Heidegger understood by scientific crisis? In physics, Heidegger tells us, 'the aggregate [*das All*] of the present-at-hand becomes the theme.'<sup>78</sup> Now clearly relativity theory represents a reworking of the notion of *das All*, space, the universe, the specific universality of the present-at-hand. And this new explicit notion of the kind of universality inherently belonging to the present-at-hand is arrived at through a reflection precisely upon *what*

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<sup>77</sup> Pierre Kerzberg, *op. cit.*, p. 83.

<sup>78</sup> *Being and Time*, p. 413.

*happens* in the encounter with the present-at-hand, what it is that *allows* the present-at-hand to be encountered rather than the ready-to-hand, the conditions of access to the present-at-hand, as Heidegger puts it, that is to say, a reflection upon what it means, what it entails to measure something. But this is precisely what scientific projection accomplishes. Therefore, relativity theory is, speaking purely formally for the moment, a repetition of the initial scientific projection founding modern mathematical natural science. But a repetition in what sense?

For Heidegger, repetition [*Wiederholung*] denotes an authentic mode of Dasein's temporality. Repetition is the way in which Dasein makes its past its own. It is authentic having-been.<sup>79</sup> What this authentic mode of having-been actually consists of is laid out in *Being and Time* in chapter 5 of division 2, which deals with Dasein's historicity. There the historicity of Dasein is seen to lie in what Heidegger dubs fate [*Schicksals*]. 'This is how we designate Dasein's primordial historizing [*Geschehen*], which lies in authentic resoluteness and in which Dasein *hands* itself *down* to itself. free for death, in a possibility which it has inherited and yet has chosen.'<sup>80</sup> Fate, therefore, does not designate some implacable and exterior force that determines what Dasein will become despite all its better efforts; rather fate is an expression of Dasein's thrownness. After all, Dasein does not decide *to be* the being that it is, it finds itself to be 'there' in a world not of its own making, but it may take responsibility for the being that it finds itself to be. In so 'choosing' Dasein *takes* its thrownness *up* into existence, that is to say, Dasein takes its 'that it is' up into projection. This peculiar relation between past and future, in which Dasein comes back to its past precisely for the sake of its future, is what constitutes the happening [*Geschehen*] of existence. In other words, the 'life-history' of Dasein is not pieced together after the event from a series of fragmented experiences and

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<sup>79</sup> 'If *Being-as-having-been* is authentic, we call it "*repetition*".' *Being and Time*, p. 388.



isolated incidents, but rather *in happening* Dasein is already fully stretched between 'birth' and 'death' at every moment. By and large, however, this stretching along of existence in happening is hidden by Dasein's absorption in its everyday affairs. 'It is driven about by its "affairs". So if it wants to come to itself, it must first *pull itself together* from the *dispersion* and *disconnectedness* of the very things that have "come to pass".'<sup>81</sup> It is only within the horizon of everyday inauthenticity that the question of Dasein's 'connectedness' can even arise. On the other hand, however, Dasein is capable of being authentic, that is to say, of happening authentically. Dasein's happening as fully stretched between birth and death can become fully 'present' to it in what Heidegger calls a moment of vision [*Augenblick*]. This does not mean that one's whole life flashes before one's eyes, however. Rather, it would be better to say, that in the moment of vision one *acts* for the sake of one's *whole* existence, thereby *making* that existence *present* in so happening. In the moment of vision the way in which Dasein happens becomes explicit. 'The resoluteness which comes back to itself and hands itself down, then becomes the *repetition* of a possibility of existence that has come down to us. *Repeating is handing down explicitly* - that is to say, going back into the possibilities of the Dasein that has-been-there.'<sup>82</sup>

Now, this whole discussion may seem as if it has taken us a very long way from science. The concept of repetition is bound up with the question of authenticity, and authenticity surely has nothing to do with the purely ontical discovery of entities that are not of the nature of Dasein. Authenticity is, rather, the way in which Dasein becomes transparent to itself. It is an *existentiell* matter. Moreover, inauthenticity is often characterised by Heidegger in terms of the way Dasein loses itself in its concern for the entities it

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<sup>80</sup> Being and Time, p. 435.

<sup>81</sup> Being and Time, pp. 441-42.

<sup>82</sup> Being and Time, p. 437.

discovers in its everyday affairs. Science, to be sure, discovers entities in a way quite different from the everyday discovery of the ready-to-hand, but as Heidegger tells us in paragraph 69b of *Being and Time* the theoretical discovery of the present-at-hand remains a 'distinctive kind of making-present.'<sup>83</sup> And 'making-present,' Heidegger tells us, is always to be distinguished from the authentic moment of vision.

In contradistinction to the moment of vision as the authentic Present, we call the inauthentic Present "making present". Formally understood, every Present is one which makes present, but not every Present has the character of a 'moment of vision'. When we use the expression "making present" without adding anything further, we always have in mind the inauthentic kind, which is irresolute and does not have the character of a moment of vision.<sup>84</sup>

Nonetheless, matters are not quite so clear cut. As we saw at the end of the last chapter, Heidegger also maintains that 'science has its source in authentic existence.'<sup>85</sup> The specific kind of making-present that belongs to science appears to occupy an ambiguous place in the supposedly clear-cut distinction between the authentic and inauthentic because it is dependent upon and explicitly enacts a change-over in Dasein's *own* understanding of Being. 'Science means: To be in the unconcealment of beings for the sake of unconcealment.'<sup>86</sup> In other words, science in explicitly enacting the change over from one kind of understanding of Being to another projects itself upon the *unconcealment* of beings as such; but unconcealment belongs essentially to the Being of Dasein. In scientific projection, then, Dasein *makes* one of its essential possibilities *its own* - and this is precisely what is meant by authenticity. As Heidegger says of authentic historicity, 'the possible is made one's own by repetition.'<sup>87</sup> The German verb *aneignen*, which is translated here as 'make one's own,' is translated elsewhere in *Being*

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<sup>83</sup> *Being and Time*, p. 414.

<sup>84</sup> *Being and Time*, p. 388

<sup>85</sup> *Being and Time*, p. 415.

<sup>86</sup> 'Wissenschaft besagt: In der Unverborgenheit des Seienden sein um der Unverborgenheit willen.' *G27*, p. 179.

<sup>87</sup> *Being and Time*, p. 446; 'In der wiederholenden Aneignung des Möglichen' *SZ*, p. 396.

*and Time* as the verb 'to appropriate.' The importance which Heidegger attaches to the concept of 'appropriation' is attested to by the fact that he uses it to characterise his own procedure. For example, in paragraph 44 on truth as unconcealment, Heidegger says, 'In proposing our 'definition' of "truth" we have not *shaken off* the tradition, but we have *appropriated* it primordially.'<sup>88</sup> In the context of Heidegger's own engagement with the traditional concept of truth the meaning is clear. The radical transformation of a basic concept such as 'truth' is not achieved by discarding the tradition, but rather by making it one's own. And this is not done 'outside' the tradition but by attending closely to it. This is because the tradition is *itself* a history of repeated appropriations. This gets forgotten if we view the tradition merely as a history of disagreements between generations who have all proven to be mistaken. The tradition preserves, while covering up, the struggle of each new generation against the very complacency the tradition gives rise to. In a way, then, by appropriating it for oneself, the tradition is made *its* own, or more its own. It is freed for its ownmost possibility: what it claims to be, and what it has always *wanted* to be. 'Wanting to have a conscience' is what gets defined by Heidegger as resoluteness, and resoluteness is what makes possible the choice of following 'in the footsteps of what can be repeated.'<sup>89</sup> Not just our resoluteness, but the resoluteness of that which, preserved in the tradition, can be repeated, precisely because it was itself an appropriation. Authenticity does not consist of fleeing from the 'they-self' back into some sphere of pure autonomy, but rather of throwing oneself into the co-historizing - what Heidegger calls the destiny, of a community that shares a tradition. 'Our fates have already been guided in advance, in our Being with one another in the same world and in our resoluteness for definite possibilities. Only in communicating and in struggling does

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<sup>88</sup> *Being and Time*, p. 262. 'Die vorgelegte »Definition« der Wahrheit ist kein *Abschütteln* der Tradition, sondern die ursprüngliche *Aneignung*.' *SZ*, p. 220.

<sup>89</sup> *Being and Time*, p. 437.

the power of destiny become free. Dasein's fateful destiny in and with its "generation" goes to make up the full authentic historizing of Dasein.'<sup>90</sup>

Now, remarkably enough, 'appropriation' is precisely the concept that Heidegger comes back to in the 1928/29 lecture course when attempting to locate the source of the crisis in the sciences: 'the essential thing about science does not lie in what is merely tradable, what can be passed from hand to hand, but rather in that which is always appropriated anew. This primordial appropriation of the essential is only possible, however, in that method which is inseparably bound up with, and deeply rooted in the subject matter and results.'<sup>91</sup> The ambiguity that surrounds the distinctive making-present belonging to the sciences appears to revolve around the permanent possibility of mistaking science for its results, a possibility to which science itself is not immune. That way what is essential about science will never be picked up.<sup>92</sup> But neither will it be picked up by simply observing science from the outside and dismissing it as the imposition of a theory-loaded method upon its subject matter. What is essential about science is only appropriated in the method of science itself. Here method clearly does not mean what is commonly meant by scientific method. It does not refer to the way in which theories get confirmed or disconfirmed by experiment, nor to any of the modelling procedures whereby theory can be brought into contact with empirical results in the first place. It refers rather to the rigorous way that theoretical activity *already* binds itself to the subject matter in a scientific projection so that it can come up with a theory *of* anything at all. Method means here something like *theorising* itself thought of as appropriation, that is to say, repetition of scientific projection. 'This projecting as *letting-be* of beings

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<sup>90</sup> Being and Time, p. 436.

<sup>91</sup> 'Popularisierung geht gegen das Wesen der Wissenschaft, weil das Wesentliche der Wissenschaft nicht in dem liegt, was bloß tradierbar ist, von Hand zu Hand gegeben werden kann, sondern was immer neu angeeignet wird. Diese ursprüngliche Aneignung des Wesentlichen ist aber nur möglich in der mit Sachgehalt und Resultat unzertrennlich verwachsenen Methode.' G27, p. 32.

is the primordial action of Dasein we sought after, in which the theoretical attitude, i.e. making manifest of beings for the sake of their unconcealment is alone made possible. In the projection which makes positivity possible, lies the primordial praxis, the primordially practical character of the theoretical.<sup>93</sup> But theorising precisely because it is scientific *activity* must be understood in its historicity, that is to say, theorising must be understood as the way in which science historicizes itself. As Heidegger reminds us, a year later, in the 1929/30 lecture course:

In what we have said so far, right from the beginning, we have avoided the erroneous idea that science is a nexus of valid propositions behind which there lies something else in turn that claims validity. Rather, we understand science as one possibility of the existence of human Dasein, one that is not necessary for the Dasein of man but represents a free possibility of existence. In this connection we can see that the fundamental character of this free possibility lies in historicity, and that the way in which it unfolds is not a matter of organization or of any dominant philosophical system, but a matter of the specific fate of Dasein in each case.<sup>94</sup>

The question of science's possible authenticity or inauthenticity, then, is not to be answered by looking to its results, neither so as to establish once and for all their correctness, nor so as to summarily dismiss it for preoccupying itself with them as a way of avoiding the perennial existential angst of a truly authentic existence. Rather the question is always a historical question, and that means a contingent one. It is always a question of what science is up to at the time; a question of whether science is capable of appropriating once again what is most essential to it, that is to say, the scientific projection of the Being of the beings in question.

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<sup>92</sup> Two other possible meanings of the reflexive verb *sich aneignen*, as well as 'to appropriate' or 'to acquire,' are 'to learn' and 'to pick up' in the sense of becoming *au fait* with something.

<sup>93</sup> 'Dieses Entwerfen als *Seinlassen* des Seienden ist die gesuchte Urhandlung des Daseins, in der theoretische Einstellung, d.h. Offenbarmachen des Seienden umwillen seiner Unverborgenheit allein ermöglicht wird. Im Entwurf, der die Positivität ermöglicht, liegt der ursprüngliche *πραξις*, der ursprünglich praktische Charakter des Theoretischen.' G27, p. 199.

<sup>94</sup> FCM, p. 191.

In the same lecture course, while discussing the fundamental transformations in seeing and questioning, i.e. the crises, that are decisive for science, Heidegger makes the following remark about the originality necessary to effect such transformations:

Originality consists in nothing other than decisively seeing and thinking once again at the right moment of vision that which is essential, that which has already been repeatedly seen and thought before. Human history is such that it ensures that what is seen again in this way gets buried once more in time.<sup>95</sup>

It seems pretty clear, then, that Heidegger did indeed conceive of scientific crisis in terms of repetition. But if scientific crisis is repetition of a possibility that has been handed down, specifically the repetition of a founding scientific projection, does this really tell us anything about its nature *as crisis*? This depends upon what it means to repeat *a possibility*. Heidegger stresses that it cannot mean the rote repetition of something already accomplished, and gives the following lively characterisation:

The repeating of that which is possible does not bring again [Wiederbringen] something that is 'past', nor does it bind the 'Present' back to that which has already been 'outstripped'. Arising, as it does, from a resolute projection of oneself, repetition does not let itself be persuaded of something by what is 'past', just in order that this, as something which was formerly actual, may recur. Rather, the repetition makes a *reciprocative rejoinder* [*erwidert*] to the possibility of that existence which has-been-there. But when such a rejoinder is made to this possibility in a resolution, it is made *in a moment of vision; and as such* it is at the same time a *disavowal* of that which "today", is working itself out as the 'past'. Repetition does not abandon itself to that which is past, nor does it aim at progress. In the moment of vision authentic existence is indifferent to both these alternatives.<sup>96</sup>

Crisis, then, thought of as repetition, would make a reciprocative rejoinder to the initial scientific projection, that would amount to a disavowal of the way in which that scientific projection was working itself out in the present. Thus crisis would manifest itself as an opposition to the tradition, while at the same time being a genuine return to the source of that tradition. Here return would be a translation of *erwidern*, a return as in

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<sup>95</sup> FCM, p. 260.

<sup>96</sup> Being and Time, pp. 437-38.

a return of fire, a retort in an argument, but a return that was not simply sparked off by what it opposed, not simply a come back, but a going back over that which it is against in order to be against it. This is what Heidegger calls 'the *struggle* of loyally following in the footsteps of that which can be repeated.'<sup>97</sup>

In authentically seizing upon the possibility that has been as possibility, Heidegger says, 'Dasein brings itself back "immediately" - that is to say, in a way that is temporally ecstatical - to what has already been before it. But when its heritage is thus handed down to itself, its "birth" is *caught up into its existence* in coming back from the possibility of death.'<sup>98</sup> Dasein frees itself from history by making that history its own; the moment of vision spans the 'duration' from the possibility of death which is not to be outstripped back to the possibility that has been. Heidegger's contention seems to be that this is how Dasein happens *freely*. It is not fatalistically determined by its history because it is able fatefully to be that history. Here in the case of scientific crisis, repetition of scientific projection recasts the present state of the science on the basis of its past so as to open up its future. The innovative power of repetition lies in the fact that the past can neither be discarded in order to start from scratch, nor be held onto as a secure foundation completely determining the future, but must rather be gathered up into the full stretch of the moment that projects again into the possibility that is repeated.

This gathering up in repetition is what I take Heidegger to mean by method. It is what constitutes genuine scientific theorising. The theorising which led to relativity theory, say, was not determined by its historical context. It is not as if relativity theory were just something which we could deduce as the inevitable consequence of its specific socio-historical conjuncture. Rather, relativity theory, insofar as it is the repetition of the founding of mathematical natural science, spans the history of natural science. That

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<sup>97</sup> Being and Time, p. 437 [my emphasis].

history is caught up into the theorising that produces relativity theory, so that relativity theory projects that history into its future course. The spectre of historicism is not banished by insisting upon eternal truths or the possibility of transcendental validation; it is banished by realising that scientific theorising is authentically historical, that theory happens [*geschehen*] by making its history its own. Theory escapes the history that weighs down on it by appropriating it, by *being* it. Genuine scientific method is historico-critical engagement with scientific tradition. 'As authentic [it] is necessarily a critique of the "Present".'<sup>99</sup>

Crisis does not occur in the sciences because science is afflicted by historical factors, nor is the objectivity of science to be safeguarded by insisting upon the continuity of the sciences; rather science is *objective* to the extent that it is authentically historical, that is to say, takes its history up into its existence as theoretical activity, through repetition of its origin in scientific projection. But history of science, Forman's say, tends to be the concealment of science's historicity. 'In the end, the emergence of a problem of "historicism" is the clearest symptom that historiology endeavours to alienate Dasein from its authentic historicity.'<sup>100</sup> It is not history of science that grasps science in its historicity, it is science in crisis that escapes the history of science by becoming once again authentically historical.

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<sup>98</sup> Being and Time, p. 443.

<sup>99</sup> Being and Time, p. 449. Heidegger is talking here of an authentic science of history, but the remark applies, I take it, to any science that is authentic.

<sup>100</sup> Being and Time, p. 448.



## Chapter Five

### Science and its Foundations

The existential conception of science, which interprets science as a particular way in which human Dasein can exist and comport itself towards the entities it comes across within the world, quite explicitly refrains from looking at science as a body of results, as an already constituted theoretical framework. This would seem to imply that the proper business of a philosophical interpretation of science is simply to examine and clarify the way in which science originates from out of everyday non-scientific activity and subsequently goes about its business. Philosophy can say what science is, but it cannot tell science anything about its subject matter. This restriction appears to be similar to the one that logical positivist philosophy of science imposed upon itself as it sought to wrestle free from its neo-Kantian origins, namely that philosophy of science should only concern itself with methodological issues rather than substantive ones. But despite this apparent restriction of an existential conception of science to the interpretation of science as a way of existing, Heidegger also appears to consider that philosophy is duty bound to provide science with its foundations. The purely existential analysis of scientific activity appears to have indicated that philosophy cannot remain on the sidelines.

Scientific projection is still conceived of as an a priori projection of the Being of the beings under investigation, which delimits the field of scientific investigation and founds the possibility of the objectification of beings. But precisely because science objectifies beings on the basis of a projection of their Being, the projection of Being itself remains unobjective; 'an antecedent projection of the constitution of Being takes place, but not so that the constitution of Being becomes an object: consequently it is an

unobjective projection of the constitution of Being.’<sup>1</sup> The full formal-existential definition of scientific projection is thus given by the following formula: ‘The antecedent-unobjective yet founding-field-marking-out projection of the constitution of Being’<sup>2</sup> Because science objectifies beings on the basis of an unobjective projection of their Being, Being itself remains concealed from it.

Just through the fact that science gives itself up to making beings in themselves manifest, it must execute the ontological projection, i.e. comport itself in essence to that which is no longer accessible to it by its own means, thus to that which is at bottom concealed. Thus science must necessarily venture into an area of concealment which constantly surrounds it. [...] What gives science light, in the sense of the manifestness of beings, transplants it at the same time into darkness, in the sense of the concealment of Being. The relative clarity of scientific knowledge of beings is pressed around by the darkness of the understanding of Being.<sup>3</sup>

The basic concepts which delimit a field of scientific investigation, precisely because they are basic to all scientific research, cannot themselves be investigated any further. ‘With regard to the science in question they provide an adequate characterisation of its field, but it remains obscure what these concepts mean at bottom; they figure just as the most general concepts concerning beings (Nature, for example). What is meant by these concepts is itself not asked about any further.’<sup>4</sup> Though the sciences do in fact engage in periodic bouts of self-reflection, when basic concepts are indeed subject to fundamental revision, this self-reflection is still conducted *within* the conceptual boundaries laid out

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<sup>1</sup> ‘vollzieht sich ein vorgängiger Entwurf der Seinsverfassung, aber so, daß die Seinsverfassung nicht Gegenstand wird, also ein ungegenständlicher Entwurf der Seinsverfassung.’ G27, p. 195.

<sup>2</sup> ‘So ergibt sich im Ganzen: Der vorgängig-ungegenständliche, aber doch feldabsteckend-begründende Entwurf der Seinsverfassung’ G27, p. 196.

<sup>3</sup> ‘Gerade dadurch, daß die Wissenschaft sich aufgibt, das Seiende an ihm selbst offenbar zu machen, muß sie den ontologischen Entwurf vollziehen, d.h. im Wesen zu solchem sich verhalten, was ihr selbst mit ihren Mitteln nicht mehr zugänglich, im Grunde also verborgen ist. So muß die Wissenschaft notwendig sich hinein wagen in einen Umkreis des Verborgenen, der sie ständig umgibt. [...] Was der Wissenschaft die Helle gibt, im Sinne der Offenbarkeit von Seiendem, versetzt sie zugleich ins Dunkel - im Sinne der Verborgenheit des Seins. Die relative Helle wissenschaftlicher Erkenntnis des Seienden ist umdrängt vom Dunkel des Seinsverständnisses.’ G27, pp. 212-13.

<sup>4</sup> ‘im Hinblick auf das Feld der betreffenden Wissenschaft geben sie hinreichende Charakteristik derselben. Aber es bleibt dunkel, was diese Begriffe im Grunde meinen; sie figurieren eben als die allgemeinsten Begriffe bezüglich des Seienden (Natur, z.B.). Dem, was in diesen Begriffen gemeint ist, wird selbst nicht weiter nachgefragt.’ G27, pp. 193-94.

by the delimitation of the field itself. 'If the physicist goes beyond his definition, which is necessary for his posing of physical questions, then the more penetrating determination of that which he defines is also determined from out of the viewpoint which is given here through mathematical physics.'<sup>5</sup> In self-reflection, science comes up against its most basic concepts only to be reflected back, as it were, into the field which is thus delimited. The implication of all this seems pretty clear. Science falls into crisis when it pushes up against its own necessary internal limit, which proves to be the very delimitation of the field that is basic to all its investigations. At this point it has to hand the baton on to philosophy which will push beyond the limit, and make Being as such the object of thematization.

Laying the foundations [*Grundlegung*] for the sciences in this way is different in principle from the kind of "logic" which limps along after, investigating the status of some science as it chances to find it, in order to discover its "method". Laying the foundation as we have described it, is rather a productive logic - in the sense that it leaps ahead, as it were, into some area of Being, discloses it for the first time in the constitution of its Being, and, after thus arriving at the structures within it, makes these available to the positive sciences as transparent assignments for their inquiry.<sup>6</sup>

The existential conception of science appears, therefore, to be still wedded to a very traditional conception of the purpose of a philosophy of science:

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.<sup>7</sup>

Understandably many have taken this to mean that Heidegger is still intent on demonstrating that science remains permanently subordinated to philosophy. From

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<sup>5</sup> 'Wenn der Physiker über seine Definition, die für seine physikalische Fragestellung notwendig ist, hinausgeht, dann ist auch die weiterdringende Bestimmung dessen, was er definiert, von dem Blickpunkt aus bestimmt, der hier durch die mathematische Physik gegeben ist.' *G27*, p. 194.

<sup>6</sup> *Being and Time*, pp. 30-31.

<sup>7</sup> *Being and Time*, p. 31.

opposite sides of the divide we have agreement at least on this. David Farrell Krell, a reverent Heidegger reader, declares, for example, that it is 'a gesture he [Heidegger] will make repeatedly throughout his career, insisting always on the priority of philosophy over the sciences.'<sup>8</sup> Hermann Philipse, an arch-critic, provides almost exactly the same formulation: 'We are justified in concluding that Heidegger maintained the Aristotelian thesis of the primacy of philosophy and of the question of being in relation to the sciences during his entire philosophical career.'<sup>9</sup> According to Philipse this adherence to the thesis of philosophical primacy is inherited directly and unreflectively from Husserl. Commenting upon the passage from *Being and Time* just cited, Philipse says, 'This passage could have been endorsed by Husserl as it stands, and indeed Heidegger derived his idea of a three-story edifice of knowledge from Husserl's mature philosophy. According to both Husserl and Heidegger in *Sein und Zeit*, the special sciences are founded on regional ontologies, which, in turn are founded on transcendental first philosophy.'<sup>10</sup> Now this directly conflicts, Philipse insists, with Heidegger's realisation that the history of a science is regularly punctuated by fundamental revisions to its basic concepts. 'Husserl's notion of science is fundamentally static. As soon as the philosophical foundation of a special science has been made explicit by means of a regional ontology, it has been laid out once and for all, because it is a priori, and scientific progress can only consist in accumulating empirical results obtained within the conceptual framework of the relevant regional ontology.'<sup>11</sup> 'Unfortunately, Heidegger does not explain how he intends to resolve the tension or even contradiction between the

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<sup>8</sup> David Farrell Krell, Daimon Life - Heidegger and Life Philosophy, (Bloomington and Indianapolis, Indiana University Press, 1992), p. 38.

<sup>9</sup> Hermann Philipse, Heidegger's Philosophy of Being - A Critical Interpretation, (Princeton, Princeton University Press, 1998), p. 87.

<sup>10</sup> Hermann Philipse, op. cit., p. 39.

<sup>11</sup> Hermann Philipse, op. cit., p. 38.

Husserlian and the Kuhnian aspects of his philosophy of science.’<sup>12</sup> Heidegger not only fails to incorporate the idea of crisis into his description of science even though he insists upon it, he fails even to notice that it is incompatible with that description. This demonstrates conclusively, as far as Philipse is concerned, that Heidegger was permanently blind to a gaping hole in his own thinking, namely an adequately worked out philosophy of science. He remained for the whole of his career blithely satisfied with a ‘rudimentary philosophy of science’ uncritically inherited from the tradition. It is Philipse’s pious hope that the revolution in philosophy of science necessitated by the revolution in the sciences themselves, does not so much undermine Heidegger’s project as render it unnecessary.<sup>13</sup>

Still - even if we are rather more cautious than Philipse about ascribing other people’s doctrines to Heidegger - he does seem to have identified a genuine dilemma in interpreting Heidegger’s conception of science. Developments in philosophy of science in the first half of the 20th century, whether in Anglo-German logical empiricism or in the French tradition of conventional rationalism initiated by Bachelard and Canguilhem, can be seen as a response to the *empirical* disconfirmation, graphically provided by the history of science, of the claim that there are anything like synthetic a priori truths at all. Each time the philosophers have demonstrated that a particular concept or principle is necessarily *a priori*, the scientists have simply, without a by your leave, abandoned it. The only function transcendental philosophy has ever served, has been to pinpoint

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<sup>12</sup> Ibid.

<sup>13</sup> ‘Because Heidegger never reflected on the connection between the primacy thesis and Aristotle’s philosophy of science, he did not bother to rethink his own rudimentary philosophy of science, although he was acutely aware of the scientific revolutions of the first half of this century, revolutions that in fact necessitated a revolution in the philosophy of science as well. This revolution in the philosophy of science, which in fact took place in the works of many philosopher’s of science in this century, dethroned metaphysics and the Aristotelian question of being from the position of first philosophy. As a consequence, Heidegger is faced with a dilemma. Either the justification for the primacy of the question of being is derived from Aristotle. If so, the primacy thesis is refuted by the later developments in the philosophy of science. Or the primacy of Heidegger’s question of being, and perhaps this question itself, was not derived directly from Aristotle,’ Hermann Philipse, *op. cit.*, p. 87.

precisely those concepts and principles which the sciences *do not* need. As Hans Georg Gadamer has wryly noted of his own neo-Kantian apprenticeship, 'My own teacher, Natorp, even tried to demonstrate a priori and conceptually the three dimensionality of space, just as Hegel had done with the sevenfold count of the planets. All that is over and done.'<sup>14</sup> And yet here we have, just as neo-Kantianism collapses in the face of science's obstinate refusal to conform to its strictures, Heidegger apparently quite cheerfully resurrecting the whole idea of an *a priori* ground for the positive sciences, even though he appears to be as acutely aware as anyone that the sciences have no permanent foundations.<sup>15</sup>

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<sup>14</sup> Hans-Georg Gadamer, *Reason in the Age of Science*, trans. by Frederick G. Lawrence, (Cambridge MA and London, The MIT Press, 1982), p.11. Gadamer's example is nicely judged. Neo-Kantianism was already well aware by the beginning of the 20<sup>th</sup> century of the pitfalls surrounding any attempt to identify particular a prioris, as opposed to making the general claim that there must at least be some, and had become cautious about which concepts, or indeed facts, must remain immune to scientific revision. They were not likely to risk the ridicule that seems to have inevitably followed upon Hegel's speculative rearticulations of natural science. (It is a curious fact, one perhaps that can be expanded into some sort of historical law, that every element of natural science that Hegel attempted to speculatively reinterpret, had very shortly *beforehand* been jettisoned by science itself: c.f. Hegel's insistence upon the necessity of conceiving gases as a continuous fluid in the *Logic* (1812), two years after the first publication of Dalton's atomic theory (1810) [G.W.F Hegel, *Science of Logic*, trans. by A.V. Miller, (Atlantic Highlands, NJ: Humanities Press International Inc.; 1969), pp. 496-98.]) Still what could be more self-evident than the 3-dimensionality of space, what less open to any kind of scientific or empirical attack? It might not be obvious why space was 3-dimensional, but at least it was obvious that it was. But, as we know now, very shortly after Gadamer's prudent remark, developments in the unification of quantum field theories did precisely call into question the 3-dimensionality of space, and by means very similar to the way in which relativity theory called into question the Euclidean geometry of space. These means, as we saw in the last chapter, steal a leaf from idealism's book. By positing that the geometry of space-time is a consequence of the gravitational field, a posit that is itself justified on the basis of a general principle concerning the universality of natural law, as is the case in relativity theory, or by deducing the dimensionality of space from the topological constraints imposed by the theory itself, as in string theory, theorising achieves a radical independence from the supposed givenness of the phenomena themselves. The problem with the Kantians, and indeed Hegel, turns out to be that they were *too* empirical. They relied upon experience to provide them with their a priori truths (or with Hegel, admitted that the empirical sciences provided the necessary material for speculative thinking), and then cast about for arguments justifying them that were bound to look suspiciously ad hoc and ex post facto. Science proceeds more boldly. It realises that there is no reason why the a priori, if it truly is a priori, should *conform* to experience. If experience contradicts the results, then so much the worse for experience, it will just have to catch up. In this sense, modern physics has proved to be more Hegelian than Hegel.

<sup>15</sup> To be sure, Heidegger wishes to distinguish his own conception of the regional ontological founding of the sciences rigorously from the Kantian conception of a transcendental deduction, but equally there is no denying that he considers the notion of the a priori to be Kant's crucial insight, an insight which he wholeheartedly endorses. 'Certainly this Kantian presentation of the connection - which we have already discussed - between the preontological understanding of being and the objectification and the thematization of beings is not only given in another linguistic formulation; but underlying the Kantian presentation there lies a certain conception of the problem which we shall subject to a positive critique. However, leaving this aside, Kant saw again quite clearly the Platonic problem, namely that underlying all

The contradiction in Heidegger's position appears to arise from two conflicting tendencies within fundamental ontology itself. On the one hand, fundamental ontology is to be pursued via the existential analytic.<sup>16</sup> This means that science, insofar as it is one of the ways in which Dasein exists and comports itself towards other beings, is to be taken as indicative of the constitution of Dasein's Being. At this stage of the project, then, science can be said to call the shots. A phenomenological interpretation sensitive to science's historicity discovers that science has no fixed foundation. On the other hand, fundamental ontology is meant to broach the question of the meaning of Being in general, and is thereby supposed to provide in particular a phenomenological interpretation of the various different kinds of Being. At this stage of the project, science will be subordinated to philosophy, insofar as the question of the modality of Being is not even accessible to the individual sciences. The reason why this contradiction manifests itself specifically in the analysis of the sciences is that science is conceived of by Heidegger as a middle term. Approached from everyday absorption with the ready-to-hand, science appears to display an explicit understanding of the Being of the beings it investigates. Approached from the side of fundamental ontology it appears that this understanding is still preontological and that science remains an aspect of the everyday. Science and philosophy are allied from the point of view of the everyday. Science and the everyday are lumped together from the point of view of philosophy. Of course one can wash one's hands of the contradiction by pointing out that Heidegger never in fact managed to make the leap from existential analysis to the question of Being in general. In which case, one might argue, given that we only have the existential analytic, all

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beings are the principles of their being. This insight of Kant led him to the discovery of the central problem which has to be posed in the task of laying the foundation of a science of beings in general. [...] In the sciences of beings something is fixed about the objects before they are given to us. This fixing which is *a priori* and free from experience - occurs prior to all experience - makes possible that these objects be given to us as what they are.' (PIK, p. 32.)

question of an ontological foundation for the sciences goes by the wayside, and we can safely ignore all claims to such founding as merely so much rhetoric. But this would be to ignore the special role that science is supposed to have in the turn from the question of the Being of Dasein to the question of Being in general. Science serves as an existentiell attestation of the fact that the understanding of Being is precisely that, and not merely something like a self-understanding or self-interpretation, the free projection of any meaning whatsoever. 'Mathematical natural science gives an indication of this fundamental connection between ontic experience and ontological knowledge. However, its function... exhausts itself therein, for the reference to this conditional connection is not yet the solution to the problem.'<sup>17</sup> This does not just mean, however, that the possibility of science is crucial to the turn from the analysis of the Being of Dasein to the question of Being in general. It also means that the distinction between science and everyday dealings with the ready-to-hand would evaporate with the dissolution of the question of Being in general. To leave matters as they stand at the end of the existential analytic is to risk falling back into pragmatism. Science is only saved from the pragmatist reabsorption back into circumspective concern, if it can be grounded, that is to say, given its own ground by the question of Being in general. Science becomes merely one activity among others if its affiliation to ontology is lost. And what would be wrong with that? Only that every human activity would then be essentially indistinguishable, and the existential analytic itself would collapse into the tautology of calling activity activity. 'At this point it becomes clear that science is not just something with which one can also occupy oneself along with all the other

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<sup>16</sup> 'Therefore *fundamental ontology*, from which alone all other ontologies can take their rise, must be sought in the *existential analytic of Dasein*.' Being and Time, p. 34.

<sup>17</sup> Kant and the Problem of Metaphysics, p. 7.



possibilities, but rather that in order to be what it is, it must have struck its roots into the primordial essence of Dasein itself, into transcendence.’<sup>18</sup>

### **The Founding and Self-founding of the Sciences**

In the introductory passages to the 1927/28 lecture course on Kant’s *Critique of Pure Reason* Heidegger attempts to reconcile these two aspects of his philosophy of science. He does so by distinguishing between self-founding and founding. Self-founding corresponds to the scientific projection which first opens up a field of entities to scientific investigation. Heidegger, therefore, begins by providing a succinct but entirely standard summary of the existential account of science to be found in *Being and Time*. ‘The genesis of a science originates in the objectification of a *realm* of beings, that is, in the development of an understanding of the constitution of the *being* of the respective beings.’<sup>19</sup> Scientific projection, that is to say, the explicit understanding of the specific ontological constitution of the beings in question, which opens up the field to investigation, is accomplished by the sciences themselves. Consequently, it is what Heidegger here calls the *self-founding* [*Selbstbegründung*] of science. ‘Through objectification, i.e. through opening up the ontological constitution, science first obtains a basis and a ground and circumscribes its field of investigation at the same time. Science founds itself in the manner by which it obtains its basis and field.’<sup>20</sup> But Heidegger immediately goes on to ask:

Is this self-founding of the science which occurs in its beginning already a *founding* of science? Yes and no. Yes, insofar as science obtains its basis and realm by opening up the ontological constitution in general. No, insofar as

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<sup>18</sup> ‘Nunmehr wird deutlich, daß die Wissenschaft nicht etwas ist, was es eben unter vielem anderen, womit man sich beschäftigen kann, auch gibt, sondern daß sie, um zu sein, was sie ist, ihre Wurzeln im ursprünglichen Wesen des Daseins selbst, in der Transzendenz, geschlagen haben muß.’ *G27*, p. 211.

<sup>19</sup> *PIK*, p. 20.

<sup>20</sup> *PIK*, p. 23.

precisely such an opening up within the particular science pushes against a necessary limit, i.e., insofar as this self-founding of science requires a more original founding. The founding of the projection of the ontological constitution of the field of a science - a projection that science itself makes - cannot be accomplished by the sciences themselves; and it is in accord with the way in which *this founding* comes forth that science itself cannot do it.<sup>21</sup>

The equivocation here is not merely rhetorical. Heidegger is not first entertaining the possibility that science might really be self-founding and then rejecting it in favour of a philosophical founding, so that by the end of the argument we are convinced that science really is after all dependent upon a philosophical justification of its foundations. That the yes and no is not just a rhetorical device or an argumentative strategy but *the* answer is indicated by the following remark Heidegger makes elsewhere: 'The human being is not primarily the nay-sayer (as Scheler said in one of his last writings), but just as little is the human being a yea-sayer. The human is rather the why-questioner. But only because man is in this way, can he and must he, in each case, say not only yes or no, but essentially yes and no.'<sup>22</sup> Heidegger is suggesting, then, that we must take seriously the possibility that science is *both* genuinely self-founding *and* genuinely in need of some kind of founding that it itself cannot provide. This already begins to indicate that self-founding and founding are not to be thought of as simply different versions of the same thing, one merely less adequate and more provisional than the other.

At this point, however, Heidegger launches into what amounts to no more than a standard reprise of his by now familiar claim that the sciences are dependent upon philosophy for the clarification of their basic concepts. As usual the crisis in the sciences

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<sup>21</sup> PIK, p. 23.

<sup>22</sup> Martin Heidegger, The Metaphysical Foundations of Logic, trans. by Michael Heim, (Bloomington and Indianapolis, Indiana University Press, 1984, pbk 1992), p. 216 - hereafter referred to as MFL. This is the text of the lecture course given at Marburg in the summer of 1928, first published in German as volume 26 of the Gesamtausgabe, Metaphysische Anfangsgründe der Logik im Ausgang von Leibniz, ed. by Klaus Held, (Frankfurt am Main, Vittorio Klostermann, 1978).

is supposed to demonstrate this dependence. 'All of this makes clear that the self-founding that the sciences do - which is necessary and justified within science - this self-founding falls into ambiguity and uncertainty. Suddenly there is no secure method for inquiring into what is meant by the basic concepts *as such*; suddenly there is no ground for demonstrating these basic concepts *themselves*.'<sup>23</sup> Scientific investigation into the field itself cannot inquire into what is actually meant by the concepts which open up the field, because it presupposes it. 'It becomes clear that what lies on the *limit* of science's deliberations is the *thematic* reflection of the *being as such* which is meant in the projection and opening up of the ontological constitution.'<sup>24</sup> What is required is precisely *thematic reflection* upon the Being of beings. But thematization, as we already know, 'is built upon objectification as such.'<sup>25</sup> Thus the founding of scientific projection rests upon the *objectification* of the Being of the beings in question. Heidegger says as much: 'If this is to happen, then what we need is not to objectify *a being*, e.g., the existing nature as a whole, but the *ontological* constitution of nature or the being of that which exists as historical.'<sup>26</sup> But this thematic inquiry into the constitution of Being, which transforms the preontological understanding of Being into an explicit *ontological* understanding, is precisely ontology. And since for scientific projection it is always a question of the kind of Being of a realm of beings, this inquiry is more precisely *regional ontology*:

Since every science always has its field and its region of beings as object, the corresponding ontological reflection will always refer to the *regional constitution of being*. Latent in every science of a realm of beings there always lies a regional ontology which belongs to this science, but which never can in principle be developed by this science.<sup>27</sup>

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<sup>23</sup> PIK, p. 24.

<sup>24</sup> PIK, p. 25.

<sup>25</sup> PIK, p. 20.

<sup>26</sup> PIK, p. 25.

<sup>27</sup> PIK, p. 25.

Regional ontology, then, provides an explicit thematization of the kind of Being of a realm of beings. As such it founds the self-founding of the sciences in scientific projection, by explicitly displaying that projection's genuine roots in the understanding of the Being of the realm of beings it objectifies. This means, it seems, that regional ontology will lay out securely for the first time the foundations of a science - those foundations from which the original scientific projection springs, and in which it finds its grounds. '*This necessary founding of science's self-founding is actually the laying of the foundation of science.*'<sup>28</sup> However regional ontology, insofar as it relies upon some understanding of Being as such in its investigation into the kind of Being of a certain realm of beings, has its own lacuna, that is structurally analogous to the lacuna at the heart of science: namely, the understanding of Being as such with which regional ontology implicitly operates cannot ever be justified by an investigation that depends upon it. Consequently regional ontology is itself in need of a more original founding, which will be carried out by fundamental ontology. In sum, then:

*The founding of self-founding of the sciences of beings takes place in regional ontologies. Thus ontology is what first accomplishes the laying of the foundation of an ontic science. Laying the foundation of a science of beings means founding and developing the ontology which underlies this science. In turn, these ontologies are grounded in fundamental ontology, which constitutes the centre of philosophy.*<sup>29</sup>

What are we to make of the distinction between founding and self-founding, then? Has it really made any difference to our understanding of the relation between science and first philosophy, or is it simply a case of having your cake and eating it? It is difficult to see how the notion of self-founding is anything more than a stop-gap, a provisional and ultimately inadequate version of the founding that only regional ontology can genuinely

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<sup>28</sup> PIK, p. 24.

<sup>29</sup> PIK, p. 27.

provide. But in that case are we to assume that laying the foundations<sup>30</sup> of a science will eliminate once and for all the possibility of further scientific crises? Does science only suffer from crisis to the extent that it presumes to be autonomous? In which case, crisis would be the price science pays for its arrogance. Or, on the contrary, does the founding of scientific projection by regional ontology, *bind* scientific projection to *crisis* as the ground of its foundation? In which case the elimination of crisis would not be the sign of a science's successful founding by a regional ontology, but quite the opposite - the sign that it lacked, or had suppressed, any such ontological founding? Is this what Heidegger is getting at, when he says, 'In some sense, one can exist in the sciences without philosophy. Things work without philosophy, and one can sneak away from philosophy. [...] One can sneak away from philosophy, and then everything is left as it is.'<sup>31</sup> But then we are at a loss to understand what Heidegger means by regional ontology at all. The founding which it provides is not simply a better version of the self-founding the sciences themselves accomplish in scientific projection; it is rather a founding *of* that self-founding. Moreover the ontological constitution of the realm of beings which regional ontology is supposed to subject to explicit thematization, does not *correspond* to the conceptual delimitation of the field accomplished in scientific projection, so that the delimitation could be shown to be correct simply by comparing it with the ontological constitution of the beings in question. In which case, since it is no

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<sup>30</sup> The translation of *Grundlegung* by 'laying the foundation,' which is the translation used both in *Being and Time* and the translation of the Kant lecture course (PIK), is made extremely problematic by comments made about the term in the introduction to the Kant book. 'The general meaning of the term "laying the ground" [*Grundlegung*] must first be clarified. The expression's meaning is best illustrated if we consider the building trade. [...] As a consequence laying the ground for metaphysics can mean to lay a foundation [*Fundament*] under this natural metaphysics, or rather to replace one which has already been laid with a new one through a process of substituting. However, it is precisely this representation that we must keep out of the idea of ground-laying, namely, that it is a matter of the by-product from the foundation [*Grundlagen*] of an already constructed building. Ground-laying is rather the projecting of the building plan itself so that it agrees with the direction concerning on what and how the building will be grounded.' [Martin Heidegger, Kant and the Problem of Metaphysics, trans. by Richard Taft. (Bloomington and Indianapolis, Indiana University Press, 1990, revised 1997), pp. 1-2)

<sup>31</sup> PIK, p. 27.

longer a question of *justifying* science's presuppositions, there must be some other reason why science is prohibited in principle from developing its own regional ontology.

A whole new series of disturbing questions have, thus, posed themselves:

1. What kind of founding does regional ontology provide for the self-founding of the individual sciences?
2. What is meant by the ontological constitution of a realm of beings, and how is it to be thematized?
3. Why is science prohibited in principle from developing its own regional ontology?

These questions cannot be answered at the level of abstraction of Heidegger's remarks about regional ontology in general. What we need is an example of regional ontology in practice, an example of Heidegger actually *doing* regional ontology, from which we might be able to work out what he actually means by founding the self-founding of a science, or the thematization of the ontological constitution of a realm of beings. Fortunately Heidegger provides just such an example with the discussion of animality to be found in the lecture course given at Freiburg in the winter of 1929/30, published as *The Fundamental Concepts of Metaphysics*. But to demonstrate this, will require some discussion.

### **The Ambiguous Relation between Science and Metaphysics**

To begin with, at least, explicit confirmation of the fact that Heidegger does not subscribe to the simple "three-story edifice" model of the relation between first philosophy, regional ontology and science comes in a section of the lecture course, in which he deals with the relationship between metaphysics and the positive sciences

(§45). Here Heidegger quite explicitly rejects the idea that regional ontology provides the 'conceptual framework,' while science is left merely to fill in the facts:

We cannot separate metaphysics and positive research, playing them off against one another in this manner. They are not two consecutive phases of a production process. The relation between them cannot be established in a rationalized, technical sort of way, as if science and metaphysics simply represented two branches of a single industrial concern, the former supplying the facts and the latter providing the fundamental concepts.<sup>32</sup>

Indeed, true to form, Heidegger insists that it is the sciences themselves which need to produce new fundamental concepts in periods of crisis. Talking of the crisis besetting contemporary biology in its struggle to differentiate itself from physics and chemistry, Heidegger says, 'The task confronting biology as a science is to develop an entirely new projection of the objects of its inquiry.'<sup>33</sup> It's worth underlining that Heidegger is quite precise here: the task of developing a new scientific projection is one that confronts biology *as a science* - and this agrees with Heidegger's insistence in the lectures on Kant that scientific projection is 'a projection that science itself makes.'<sup>34</sup> Moreover, the transformation by a science of its own basis can and usually does occur without any explicit philosophical support. Later on in the lecture course, after having summarised what he takes to be the major tendencies of a scientific revolution unfolding within biology, Heidegger comments, 'The fact that such overcoming has happened through concrete investigation and experiment is all the more valuable, valuable at any rate in relation to the possibility of a transformation within positive science itself, which would prefer, largely with good reason, to keep itself free from the apron strings of philosophy.'<sup>35</sup> The possibility of fundamental transformation, that is to say, using the terminology developed in the last chapter, the possibility of a repetition of scientific

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<sup>32</sup> FCM, p. 189.

<sup>33</sup> FCM, p. 188.

<sup>34</sup> PIK, p. 23.

<sup>35</sup> FCM, p. 260.

projection in scientific crisis, is a matter of *fate*, that is to say, of science's historicity. It has nothing to do with whether philosophy has managed to provide 'a satisfactory metaphysical theory' of the relevant subject area. Rather everything 'depends on whether or not in a given era leading researchers emerge alongside the countless workers and technical experts who are also required.'<sup>36</sup> And what is crucial about these researchers, what it is that allows them to assume *leadership* and drag the whole body of their discipline into new ways of seeing and asking about their field quite alien to the traditional ways of going about things, is not that they happen to make new or even startling discoveries, but that they display what Heidegger calls 'an original solidarity with the most elementary content of their respective fields.'<sup>37</sup> In a perfectly characteristic move, Heidegger appears to have shifted focus from the theoretical structure of a science to the behaviour of its practitioners. Thomas Kuhn has noted that new paradigms often get adopted by a scientific community on the very flimsiest of evidence.<sup>38</sup> It is not just that the new paradigm has little or no experimental confirmation. Often the new paradigm has less explanatory power than the old one - it is often narrower, less predicative, and more unwieldy than older and better established theories and techniques. It can even conflict with well-established evidence in a greater number of cases than the old paradigm. A new paradigm is not even necessarily more successful than the old one in explaining the anomalies that sparked off a scientific crisis in the first place. Yet nonetheless, new paradigms do get adopted, and often with startling rapidity. Indeed if it were not for the fact that new paradigms do get adopted prior to proving their worth, at least by a section of the scientific community, they could never be developed sufficiently to prove their worth. The adoption of a new paradigm

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<sup>36</sup> FCM, p. 189.

<sup>37</sup> FCM, p. 189.

<sup>38</sup> See Thomas S. Kuhn, The Structure of Scientific Revolutions, (London, The University of Chicago Press, 1962, 2<sup>nd</sup>. enlarged ed. 1970), Chapter XII, especially pp. 150-159.



appears to be little more than a leap of faith, and a *collective* leap of faith at that. Kuhn himself still thinks, however, that scientists have faith in *the paradigm itself*, partly on the basis of vague and scarcely articulable aesthetic intuitions, but above all because they have some inkling of its future worth. 'A decision between alternate ways of practising science is called for, and in the circumstances that decision must be based less on past achievement than on future promise. The man who embraces a new paradigm at an early stage must often do so in defiance of the evidence provided by problem-solving. He must, that is, have faith that the new paradigm will succeed with the many large problems that confront it, knowing only that the older paradigm has failed with a few.'<sup>39</sup>

New theories get adopted because they appear - *for whatever reasons* - more attractive than the old ones. Now Heidegger would seem to be saying, on the contrary, that it is not the attractiveness of theories that counts, but rather the attractiveness of the theorist. Scientists do not place their faith in new theories, but in leading researchers. Leading researchers, it would seem, are those who have the charisma to gather an entire scientific community together and persuade, perhaps even inspire, them to take a collective leap into the dark. But isn't this just an even greater regression into mass psychology than that which Imre Lakatos complained of in Kuhn? We should ask ourselves, though, what is it about these leading researchers that persuades the rest of the scientific community to go along with them? 'An original solidarity with the most elementary content of their field.' And what precisely does that mean? The word 'solidarity' seems on the face of it an odd word to use in this context. Solidarity means standing shoulder to shoulder in the face of the enemy; it means being united in a common cause, and not allowing personal differences or qualms to split the united front or sap the strength of numbers; it means freely submitting oneself to a collective goal.

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<sup>39</sup> *Ibid*, p. 158.

One can imagine a solidarity of the scientific community as whole in the face of outside hostility, from the church, say, or even a solidarity of a vanguard of researchers in the face of the conservatism of their colleagues, but a solidarity with the scientific field itself? But solidarity is in fact a rather peculiar translation of the German, which runs: 'Führerschaft eines Forschers besteht nicht im Überraschenden und Ungewöhnlichen seiner Entdeckungen, sondern in der Ursprünglichkeit seines Verwachsenseins mit dem elementarsten Sachgehalt seines Gebietes.'<sup>40</sup> The verb *verwachsen* means literally 'to grow together,' 'to grow into one,' and is the word used, for instance, to describe the healing of broken bones when they fuse back together. Used figuratively, it means 'to feel at home' in a place or with a group of people, 'to become bound up with something.' This figurative meaning is carried over into the adjectival phrase '*verwachsen mit etwas sein*' from which Heidegger clearly derives his noun '*Verwachsenseins*.' The phrase means 'to be deeply rooted in something,' one's country or tradition, as the dictionary helpfully suggests - altogether a very Heideggerian word, then - or 'to be completely bound up with' one's work or loved one. The solidarity that Heidegger is talking about then is both a total commitment to the field, a passionate devotion to one's discipline, no doubt to the exclusion of all else, *and* a complete identification with it. The leading researcher is *at home* in his field. She is *in her element* - which means not just that the researcher inhabits her field, but that the field inhabits her. The researcher does not look upon the field as upon a landscape from above, but rather is immersed in it and imbued with it. The researcher does not just move about within the field as within a perfectly familiar environment, but, as with the individual in Hegel's ethical order, is constituted as a harmonious element of the field which finds its satisfaction in the whole. Dasein allows itself to be wholly configured by

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<sup>40</sup> G29/30, p. 279.

the field within which it moves. It is interesting to note that the adjective *verwachsen* as a technical term in botany means 'adnate' or 'connate,' literally to be joined together from birth. The field and the researcher are fused into one. I, at least, am irresistibly reminded at this point of all the romantic stories about Einstein and his thought experiments, at the age of 16 imagining himself riding the crest of a wave of light, becoming in thought at least the wave front itself. In their work, leading researchers display - and let it be said, display perhaps only to those who also work within the field, in the same way that perhaps a great musician can only really be recognised by another musician, somebody who has some common experience of what they are trying to do - a commitment to the field, an empathy for it, a peculiar fidelity, a rapport, an affinity, that persuades their colleagues in the absence of any 'objective' criteria to trust them. An Einstein or a Darwin can change the course of a science's history not because the radical new theories which they come up with are demonstrably better, or even demonstrably more likely to prove better than the old ones, but because in the very working out of those theories they display a peculiar and exceptional attachment to the field, an ability to move within it, almost perhaps to inhabit it, that other researchers within the field are quick to recognise. Scientists know their field, know it in their bones, as it were, and here is somebody who they know (precisely because they know their field, know what it feels like to do work in it) knows it more deeply, more passionately than they.

But can we make any clearer sense of this rather vague talk of affinity and solidarity? Much later in the lecture course Heidegger sums up what has been learnt from the prolonged examination of actual scientific research he has just completed. Here he introduces the notion of 'fundamental relationships' [*Grundverhältnisse*] to beings - 'those *fundamental relationships* that correspond to the peculiar character proper to the

beings in question'<sup>41</sup>. These fundamental relationships are to be contrasted with our everyday comportments [*Verhalten*] towards beings, in which we move amongst beings in an entirely undifferentiated way. Nonetheless these fundamental relationships which correspond to the distinct manifestness of different kinds of beings can be awakened. Here it is clearly a question of awakening a relationship to beings that is in accordance with the manner of their Being, and we are at once reminded of the *Umschlag* in our understanding of Being which Heidegger set so much store by in his account of the genesis of scientific activity in *Being and Time*. One could say then that original solidarity with the most elementary content of the scientific field could only be displayed if the fundamental relation with the beings in question had indeed been awakened, if the *Umschlag* had indeed occurred, and only then could a radical transformation of the conceptual framework underpinning the field of investigation be undertaken. Original solidarity with the field means that the entities under investigation are encountered not within the context of our everyday comportments but rather on the basis of a fundamental relation which corresponds with their particular kind of Being.

But it is not even as if this original solidarity can be provided by philosophy. 'It is not the proper purpose of the latter [i.e. philosophy] to be instantly applied like a medicine, but rather, irrespective of any possible immediate application, to perform the incalculable task of preparing Dasein for that readiness on the basis of which such natural originality thrives.'<sup>42</sup> Philosophy can only prepare the ground, as it were, cultivate the situation in which such original solidarity can flourish. This cannot be left to the scientists themselves because the readiness for originality has nothing to do with the field of scientific investigation itself, but rather is a function of the situation in which scientists *find themselves*. This situation clearly transcends the neat demarcations

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<sup>41</sup> FCM, p. 276.

of the individual disciplines; it is a matter of the historical situation of Dasein as whole. It is in this plane, the plane in which Dasein finds itself, rather than any transcendental plane, that the link between fundamental ontology and the positive sciences is to be forged by regional ontology. Moreover science itself is ambiguous. On the one hand, science thrives on crisis. It is most truly what it is only in crisis. Yet science is always trying to avoid crises. It seems positively embarrassed by them, as though they brought it into disrepute. As soon as it gets into one it tries to get out of it again as quickly as possible. '[C]risis cannot break through in the serious and above all enduring manner that is required, because we are not sufficiently willing to let ourselves be shaken.'<sup>43</sup> Perhaps, it is the job of metaphysical questioning to make us willing.

On the face of it, this does not seem to be a particularly promising suggestion. Metaphysical inquiry, Heidegger tells us, concerns itself with entities as such. It seeks to say something about their *essence*. One would have thought that a determination of essence would put a stop to any vacillation, and fix our conception of the entities in question, securing once and for all a science's methodology and conceptual foundations. But determinations of this kind have a peculiar and unsettling characteristic. 'We seem,' Heidegger says, 'to take them from the relevant sciences [...] and, at the same time, we try to use them to first secure a specific domain for the science in question and thus to secure its possibility as a science. Thus it is that we find ourselves moving in a *circle*.'<sup>44</sup> The double bind arises thus. If the statement is to be truly one of *essence*, then it must be *a priori*. Zoology deals with animals, and in so dealing it demonstrates an initial discernment that precedes any investigation: this dog is an animal, this stone is not.<sup>45</sup>

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<sup>42</sup> FCM, p. 189.

<sup>43</sup> FCM, p. 191.

<sup>44</sup> FCM, p. 187.

<sup>45</sup> This is not to deny of course that what passes for an animal may change in the course of investigation - though the examples usually given, viruses, bacteria, etc., quite apart from being neither animals nor

This is the side of the double bind that people normally latch onto, and which gives Heidegger the reputation for having claimed like all good neo-Kantians that philosophy comes first. But the other side is this: No doubt, there is indeed something that allows the zoologist, indeed allows all of us, to discriminate the dog from the stone. Perhaps it could even be stated, more or less roughly. But just because there potentially is a statement of essence, doesn't mean that it is *this* one, the one the philosopher plucks confidently out of thin air.

...what possible criterion do we then possess for the truth of our thesis? Where do we draw that thesis from in the first place? Is it an arbitrary one, or is it a hypothesis, the truth of which can be confirmed only by a specific investigation?

It is neither of these. The proposition does not derive from zoology, but it cannot be elucidated independently of zoology either.<sup>46</sup>

The relation between philosophy and the sciences is not, therefore, one of priority, but one of ambiguity. 'We can see that the relation between metaphysics and the positive sciences is and must be an ambiguous one if our thesis is a *metaphysical* rather than a zoological one.'<sup>47</sup> This is not an ambiguity, Heidegger tells us, that can be cleared up, rather it is a burden that must be shouldered by metaphysical inquiry itself. Metaphysics takes responsibility for the ambiguity that appears to be inherent in the very idea of determining the essence of a realm of beings. 'Thus we find ourselves constantly moving in a circle. And this is an indication that we are moving within the realm of

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plants according to modern taxonomy, are not entities whose classification has changed, but ones that have been discovered, and whose classification has therefore had to be decided upon discovery. Rather, it is only to say that there are certain kinds of reascription so radical as to be inconceivable. Does anybody really believe that one day zoologists will discover after extensive experimentation that the guinea pig is not after all an animal but a kind of suitcase? The very fact that the guinea pig is used *as a guinea pig* attests to the scientists' certainty that it is an animal. One experiments on a guinea pig to find out about animals in general, not to find out whether the guinea pig is an animal. That's what being a guinea pig means. Moreover it is not a matter of choice that one kind of experiment - guinea pig experiments - rather than another kind - classificatory experiments - takes place. The guinea pig could not be used *as a guinea pig* in experiments if even the possibility subsisted of experiments that might disconfirm its animality. That would be enough in itself to discredit its use as a guinea pig - which is why entities whose classification is still in doubt are not used as guinea pigs.

<sup>46</sup> FCM, p. 187.

philosophy.’<sup>48</sup> The ambiguity, precisely by being ambiguous, double-edged, two-faced, provides the space within which something like shaking, an oscillation between foundational certainty and critical doubt, might take place. Metaphysics shoulders the burden of ambiguity - it does not strive to dissolve it. But this assumption of the burden of ambiguity cannot take place in isolation. It can only occur by placing oneself in an ambiguous relation to science - both before and after science, both dependent upon and grounding for science. The circle itself is ambiguous, both a circling which insofar as it is properly metaphysical *underlies* science, and proves to be the movement which founds scientific research, and the circling *between* metaphysics and science. This is why the relation between science and metaphysics does not get described as simply reciprocal. Heidegger is not just saying that metaphysics and science feed off each other; rather he is saying that the relation is ambiguous because it is undecidable whether it is one of simple dependence or one of pure reciprocity. Metaphysics is underlying, because it shoulders the burden of circularity. The relation is circular because metaphysics is underlying, and imposes its circularity upon the relation.

Perhaps, it is, after all, a question of solidarity - solidarity for those who themselves demonstrate solidarity with the most elementary content of their field. Metaphysical questioning about the essence of a realm of beings relies upon and supports those leading researchers who are capable of throwing their discipline into crisis. Like a Sartrean intellectual, Heidegger feels compelled to throw his weight, however meagre, behind a cause that he supports. This is surely what Heidegger means when he says that ‘the *inner unity of science and metaphysics* is a matter of *fate*.’<sup>49</sup> That is to say, a matter of historicity, a matter of decision within a concrete historical situation. Philosophy

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<sup>47</sup> FCM, p. 188.

<sup>48</sup> FCM, p. 180.

<sup>49</sup> FCM, p. 189.

cannot provide absolute grounds for conceptual revision within the sciences, but neither can it stand aloof and grandly declare that all frameworks are equal, equally valid or invalid, objective or subjective, a matter of indifference. This washing one's hands of the whole grubby business would be just another way of asserting the limitless superiority of philosophy over the sciences. Rather, the proper relation between metaphysics and the positive sciences is one of mutual co-operation. The inability of science to sustain its crisis in an enduring manner is, however, a sign that both sides are unwilling to enter into such a relation.

There are characteristic signs on both sides that such readiness [for communal co-operation] is lacking. On the part of philosophy this is represented by that peculiar hyper-sophistication which allows us to imagine ourselves to be in a superior position merely on the basis of a second-hand philosophical knowledge of concepts and conceptual formulae that we have merely heard about or read in books, and which causes us to lecture the special sciences in a supercilious manner. Philosophical knowledge is supposed to be superior because of its more universal character. Yet this hyper-sophistication, this vacuous cleverness, is not a mature understanding that has been wrested from the matter itself. Corresponding to this hyper-sophisticated pseudo-philosophy, what we find in the field of research is a stubborn appeal to the so-called facts and an inability to understand that a fact yields nothing by itself, that every fact that we can produce has always already undergone a process of interpretation. Between them the hyper-sophistication of philosophy and the intransigence of the sciences create the hopeless situation in which both parties obstinately persist in talking past one another and foster the spurious freedom in which each eventually leaves the other to its own devices.<sup>50</sup>

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These remarks on the relation between metaphysical inquiry and scientific research, remarks that, Heidegger is quick to tell us, 'will be valid for the relationship between philosophy and all the sciences,'<sup>51</sup> are made at the beginning of Heidegger's lengthy investigation into the essence of animality which makes up the middle third of the 1929/30 lecture course, but their potential significance for any interpretation of this

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<sup>50</sup> FCM, p. 190.

<sup>51</sup> FCM, p. 188.



investigation has tended to be overlooked. Ever since the publication of Derrida's *Of Spirit*, the critical reception of this section of the 1929/30 lecture course has been dominated by the furore over the supposed scandal of Heidegger's insistence that 'an abyss of essence' separates man from the animal.<sup>52</sup> This insistence, it is alleged, marks a peculiar aporia in Heidegger's thinking; an inability to extricate himself from the very metaphysical tradition that he seeks to overcome. Thus, David Farrell Krell, in his book *Daimon Life*, opines magisterially, 'When Heidegger tries to separate Dasein from the animal, or to dig an abyss of essence between them, he causes the whole of his project to collapse back into the congealed categories and oblivious decisions of ontotheology.'<sup>53</sup> This concern with the content of Heidegger's investigation has tended to obscure its methodology. But this failure to examine the methodology in turn affects the interpretation of the content. In particular, the fact that the investigation relies so heavily upon the 'results' of an experimental science is regarded as nothing less than astonishing.<sup>54</sup> David Farrell Krell, for instance, can scarcely believe Heidegger's naiveté. 'Heidegger does not scorn zoology or any other science. He realises that without the discourse of the sciences he has nothing to say about beings.'<sup>55</sup> This reliance is simply another symptom of Heidegger's perverse relapse back into ontotheology. 'What Heidegger here ignores is the metaphysical commitment that such empirical information already embraces.'<sup>56</sup> But the remarks on the essentially ambiguous relation between metaphysics and science, should alert us to the fact that Heidegger is not ignoring these metaphysical commitments, but rather is taking them very seriously

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<sup>52</sup> Jacques Derrida, *Of Spirit - Heidegger and the Question*, trans. by Geoffrey Bennington and Rachel Bowlby, (Chicago and London, The University of Chicago Press, 1989), see pp. 39-72.

<sup>53</sup> *Daimon Life*, p. 105.

<sup>54</sup> 'Third, the 1929-30 course shows Heidegger venturing into the realm of positive science - specifically biology - and doing so at great length. The move is astonishing, because Heidegger will nowhere else take the experimental results so seriously in support of possible metaphysical claims.' Translator's Foreword, *FCM*, p. xx.

<sup>55</sup> *Daimon Life*, p. 114.

indeed. Indeed, the remarks on the relation between metaphysics and science are clearly meant to guard against the highly traditional assumption, which Krell himself appears to take for granted, that the 'metaphysical' commitments of a science can somehow be isolated and subjected to entirely independent evaluation and adjudication.

The question that nobody seems to have asked is, why does Heidegger begin his investigation into the essence of animality with a discussion of the relation between metaphysics and science? Heidegger introduces the discussion of animality in the context of an overarching metaphysical question, 'What is world?' On the face of it, this only confirms the preoccupation with the content of Heidegger's interpretation of animality. An essence - a determination of what it is to be an animal - will be extracted in the course of the investigation and presented as a result for comparison with other essences - the essence of man, the essence of the stone - similarly extracted. In the context of the governing question 'What is world?' the result is all that matters. But this is not, in fact, how the investigation works. The investigation into animality is followed in the lecture course by a long concluding section which examines the possibility of propositional assertion as such, that is to say, the possibility of determining something *as* something; but that is precisely the possibility of conducting the kind of investigation that has just been carried out. In the course of the investigation into animality our attention has somehow been diverted or twisted around so that by the end we are focused upon the investigation itself. The investigation into animality does not throw light on the question of world simply by determining what the animal is, and therefore, since the animal cannot properly be said to have a world, telling us something, negatively at least, about the world. Rather the investigation *as* an investigation into a particular kind of being toward which we can comport ourselves and to which we can

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<sup>56</sup> *Ibid*, p. 117.

have some kind of access precisely on the basis of Being-in-the-world. tells us something about world as such. The performative character of the investigation, the fact that it shows us something precisely by enacting it, cannot be ignored. And what the investigation performs is precisely an exercise in regional ontology. This is signposted clearly enough when, at the very end of the investigation, Heidegger looks back and says:

An understanding for the fact that there are *fundamentally different specific manners of being itself*, and accordingly fundamentally different species of beings, was precisely sharpened for us through our interpretation of animality. Thus our entire preliminary investigation takes on a *new function*. [...] In this connection we should remember this: animality no longer stands in view with respect to poverty in world as such, but rather as *a realm of beings* which are *manifest* and thus call for a *specific fundamental relationship* toward them on our part, one in which at least initially we do not move.<sup>57</sup>

If the investigation into the essence of animality is meant to be read as an exercise in regional ontology, then clearly Heidegger intends to illustrate by it the possibility of *founding* an individual science. But the remarks on the relation between metaphysics and science that introduce the discussion remind us that the relation between the founding of a science by regional ontology and the self-founding of that science in a scientific projection is itself still to be determined. The investigation does not presuppose this relation, but rather explores it. This explains the otherwise utterly inexplicable fact that the investigation is split into two. In the course of the discussion, Heidegger appears to pursue two quite different formulations, and indeed conceptions, of the essence of animality. On the one hand, we have what Heidegger calls *the statement of essence* - the notorious thesis that the animal is poor in world. Some 30 pages are devoted to trying clarify what this thesis might mean, without, it has to be said, much apparent success. On the other hand, we have 60 pages devoted to a detailed elaboration of what Heidegger calls *the essential conception* of the organism. This

elaboration, though it is drawn exclusively from empirical scientific research, does not concern itself with the 'results' of such research. Rather Heidegger is intent upon articulating the new scientific projection that is, as he sees it, being hammered out in contemporary biological research. Provisionally at least, then, we can make the following identifications. The statement of essence represents an articulation of the ontological constitution of a particular mode of Being. It falls to regional ontology to provide such an articulation, and this articulation will be founding for the individual science which investigates the particular beings in question. The essential conception, on the other hand, corresponds to the scientific projection which constitutes the contemporary self-founding of the individual science. What is at issue in the investigation is not just the content of these two 'rival' interpretations of animality, but their relation, or rather, to put it more emphatically, their interaction. The initial remarks on the relation between metaphysics and science have already made it abundantly clear that scientific crisis does not represent the *passage* from a provisional self-founding to a properly philosophical founding, but rather the *site* of this interaction, the nexus of founding and self-founding. Regional ontological founding does not replace scientific self-founding, rather it somehow makes it possible. But in order to see this concretely, we need to examine what a statement of essence actually says, and more importantly *how* it says it.

### **The Propositional Character of the Statement of Essence**

The statement that everybody seems to find so objectionable is: The animal is poor in world. Where does Heidegger get it from? The answer, disconcertingly, is nowhere. It is not arrived at through an investigation, nor as the result of an argument; rather

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<sup>57</sup> FCM, p. 276.

Heidegger appears to pluck it out of thin air at the very moment he introduces animality as a topic for discussion. 'However crudely, certain distinctions *immediately manifest* themselves here. We can formulate these distinctions in the following three theses: [1.] the stone (material object) is *worldless*; [2.] the animal is *poor in world*; [3.] man is *world-forming*.'<sup>58</sup> It is hard not to suspect, therefore, that the thesis pre-empts the entire investigation, and prejudices any possible result. Heidegger already knows what an animal essentially is, and we shall have to accept it simply on his say so - provided, of course, that the statement of essence is actually supposed *to assert* something. But this is precisely what Heidegger immediately calls into question.

Every term employed in the thesis is problematic and indeterminate. We already know that the comparative examination of human, animal, and stone is supposed to throw some light on the notion of world. But that means that we do not know as yet what the word means in the thesis that the animal is poor in world. Heidegger then goes on to demonstrate that we have as just as little clue what the word 'poor' might mean. Comparing the animal with human beings, we might be tempted to suppose that the animal is poor in world because the animal's world is less rich, less diverse than ours. But a moment's consideration proves such a simplistic rank ordering to be highly dubious. Who is to say that the 'world' revealed by the snake's sense of smell or the dolphin's sonar is less rich or diverse than ours? This does not lead Heidegger to claim that animals therefore also *have* worlds. On the contrary the very fact that animals cannot be said to have a paler or thinner or less diverse version of the world we have, suggests that they are in fact deprived of world, insofar as world denotes that which we as humans have. They have something altogether different and in order to emphasize this difference, we say that animals do not have world at all. However, when we come to

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<sup>58</sup> FCM, p. 177, [first emphasis mine].

compare the animal with a rock, say, we are led equally naturally to the opposite conclusion. A lizard lying upon a rock that is itself lying upon the ground, has a quite different relation to the rock than the rock does to the ground. The rock, Heidegger says, has no access to the ground it lies upon, and by this he means that the rock is in some sense indifferent to what it lies upon. It cannot matter to it. 'The *worldlessness* of a being can now be defined as its having no access to those beings (*as beings*) amongst which this particular being with this specific manner of being is.'<sup>59</sup> Conversely, then, world will surely have something to do with having access to things; things mattering for one. But the rock does indeed matter to the lizard. Picked up and removed from the rock, it will scuttle back to it. The rock is not simply what the lizard lies upon: it is what it *basks* upon. The lizard does not so much put itself into spatial relation with the rock as put itself into *beneficial* relation with the spatial relation between rock and sun. We feel compelled then in the face of the worldlessness of the stone to ascribe something like a world to the animal, a set of relations wherein it accommodates and manoeuvres itself. We are thus faced by a contradiction. 'The animal thus reveals itself as a being which *both has and does not have world*.'<sup>60</sup> This contradiction ensures that we do not know what the word 'poor' means in the thesis that the animal is poor in world. But at the same time, it points toward the meaning of the thesis as a whole.

The statement of essence is not meant simply to identify some characteristic feature of animals which happens to distinguish them from human beings or stones, it is meant to somehow encapsulate the ontological constitution of these kinds of beings.<sup>61</sup> But, as we

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<sup>59</sup> FCM, p. 197.

<sup>60</sup> FCM, p. 199.

<sup>61</sup> 'And this does not mean finding out how humans and animals are distinguished from one another in this or that particular respect. It means finding out what constitutes the *essence of the animality* of the animal and the *essence of the humanity* of man and through what sort of questions we can hope to pinpoint the essence of such beings at all.' FCM, p. 179. The last part of this sentence in particular should alert us to the fact that no explicit decision, at least, has been made about what it is that constitutes the essence of a

saw with the analysis of the ready-to-hand and the present-at-hand in *Being and Time*. Heidegger holds that the Being of an entity comprises both the way in which it manifests itself, and the kind of determinability that belongs to it; that is to say, the ontological constitution of a particular kind of entity is always articulated in terms of its how-Being and its what-Being. The statement of essence, then, must concern itself with *both*. But insofar as it is a *single* statement it can only do so by expressing the articulation of the 'what' and the 'how'. This articulation, this *connection* between the determinability of an entity and its mode of manifestation, is the problem of essence - a problem which Heidegger tells us in the last lecture course he gave at Marburg has bedevilled traditional metaphysics because it has not been properly recognised.

This is, in general, a difficulty prevalent in traditional metaphysics and ontology and in the consideration of essences, particularly in Husserl. By suspending what is actual (in the phenomenological reduction) the what-character is set forth - but in suspending the actual, the actuality, i.e., the *modus existendi*, and its intrinsic connection with the essential contents in the narrower sense is not suspended. Essence has here a double meaning: it means the a priori of *essentia* and of *existentia*.<sup>62</sup>

In introducing the task of inquiring into the essence of animality, Heidegger once again raises this dual aspect of any investigation into essences, but here the dual aspect is slightly inflected. It is no longer a question simply of the how and the what of Being itself, but rather a question of *how we* should approach the matter and what the *matter* itself gets determined as on the basis of this approach:

Yet the difficulty here is not merely one of *content* with respect to *what* life as such is but is equally and almost more emphatically a *methodological* one: *by what path* can and should we gain access to the living character of the living being in its essence? [...] We are thus confronted by two fundamental difficulties: [1.] *What* are we to *determine* the essence of life in general *as*? [2.]

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particular kind of entity, and indeed that the investigation will be as much about *how* one goes about 'isolating' the essence of something as about determining *what* that essence turns out to be.

<sup>62</sup> MFL, p. 178.

*How* are living beings as such - the animality of the animal and the plant-character of the plant - originally *accessible*?<sup>63</sup>

The statement of essence encapsulates the articulation of how-Being and what-Being by shuttling us back and forward between the question of content and the question of access. But this does not mean that what-Being is determined by the way in which we choose to approach the question. Rather it means that the questioning is thrown into the question. The way that we *should* question gets caught up in the question of essence, the question of the connection between the how-Being and the what-Being of the entity. In our bewilderment at the contradiction exposed in the what-determination (the animal does and does not have world), we shift our attention to the question of access.

The animal unlike the stone has some kind of access to the things around it, but this access is unlike that which we have to things. The task, therefore, is determine what this access is like. But how? How are we to gain access to *this* access? But here, now that we are asking how we have access to that access which animals have to the things around them, the link between what and how has got much tighter:

Thus once again we find ourselves immediately confronted by a *methodological* question, but one which is *quite unique in kind*. Basically, every methodological question, that is, every question which concerns how we should *initially* approach and *subsequently* pursue a given subject matter, is directly connected with the question concerning the *substantive character* of the subject matter itself. But here this is the case in a quite exceptional sense. For the *substantive problem* with which we are concerned is precisely that of *accessibility itself*, the question concerning the potential access that man and animal characteristically have to other beings. Strictly speaking, therefore, this methodological question is a *substantive one*.<sup>64</sup>

The important thing to note is that whereas the circularity implied by the link between method and substance is intrinsic to all metaphysical inquiry into essences, and therefore to all regional ontology, we have stumbled here upon something that is *unique* to

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<sup>63</sup> FCM, p. 179.

<sup>64</sup> FCM, p. 201.



animality itself: the methodological question is not merely linked to questions of substance, co-determining them; rather, it *is* a question of substance. And this, precisely because it is unique to the question of animality, says something about the animal as such.

At first glance there seem to be two obvious objections to this. First, just because the substantive question is a question about access, does not mean that the methodological question of access is itself substantive. That would be, surely, to confuse two kinds of access: the kind of access that we have to the animal in its animality, which is the subject of the methodological question, and the kind of access which animals have to the things in their environment, which is the subject of a substantive question; kinds of access that Heidegger has already insisted are completely different. But Heidegger's point is not purely formal. It is not that access to access somehow collapses to the same thing as access, that a kind of algebraic substitution can be performed so as to prove the identity of the question of methodology and the question of substance; rather, it is that it is in the nature of the concept of access that the question of access to any particular access should elicit immediately a counter question, namely: to what extent does that access permit, resist, or possibly forbid access to it. It is this question that is substantive insofar as it is a question of the kind of access belonging to the animal. Access is such that access to it must be an entering *into* it, and this is because access is always necessarily access to... . In other words, access to access cannot simply be a going *over to* it. In a sense, there is nothing to go over to; the lizard's access to the stone upon which it basks is not something there in the sense that the spatial relation of the stone to the ground upon which it stands is there. Rather the lizard's access to the stone can only be accessed by going *along with* it. This means that access to the animal must always be what Heidegger calls a transposition. 'Transposing oneself into this being means going along with what it is and with how it is. Such going-along-with means directly learning

how it is with this being, discovering what it is like to be with this being *with* which we are going along *in this way*.<sup>65</sup> Because the animal has some kind of access to the things around it, it is in itself a way of going *about* things. It is only by going along *with* this way of going *about* things that we can find out what the animal *is*. Our access to the animal will not therefore be merely an access *to* its access, but a going along *with* its access. And that is why in the end there is not merely a connection between the methodological and substantive questions, but a correspondence. And this correspondence bites both ways: Can we go along with such going along? Does such going along allow us to go along with it?

This brings us to the second objection. If the methodological question of access to the animal comes down to the problem of transposition, then surely it can hardly be unique to the animal. Doesn't exactly the same problem arise in our access to the access which other human beings have to things? Don't we have to transpose ourselves into their dealings with the world in order to know what they are like? And what precisely stops there being a similar question when it comes to stones? Just because it seems very difficult to imagine what such a transposition would be like, doesn't mean surely that the question is ruled out altogether. However, Heidegger insists that the question of transposition simply does not arise in either of these cases; and this is the crux of his claim that the methodological question of access to the animal is unique.

In both cases, Heidegger says, the question simply isn't a question. In the case of the stone there is no question of transposition at all. 'The question: Can we transpose ourselves into a stone?', is impossible in principle, and the question about how we might go about factually transposing ourselves is consequently quite meaningless here.'<sup>66</sup> It is impossible in principle because there is nowhere to transpose oneself into. In

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<sup>65</sup> FCM, p. 202.

transposing ourselves, we remain ourselves while going along with some other's access to things. The stone offers us no sphere in which we could be ourselves, and so forbids the very idea of transposition.<sup>67</sup>

In the case of human beings, on the other hand, transposition is not questionable because, in a sense, it has already happened. We are tempted to think that transposition into an other Dasein's relations with the world might be a problem because we imagine that it is a question of imaginative sympathy, or of empathy, as Heidegger says. Kant, for example, who Heidegger identifies as responsible for a peculiar intensification of this view, says in the second paralogism of reason, 'It is obvious that, if I wish to represent to myself a thinking being, I must put myself in his place, and thus substitute, as it were, my own subject for the object I am seeking to consider.'<sup>68</sup> But though obvious, this step is in fact mistaken. It arises from the assumption that other human beings appear to us first of all as objects like any other, which we must somehow, and only later impute something like consciousness to. 'This apparently natural and immediate point of departure from a manifold of homogeneous givens is in fact an illusion.'<sup>69</sup> We have 'access' to the way other human beings relate to the things around them not because we relate to those things in the same kind of way, and can therefore, by a sort of analogy, imagine what it would be like to be in that other person's shoes, but

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<sup>66</sup> FCM, p. 207.

<sup>67</sup> However, Heidegger appears to want to keep his options open here. When he first introduces the question of transposition into the stone he says, 'Now we generally have a quick and ready answer to this question: No, we reply, we cannot transpose ourselves into the stone.' But, after briefly outlining why this should be impossible, he is quick to insert a caveat. 'I say emphatically that we *usually* answer in this way because in fact there are ways and means belonging to human Dasein in which man never simply regards purely material things, or indeed technical things, as such but rather "animates" them, as we might somewhat misleadingly put it. There are two fundamental ways in which this can happen: first when human Dasein is determined in its existence by *myth*, and second in the case of *art*.' (FCM, p. 204.) And Heidegger is insistent that these two possibilities are neither illusory nor metaphorical. 'What is at issue here is not the opposition between actual reality and illusory appearance, but the distinction between quite different *kinds* of possible *truth*.' (Ibid.) But in that case, in what sense can transposition into the stone be said to be impossible *in principle*?

<sup>68</sup> Immanuel Kant, Critique of Pure Reason, p. 336.

<sup>69</sup> FCM, p. 207.

because the relation we have to things and the relation the other has to them are the *same* relation.

[A] number of human beings not only have the same comportment toward the same things, but can also *share* one and the same comportment *with one another*, without this shared experience being fragmented in the process; it appears that it is possible, accordingly to go along [*Mitgang*] with others in their access [*Zugang*] to things and in their dealings [*Umgang*] with those things. This is a *fundamental feature* of man's own immediate experience of existence.<sup>70</sup>

This point is crucial. Heidegger is not merely claiming that this going along with others is a constitutive feature of the Being of Dasein; he is claiming that our own access to beings is already and necessarily such a going along with. It is not just that in Being-alongside things, things manifest themselves to us as things, and in Being-with others, those others manifest themselves as Daseins, as if these two phenomena were simply two independent dimensions of the general disclosiveness of Dasein. Rather the two are bound together; they are not just equiprimordial, they are co-dependent. There can be no Being-with others except in the shared manifestation of beings. There can be no manifestation of beings except in Being-with others. In the previous year's lecture course, that of 1928/29, which as we saw in the last chapter deals primarily with the essence of science, Heidegger spends over sixty pages banging this point relentlessly home:

Every Being alongside the present-at-hand, even when alone, is a Being-with-one-another. Accordingly, Being alongside the present-at-hand is not an isolated possibility in which Dasein exists, and Being-with-one-another an other [such possibility], but rather every Being alongside... is Being-with-one-another. Conversely every Being-with-one-another is according to its essence a Being alongside the present-at-hand. The latter is no less essential than the former.<sup>71</sup>

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<sup>70</sup> FCM, p. 205.

<sup>71</sup> 'Jedes Sein bei Vorhandenem, auch das alleinige, ist ein Miteinandersein. Das Sein bei Vorhandenem ist demnach nicht eine isolierte Möglichkeit, in der das Dasein existiert, und das Miteinandersein eine andere, sondern jedes Sein bei . . . ist Miteinandersein. Umgekehrt ist jedes Miteinandersein seinem

The reason why is that this inseparability of Being alongside and Being-with is central to Heidegger's concept of truth as unconcealment. Truth is what binds the two together. Being-with-one-another is never in the first place knowledge or consciousness of one another. Heidegger, typically enough, uses the example of two hikers who, suddenly coming upon a panorama of the mountains, stand side by side in silence, enraptured by the view.

There is then no trace of mutual comprehension, rather each stands dumbfounded [*benommen*] by the view. Are the two now merely beside one another like two boulders, or are they at this moment with one another in just such a way that they could not be if they were continuously chattering away together, or indeed mutually understanding one another by sniffing out each other's complexes.<sup>72</sup>

Being-with-one-another is always a *sharing in* something; in this case, the view; in the case of preparing the evening meal, the task. But what is shared, is not shared *out*. Even the task, which one might say is broken up into various sub-tasks that are then apportioned out, is *as the task*, which each is fully involved in, held *in* common. What is held in common is the disclosedness of the task. Being-with-one-another is a sharing *in* truth. The unconcealment of beings is common to us, and that does not mean that in each case there is an unconcealment that is the same, in the sense of exactly similar [*gleich*], but that unconcealment is for all of us who are with one another the same [*das Selbige*]. It is one and the same unconcealment in which we share. Thus for human Dasein transposition is probably a misleading term, if by transposition we mean a transference of ourselves *into* the relations which others have with things. It is not that we are called upon to enter into the other's compartments toward things, rather our

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Wesen nach ein Sein bei Vorhandenem. Das letztere ist nicht minder wesentlich als das erstere.' G27, p. 118.

<sup>72</sup> 'Es ist dann keine Spur von gegenseitigem Sicherfassen, jeder steht vielmehr benommen von dem Anblick. Sind die beiden jetzt nur noch nebeneinander wie die beiden Felsblöcke, oder sind sie in diesem Augenblick gerade in einer Weise miteinander, wie sie es nicht sein können, wenn sie unentwegt zusammen schwatzen oder gar sich gegenseitig erfassen und auf ihre Komplexe beschnüffeln?' G27, p. 86.

compartments - that is, ours *and* theirs - take place in and on the basis of the same unconcealment, and it is this common ground [*Gemeinsamkeit*] that constitutes our Being-with-one-another. The question of transposition into another human being's access to things, therefore, turns out to be meaningless, both because it is redundant and because it misconstrues the situation. 'With respect to man and the human potential for self-transposition into another human being, it transpired that the question is superfluous because in a sense it does not know what it is asking.'<sup>73</sup>

This means that the question of transposition remains a question *only* for animals. The fact that it *remains* a question, its questionableness, indicates something about animals as such. On the one hand animals invite transposition. It seems self-evident that some kind of going along with the way they behave toward things must be possible - Heidegger cites as an example the way we live *with* domestic animals - and yet, on the other hand, this transposition, precisely because it has to be a transposition, a going *over* into something that we are not already in, and that we can never be sure we have successfully entered into, cannot simply be a *going along with*, that sharing in the truth with other Dasein which in fact obviates the need for any transposition. The substantive nature of the methodological question has now become much clearer. 'From the side of the animal, what is it that *grants the possibility of transposedness* and *necessarily refuses any going along with?* What is this *having* and yet *not having?*'<sup>74</sup> We have arrived back at the contradiction that was first rather vaguely expressed by saying that the animal has and does not have world; and in so doing we have tied a peculiar knot, a knot that ties the substantive contradiction to the methodological aporia. It is precisely this knot which the statement of essence is supposed to express. 'Nevertheless we have found the place where such elucidation must begin and have identified the knot which

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<sup>73</sup> FCM, p. 207.

we must first strive to undo. We shall only be able to do so if we pursue its intricate entanglements and the convolution of the proposition that the animal has and does not have world.’<sup>75</sup> The knot is not undone in the sense that it is disentangled, rather it is loosened so that the structure of its entanglement may become visible. The statement of essence is, if you like, the knot which needs to be loosened, opened up to scrutiny without cutting through it. This loosening is what Heidegger means by the unfolding of the question. ‘Proper metaphysical comprehension lies in the correct unfolding of the question. Or, to put it another way, metaphysical questions do not receive an answer, if that means communicating some known fact or other.’<sup>76</sup>

The elucidation of the statement of essence has shown the way in which the how-Being and the what-Being are tied together by the question. ‘And not-having *in* being able to have is precisely *deprivation*, is *poverty*. Thus the transposability of the animal, which again is a not going along with, is grounded in the essence of the animal. And it is this essence that we have attempted to capture with the thesis concerning the animal’s poverty in world.’<sup>77</sup> The question whether the animal has a world or not is constitutive *as a question* of animality as such. But precisely because this question is a question, the temptation is always to answer it yes or no, i.e. to slip either into anthropomorphism or a mechanistic reductionism.

Throughout the long history of the problem of life we can observe how the attempt has been made either to interpret life - that is, the kind of being that pertains to animals and plants - from the perspective of man, or alternatively to explain life by means of laws adopted from the realm of material nature. Yet both of these erstwhile forms of explanation produce an inexplicable residue which in general is simply explained away. What is lacking in all this is insight

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<sup>74</sup> FCM, p. 210.

<sup>75</sup> FCM, p. 199.

<sup>76</sup> FCM, p. 185.

<sup>77</sup> FCM, p. 211.

into the necessary task of securing above all else *the essential nature of life in and of itself* and a resolute attempt to accomplish it.<sup>78</sup>

But answering the question closes off, or even better perhaps switches off, as in switching off a light, the kind of Being that belongs to the animal, since the question belongs to its essence. The animal only presents itself as animal, rather than as a complicated kind of stone, or a simplified human being, insofar as access to it as an animal remains questionable. This means that the attempt to secure the essence of the animal far from answering the question whether it has a world or not, must resolutely keep it open.<sup>79</sup> 'It is certainly true that this questioning, in contrast to all scientific investigations, can never be accommodated within a determinate domain. This questioning must *first form its own interrogative space* in the act of questioning, and only in the act of questioning is it capable of *keeping* this interrogative space *open*.'<sup>80</sup>

The question must remain open because in questioning the questioner throws himself into question. The peculiar doubling of the question of essence is not merely a question of the what-Being and how-Being of the entity, but insofar as these two questions are interwoven, a reversal, a constant switching of questioning from the entity to Dasein and back again. The question 'How are we to approach the subject matter?' is conditioned by the what-Being of the subject matter. Conversely the what-Being of the subject matter is conditioned by the How-question. In metaphysical questioning, Dasein must *throw* itself into question - and what is more, into the *same* question. Here we have the knot of projection and thrownness. In projecting the Being of any entity whatsoever,

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<sup>78</sup> FCM, pp. 191-92.

<sup>79</sup> It is here that the peculiar negativity of the Heideggerian a priori begins to show itself. What is a priori for Heidegger is not some categorial concept without which experience, say, would not be possible, but rather an injunction that certain presuppositions not be made, certain questions be held open, if a distinction is to be respected. In other words, the region of animality, say, is held open by a refusal, rather than constituted by a determination. Of course, one can choose not to respect the distinction, but then all that can be said is that one no longer treats the animal *as an animal*, and all that can be asked is whether it is factually possible to abide by such a decision.

<sup>80</sup> FCM, p. 174.



Dasein must throw itself into *the* question. Here some light is shed on the Heideggerian meaning of transcendence. It is not a question of determining entities *over and above* how they may happen to appear to us, but rather a question of a questioning that exceeds the entities in question and engulfs the questioning itself. Questioning not entities is transcendent, and questioning is only transcendent only insofar as it throws itself into question. Dasein is transcendent only insofar as it makes itself immanent to the question. Transcendence is *making* immanent. The question exceeds itself only by inserting itself into itself: 'fundamental ontology comprises problems which, in their problematic character, themselves belong to the existence of human beings, to the metaphysical essence of Dasein'<sup>81</sup> This is what Heidegger means when he says that Dasein is outside itself in and for itself.

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But even if we accept Heidegger's analysis and agree that the statement of essence says nothing positive, but rather expresses, as it were, the persistence of a problem, can we really be said to have learnt anything about regional ontology in general? Doubt arises precisely because of the singularity of the example. If the animal is the entity for which *uniquely* the question of access to the kind of Being that it is, is essentially constitutive of its Being, i.e. is determinative of its essence, then surely the case of animality can tell us nothing about any other case of regional ontological determination. What possible lessons could we learn from this peculiar kind of being, which is poised over the abyss meant to separate Dasein from all other entities, that could be applied to those other entities? The regional ontological determination and delimitation of the animal on the basis of its singular and equivocal position between Dasein and non-Dasein would seem on the face of it to preclude any other regional delimitation on the same basis. It is not

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<sup>81</sup> MFL, p. 155.

just that the example of the delimitation of animality gives us no clue in its singularity as to how any other delimitation might take place. It is rather more that the delimitation of the animal as neither material object nor human Dasein appears to exclude the possibility of any further delimitation at the same ontological level at all. The regional delimitation of the animal works only as a simultaneous tripartite division of beings as a whole. Are we meant to conclude that there are in fact only three ontological regions - namely, the human, the animal, the inanimate? And that Heidegger takes himself to have demonstrated this along with his uncovering of the essence of animality?

Certainly, any determination of an ontological region will involve some background partition of beings as a whole, but this does not necessarily imply that the partition determines all the regions simultaneously and beforehand. Each partition might be specific to the singular manner in which any particular region is determined. In other words, there is no reason to assume that the various *modes* of Being impose compatible categorisations upon the totality of beings - and indeed this is one of the reasons that they are modes. One mode of Being may simply exclude the possibility of another mode, even as another separate region, precisely because of the background partition that it assumes. And indeed one of the lessons that Heidegger takes the investigation into animality to have taught us, is that the cartographic imagery of regions and realms is quite inadequate to represent the modality of Being.

From this quite rough and ready characterization of the *specific manner of being that belongs to living nature* we can already see that in future we must not permit ourselves to speak of the totality of beings as if this were a collection of certain realms or other. Accordingly, the *manifoldness* of the various *specific manners of being* with respect to their possible *unity* poses a quite specific problem, one that can only be tackled as a problem once we have developed a satisfactory concept of *world*.<sup>82</sup>

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<sup>82</sup> FCM, p. 279.

No doubt, the investigation into animality provides no general rules or guidelines on how to conduct regional ontology as such. The lesson of the investigation will surely have been that the delimitation of a particular kind of Being will always be singular and unique. This is because what differentiates one kind of Being from another cannot simply be a difference *in* essence - where essence is thought of as what makes something what it is; rather it must be a difference *of* essence, where essence denotes the peculiar and specific connection between how-Being and what-Being that belongs to a particular kind of Being that is to say a difference in the *manner* and *way* in which something like essence determines and delimits the kind of entities belonging to the particular region. That is to say, what differs from one mode of Being to another is the articulation of Being into something like what-Being and how-Being. 'The articulation of being varies each time with the way of being of a being.'<sup>83</sup>

### **Founding and Attunement**

But what is the relation between the statement of essence and the self-founding of the sciences? Are we seriously to believe that the statement of essence, expressing as it does nothing but a question, constitutes the founding that the science's cannot themselves accomplish. Here we have to return to the question of what constitutes original solidarity with the most elementary content of the field; that original solidarity which appeared to let the sciences found themselves and get on without philosophy. Original solidarity with the most elementary content of the field, does not mean something like sticking to the facts. The most elementary content of the field is not the simplest or most easily accessible facts, but rather what is most basic to that field - its essence. Original solidarity with the elementary content of zoology means something

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<sup>83</sup> BPP, p. 120.

like being *bound* by the essence of animality. This solidarity with the things themselves is clearly what Heidegger means at the end of the investigation, when, as we have already seen, he talks of ‘those *fundamental relationships* that correspond to the peculiar character proper to the beings in question’ - fundamental relationships which our everyday comportments towards beings do not for the most part exemplify or rely upon, and which need somehow to be awakened.<sup>84</sup> Now what is it that makes possible such a fundamental relationship, such original solidarity with the way things are? The clue lies, I think, in the use of the word ‘awaken.’ This is part of the same vocabulary as that used throughout the first part of the lecture course to designate the task of ‘awakening a fundamental attunement [*Stimmung*] in our philosophizing’ - namely the attunement of fundamental boredom.<sup>85</sup> This is not likely to be a coincidence because ‘awakening’ [*Weckung*] is used systematically and has the status of something like a technical term. It is used to indicate the fact that an attunement is not something which is either present or not-present. ‘Thus we shall not speak at all of “ascertaining” a fundamental attunement in our philosophizing, but of *awakening* it. Awakening means making something wakeful, *letting* whatever is sleeping become *wakeful*.’<sup>86</sup> ‘Awakening’ designates the peculiar mode in which an attunement comes to be there [*da-sein*], and thus is bound as a term to the structure of attunement, which is itself ‘the *fundamental way in which Dasein is as Dasein*.’<sup>87</sup> We can take it then, I think, that what makes original solidarity [*Verwachsen*] with the elementary content of a scientific field possible, what binds us to

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<sup>84</sup> ‘We should merely learn to see that *from out of this everydayness* - although certainly not grounded or sustained by it - *fundamental relationships of human Dasein towards beings* amongst which man himself belongs, are possible, i.e. *are capable of being awakened*.’ FCM, p. 276.

<sup>85</sup> FCM, p. 59.

<sup>86</sup> FCM, p. 60. ‘Weckung ist ein Wach-machen, ein Wach-werden-lassen dessen, was schläft.’ (G29/30, p. 91.) And, in fact, it is this definition of awakening as letting become wakeful [*Wach-werden-lassen*] that is echoed in later when Heidegger claims that ‘*fundamental relationships of human Dasein toward beings* [...] are possible, i.e. *are capable of being awakened* [d.h. *wach werden können*].’ (FCM, p. 276; G29/30, p. 400.)

<sup>87</sup> FCM, p. 67.

the beings as they are themselves, the fundamental relation that corresponds to their essence, is something in the nature of an attunement - *Stimmung* - or, in the translation favoured in *Being and Time*, mood. An attunement or mood 'is not - is never - simply a consequence or side effect of our thinking, doing, and acting. It is - to put it crudely - the presupposition, the "medium" within which they first happen.'<sup>88</sup>

In *Being and Time* mood is primarily characterised as being disclosive of Dasein's thrownness. In mood Dasein finds itself already given over to a concrete situation that it is already in some way sensitive or attuned to. The fact that Dasein always *finds itself* thus embedded in the middle of things that already matter to it, and, thus finding itself, already discloses to itself that it is, prior to any act of conscious self-reflection, is an existential and fundamental characteristic of Dasein, which Heidegger calls *Befindlichkeit*, playing on the multiple uses of the verb *sich befinden* - a synonym for the verb to be, as well as meaning more specifically 'to be located,' while used idiomatically in the standard greeting and conversation opener, '*Wie befinden Sie sich?*' ('How are you doing?'). Mood is in each case the existentiell expression of Dasein's *Befindlichkeit*. Since mood discloses to Dasein that it is, only by disclosing *how* it finds itself in *this* particular situation, mood is disclosive not just of Dasein's 'that it is' but of Being-in-the-world as a whole. But, equally, mood is disclosive of beings within the world insofar as they *matter* to Dasein. Indeed Heidegger insists that mood is *originarily* disclosive, since entities could not be encountered at all, if they did not matter to us somehow. If something did not matter to us, we would have no reason for noticing it; it would quite simply pass us by, as it were. Mood makes mattering possible. 'Under the strongest pressure and resistance, nothing like an affect would come about, and the resistance itself would remain essentially undiscovered, if Being-in-the-world, with its

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<sup>88</sup> FCM, pp. 67-68.

state-of-mind [*Befindlichkeit*], had not already submitted itself to having entities within-the-world “matter” to it in a way which its moods have outlined in advance.’<sup>89</sup>

Now it is very easy to read this analysis of mood as fitting snugly in with the interpretation of understanding as projection. Both would be dimensions of Dasein’s transcendence; both would provide, no doubt each in its own way, something like a horizon of intelligibility for beings. Thus Dreyfus writes, ‘Moods provide the background on the basis of which specific events can affect us. [...] Mood colours the whole world and everything that comes into it.’<sup>90</sup> But what is the model underlying this metaphor? Projective understanding constructs the set, perhaps, whereas mood paints it. But if mood merely colours the world, then it is very hard to see how it could be anything like the condition of possibility of encountering an entity. On the one hand, the encounter could already take place within the horizon provided by projective understanding alone - surely this is precisely how the ready-to-hand is encountered *as the ready-to-hand thing that it is* within the context of its involvements. It is this context and not mood that allows it to be encountered. On the other hand, mood would be incapable of distinguishing any particular entity *as the entity encountered*. Dreyfus himself makes this abundantly clear in the sentence missed out in the ellipsis. ‘If I am in a frightened mood, every particular thing shows up as fearsome.’<sup>91</sup> In which case no particular thing would show up *as* a particular thing, unless distinguished by something else apart from the all pervasive mood. But this is not how it is phenomenologically, nor how Heidegger interprets it. Rather fear, although no doubt all pervasive and somehow

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<sup>89</sup> *Being and Time*, p. 177.

<sup>90</sup> Hubert Dreyfus, *Being-in-the-World*, p. 174.

<sup>91</sup> *Ibid.* Admittedly Dreyfus immediately appends a footnote, ‘Of course, I can be frightened even when not in a fearful mood. This is because the capacity to be frightened belongs to my affectedness [Dreyfus’ translation of *Befindlichkeit*].’ (*Ibid.*, fn. 5, p. 353.) But this only begs the question. How does the capacity to be frightened belong to Dasein’s *Befindlichkeit*, if not as a particular mode of mood? But there seems to be no way that mood as Dreyfus conceives it could ever modify itself into an affect, and therefore no reason to assume that the two belong together as forms of *Befindlichkeit*.

disclosive of one's Being-in-the-world, precisely picks out that entity which is frightening. If the mood of fear is what allows something to be encountered as frightening, it is not because it *makes* it frightening, paints it all over with the colour of fear; rather, this thing, this wolf, *is* frightening, and fear allows us to encounter it as that frightening thing which it is.<sup>92</sup> Mood, or rather the extravagantly complex panoply of moods, do not colour the world, rather they tune it to the frequency of things so that they may resonate in it. 'Dasein's openness to the world is constituted existentially by the attunement of a state-of-mind.'<sup>93</sup> But this means that mood, if it is bound up in the transcendence of Dasein, is not merely another dimension of world-building alongside projection, but is rather its opposite. Mood is the pre-Copernican moment, if you will, which precisely does *not* compel the witness to answer questions of its own devising, but rather listens as a pupil to everything that its teacher has to say. 'Existentially, a state-of-mind [Befindlichkeit] implies a disclosive submission to the world, out of which we can encounter something that matters to us.'<sup>94</sup> This submission to the world, this dependence upon it [*Angewiesenheit auf Welt*] is a submission precisely to its instruction [*anweisen* means among other things 'to instruct' a pupil or an apprentice].

As Klaus Held and Michel Haar have seen, Heidegger's true radicality in his treatment

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<sup>92</sup> To the objection that fear is only an inauthentic mood, and that when it comes to authentic moods such as anxiety, or the fundamental mood of profound boredom, it is always a matter of disclosing Being-in-the-world as a whole, what can one say except so what? The fact that fear is an inauthentic mood does not invalidate it, it merely characterises what kind of mood it is, and what kind of thing it discloses, i.e. beings within the world. That other kinds of mood are better suited to disclosing the existential structure of Dasein itself, does not mean that the analysis of that structure can stop with those moods.

<sup>93</sup> *Being and Time*, p. 176; 'Die Gestimmtheit der Befindlichkeit konstituiert existenzial die Weltoffenheit des Daseins.' (*SZ*, p. 137). *Gestimmtheit* is a synonym for *Stimmung*, but formed from the past participle of the verb *stimmen* it would mean literally something like 'tunedness' - hence Macquarrie and Robinson's translation 'attunement' - and clearly calls attention to the way mood (*Stimmung*) is to be thought of as something like an harmonic 'accordance.' It should not be forgotten that *stimmen* does not just mean 'to tune,' but used intransitively - and this is the far more common usage - it means 'to be correct,' 'to be right,' as in the phrase 'Das stimmt.' ('That's right.') It is precisely this usage which Heidegger exploits at the beginning of his essay 'On the Essence of Truth,' when he examines the ordinary conception of truth. 'The true, whether it be a matter or a proposition, is what accords, the accordant [*das Stimmende*].' (*Basic Writings*, p. 117; *Pathmarks*, p. 139.) More on this connection in the next chapter.

of moods lies not so much in his emphasis upon their publicness, their non-interiority, nor even in the fact that they are for him disclosive, but rather upon his insistence that they are precisely what is binding for thought, i.e. what ensures that projection is not arbitrary. 'The bindingness of philosophical propositions is thereby placed on an entirely new foundation that runs counter to the tradition. When truth basically takes place prepredicatively as world-openness in moods, every predicative truth - including the truth of philosophical propositions - is ultimately dependent upon how the mood primarily opens the world to us.'<sup>95</sup> But this does not mean, Heidegger insists, that objectivity is sacrificed to whim. 'Any cognitive determining has its existential-ontological Constitution in the state-of-mind [*Befindlichkeit*] of Being-in-the-world; but pointing this out is not to be confused with attempting to surrender science ontically to 'feeling' [*Gefühl*].'<sup>96</sup>

Admittedly, a certain ambiguity surrounds the notion of submission to the world in a mood, since 'world' does not mean - at least here in *Being and Time* - a collection, or even totality, of beings, but rather 'that "wherein" a factual Dasein as such can be said to "live".'<sup>97</sup> World is an existentiell affair of Dasein; its possibility belongs to the existential constitution of Dasein as Being-in-the-world. Dasein's submission to the world in mood might then look suspiciously like a self-submission, a submission only to what it had itself projected. But in his long essay *On the Essence of Ground* Heidegger

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<sup>94</sup> *Being and Time*, p. 177. This use of the term 'submission' puts the analysis of mood into communication with the "letting-be" we uncovered in the analysis of understanding in Chapter 2.

<sup>95</sup> Klaus Held, 'Fundamental Moods and Heidegger's Critique of Contemporary Culture,' trans. by Anthony J. Steinbock, *Reading Heidegger - Commemorations*, ed. by John Sallis, (Bloomington and Indianapolis, Indiana University Press, 1993), p. 288. See also Michel Haar, 'Stimmung et pensée,' *Heidegger et l'idée de la phénoménologie*, ed. by F. Volpi, (Dordrecht, Kluwer, 1988), p. 267.

<sup>96</sup> *Being and Time*, p. 177.

<sup>97</sup> *Being and Time*, p. 93. But in 1929/30 lecture course, for instance, the distinction between world and the totality of beings is more subtle. 'What do we mean by this expression "as a whole"? How can Dasein find itself placed in this way among beings as a whole? [...] We shall designate the expanse of this "as a whole", which manifests itself in profound boredom, as *world*.' (FCM, p. 169.)



introduces a new way of formulating the way things can matter for us which makes clearer the binding nature of mood.

Yet in the projection of world, such beings are not yet manifest in themselves. Indeed, they would have to remain concealed, were it not for the fact that Dasein in its projecting is, *as projecting*, also already *in the midst* of such beings. Yet this “in the midst of...” refers neither to a cropping up among other things, nor even to a specific self-directedness *toward* this particular being in *comporting oneself toward* it. Rather this being in the midst of... belongs to transcendence. That which surpasses, in passing *over and beyond* and thus elevating itself, must *find itself* [sich befinden] as such among beings. As finding itself, Dasein is *pre-occupied* [eingenommen] by beings in such a way that, in its belonging to beings, it is *thoroughly attuned* [durchstimmt] by them. *Transcendence means projection of the world in such a way that already that which projects is governed in the manner of mood* [gestimmt durchwaltet] *by those beings that are surpassed*. With this *pre-occupation* by beings that belongs to transcendence Dasein has taken up a basis within beings, gained “ground.”<sup>98</sup>

Granted that original solidarity with the elementary content of a field is given by awakening something like an attunement with the beings in the midst of which Dasein finds itself, what has any of this got to do with the statement of essence (‘The animal is

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<sup>98</sup> Martin Heidegger, ‘On the Essence of Ground,’ trans. by William McNeill, *Pathmarks*, ed. by William McNeill, (Cambridge, Cambridge University Press, 1998), pp. 127-28. [Originally published in German as *Wegmarken*, (Frankfurt am Main, Vittorio Klostermann, 1967, rev. and exp. 1976), published also in the *Gesamtausgabe*, as *Band 9*.] Also translated as *The Essence of Reasons*, trans. by Terence Malick, (Evanston, Northwestern University Press, 1969), pp. 107-109. [This is a bilingual edition, incorporating the German text of the 4th edition of *Vom Wesen des Grundes*, (Frankfurt am Main, Vittorio Klostermann, 1955), originally published in 1929 as part of a *Festschrift* for Edmund Husserl on his 70th birthday - *Ergänzungsband zum Jahrbuch für Philosophie und phänomenologische Forschung*, (Halle, 1929).] I have altered the translation as it appears in *Pathmarks* slightly, so as to take advantage of some of Terence Malick’s translating decisions. In particular, I have adopted his translation of *eingenommen* as ‘preoccupied’ instead of McNeill’s choice of ‘absorbed’ because I think it better captures the various senses of the verb. *Eingenommen* is indeed used to mean ‘enamoured of’ or ‘taken by’ but the preposition used is *für* not *von* - the phrase is *für etwas eingenommen sein*. This arises from the active use of the verb to mean ‘to win over’ as in such sentences as ‘*er hat alle für seine Pläne eingenommen*’ (‘he won everybody over to his plans’). But *einnehmen* is also used simply to mean ‘to occupy’ a place or site, as when a foreign army occupies a town. Since Heidegger says ‘*Das Dasein wird als befindliches vom Seienden eingenommen*’ and not ‘*Dasein ist als befindliches für Seiendes eingenommen*’ it is clear that *eingenommen* is being used passively and not adjectivally, and that the sense of beings actual occupying, of filling the site of Dasein, should be heard at least as loudly as the sense of Dasein bestowing its attention upon those beings. I have therefore taken the liberty of inserting a hyphen into pre-occupy, so as to draw attention to this occupation by beings *prior* to projection. To avoid confusion I shall carry this translation of *einnehmen* and *eingenommen* over into the 1929/30 lecture course (*The Fundamental Concepts of Metaphysics*) where McNeill has also translated them as ‘absorb’ and ‘absorbed’.

I have also altered the translation of the italicised and crucial sentence, ‘*Transzendenz heißt Weltentwurf, so zwar, daß das Entwerfende vom Seienden, das es überstiegt, auch schon gestimmt durchwaltet ist.*’ McNeill translates *durchwaltet* by ‘pervades,’ but this fails to capture the sense of *walten* as ‘to reign’ or ‘to prevail’. *Gestimmt* is used normally in phrases such as *froh gestimmt* (‘in a cheerful mood’) and so would seem to be used adverbially here to indicate the manner in which beings govern or prevail.

poor in world') and the essential conception of the organism given by the scientific projection underlying zoology? A clue is given at the end of the investigation into animality, when Heidegger attempts to adumbrate at least what the fundamental relationship to the realm of living beings might look like. It is significant, however, that this adumbration relies upon the very description of animality extracted from scientific research, which itself is supposedly only made possible by the awakening of the fundamental relationship thus adumbrated.

The details of this description and the manner in which Heidegger derives it from contemporary developments in embryology and ecology are not too important, but some of the technical vocabulary accumulated along the way needs to be explained. Briefly then, the animal is essentially conceived of in terms of its behaviour [*Benahmen*]. This is not to be confused, however, with human "behaviour" or comportment towards things [*Verhalten*]. Behaviour is characterised and made possible by *Benommenheit*, which the translators render as 'captivation'. But this term on its own is not very helpful. Heidegger is insistent that what captivation means as an essential determination of animality cannot be drawn from any of the normal uses of the word to denote various states of human confusion, benumbment, or even compulsive behaviour. 'Rather the term captivation is used to 'describe *the specific way in which the animal remains with itself* [...] this way in which the animal is preoccupied with itself [*in sich eingenommen*].'<sup>99</sup> Now, as we have just seen, Heidegger also characterises Dasein as *eingenommen*, pre-occupied, but in its case pre-occupied by beings. The animal, by contrast, is pre-occupied with itself. But what does this mean? It means that insofar as the animal is essentially characterised by its behaviour, behaviour simply leads to more behaviour, and cannot be counted as comportment toward beings. The animal's

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<sup>99</sup> *FCM*, pp. 238-39 (trans. slightly altered, see footnote 98).

behaviour is a set of drives [*Trieben*] that interlink, and successively take each other's place - which is of course one of the senses of *einnehmen*. Behaviour is always pre-occupied by other behaviour and articulates itself in a self-enclosed structure of feedback relations that Heidegger calls a ring. This ring of instinctual drives does not, however, "encapsulate" the animal, closing it off entirely from the outside world and leaving it to its self-preoccupation. 'On the contrary, the encirclement is precisely *drawn about* the animal in such a way that it *opens* up a sphere within which whatever disinhibits can do so in this or that manner.'<sup>100</sup> Disinhibition is the manner in which the animal is related to things: '*Related to other things* - although *these other things are not manifest as beings*.'<sup>101</sup> Things affect the animal by triggering, i.e. disinhibiting the capability for, its various different behaviours; and this means that the potential stimuli for any particular animal are rigidly determined by the structure of the ring of interlinking behaviours. Moreover, Heidegger insists that the relation between stimulus and behaviour is characterised by a peculiar withdrawal. 'That which disinhibits in this way, and stands in relation to behaviour only insofar as it is disinhibiting, constantly withdraws [*entzieht sich*] from behaviour as it were and does so necessarily on account of its own manner of "showing itself".'<sup>102</sup> This withdrawal corresponds to the animal's self-preoccupation. The stimulus only intervenes so that one behaviour can take the place of another. There is no place as such within the instinctual ring for the stimulus itself. The animal is not to be thought of as sheltered *within* the ring, nor the ring as the animal's carefully filtered mediation with the world. Rather the animal *is* the ring, and its self-preoccupation is nothing other than the continual struggle [*Ringen*] to maintain itself as this ring of potential disinhibitions which it constantly cycles through. Thus the

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<sup>100</sup> FCM, p. 255.

<sup>101</sup> FCM, p. 254.

<sup>102</sup> FCM, p. 254.

relations between animals, the structure of the animal kingdom, as it were, is determined by the peculiar characteristics of the animal ring.

But these encircling rings belonging to the animals, within which their contextual behaviour and instinctual activity moves, are not simply laid down alongside or in between one another but rather intersect one another. The woodworm, for example, which bores into the bark of the oak tree is encircled by *its own* specific ring. But the woodworm itself, and that means together with this encircling ring of its own, finds itself in turn within the ring encircling the woodpecker as it looks for the worm.<sup>103</sup>

This intersection will clearly be characterised by the nature of the disinhibiting rings - that is to say self-preoccupation and withdrawal. It is here that Heidegger returns to the vocabulary of transposition first employed when delineating the problem of *our* access to the animal realm so as to articulate the statement of essence. 'The animal realm demands a quite specific kind of transposedness from us and within the animal realm the encircling rings of captivation are transposed into one another in a peculiar and prevalent way. It is the fundamental trait of this transposedness that first constitutes the specific character of the animal realm as a realm.'<sup>104</sup> Our transposedness, that transposedness whose questionability is expressed in the statement of essence, has now been linked, perhaps even identified, with a transposedness constitutive of the realm of animality as such. The 'how' has once again been linked with the 'what' - but this time the implication is clearly that the 'what' is determinative of the 'how'. Our transposition into the "world" of the animal is demanded, because that, i.e. transposition, is the kind of relation that pertains within that realm. This is what is binding - not some essential content uncovered once we have successfully transposed ourselves into the animal world, but *transposition itself* both as the content of that realm and as the entry into it. And this is precisely where we find Heidegger once again using the phrase 'in the midst of beings,' that first occurs in 'On the Essence of Ground'.

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<sup>103</sup> FCM, p. 277.

Nature does not stand there surrounding man with an abundance of objects - this much we can understand. Rather *human Dasein is intrinsically a peculiar transposedness into the encompassing contextual ring of living beings*. In this connection we should remember the following: it is not as if we were now on the same level as animals, both them and us standing over against a wall of beings with the same shared content, as though the animals amongst themselves and we amongst them simply saw the same wall of beings in different ways, as though we were simply dealing with manifold aspects of the same. No, the encircling rings amongst themselves are not remotely comparable, and the totality of the manifest enmeshing of encircling rings in each case is not simply part of the beings that are otherwise manifest for us, but rather holds us captive in a quite specific way. That is why we say that man exists in a peculiar way *in the midst* of beings. In the midst of beings means: living nature holds us ourselves captive as human beings in a quite specific way, not on the basis of any particular influence or impression that nature exerts or makes upon us, but rather from out of our essence, whether we experience that essence in an ordinary relationship or not.<sup>105</sup>

The model, it would seem, is this: as preoccupied by living beings, Dasein is attuned to their preoccupation with themselves; transposedness is, if you like, the form of this attunement because transposedness is the form of relationality within this field. The general rule would be that attunement is not itself a kind of relation of Dasein to the beings which it finds itself in the midst of, but rather is a conformity of Dasein *as relational* to the relationality proper to those kinds of beings. This peculiar transposedness of Dasein into the mesh of rings transposed into one another is problematic because transposedness is itself a kind of withdrawal (each animal ring withdraws like any other disinhibition when transposed into another animals instinctual ring); projection which makes beings manifest is bound by the problem of transposedness. It should be remembered, however, that this model of the way that the statement of essence is binding for scientific projection is itself dependent upon a description extracted from scientific projection. Heidegger emphasises this fact himself, even going so far as to object that this completely undermines the idea that the statement of essence is in some way founding for scientific projection.

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<sup>104</sup> FCM, p. 278.

Poverty in world is not the condition of possibility of captivation, but rather the reverse, captivation is the condition of the possibility of poverty in world. Yet we must further weaken even this proposition and say more appropriately: Captivation as the essence of animality is the condition of the possibility of a merely comparative definition of animality in terms of poverty in world, insofar as the animal is viewed from the perspective of man to whom world-formation belongs. Our thesis that the animal is poor in world is accordingly far from being a, let alone *the*, fundamental metaphysical principle of the essence of animality.<sup>106</sup>

The only thing that will stop us holding this view is remembering - remembering that the essential conception of animality does not stand in isolation, but was generated precisely by ourselves who already stood in some relation to animals long before it ever constituted the basis for a scientific investigation.

For we ourselves have been in view all the time, whether we wanted to be or not [...] in all our investigations [...] we enjoyed the constant possibility of recalling the Dasein within us as brought to light in a fundamental attunement. Or have we already forgotten this fundamental attunement in the meantime? Does it simply lie behind us like an episode, as something completely different that has not the slightest thing to do with unicellular living beings or the self-orienting behaviour of bees?<sup>107</sup>

But what then of founding, the founding that regional ontology is supposed to carry out on the self-founding of a science, if the relation between the statement of essence and the essential conception as laid out in scientific projection is not one of dependence, but rather a necessary circulation? The 'gaining ground,' the 'taking up a basis,' [*Bodennehmen*] in the midst of beings is identified in 'On the Essence of Ground' as the second form of grounding after grounding as 'establishing' [*Stiften*] that takes place in the projection of the 'for the sake of which,' that is to say in the projection of Dasein's own possibilities in understanding. 'This "second" form of grounding does not arise *after* the "first," but is "simultaneous" with it.'<sup>108</sup> In projection upon its own

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<sup>105</sup> FCM, p. 278.

<sup>106</sup> FCM, p. 271.

<sup>107</sup> FCM, p. 272.

<sup>108</sup> *Ibid.*

possibilities, Dasein always exceeds itself. But Dasein only possesses possibilities because it is in the midst of beings, and this 'possession' is based upon a withdrawal of other possibilities.

Certain other possibilities are already *withdrawn* from Dasein, and indeed merely through its own facticity. Yet precisely this *withdrawal* of certain possibilities pertaining to its potentiality for being-in-the-world - a withdrawal entailed in its being pre-occupied by beings - first brings those possibilities of world-projection that can "actually" be seized upon *toward* Dasein as its world. Such withdrawal lends precisely the binding character of what remains projected before us the power to prevail within the realm of Dasein's existence. *Corresponding to these two ways of grounding, transcendence at once exceeds and withdraws* [ist überschwingend-entziehend].<sup>109</sup>

This unity of projective outstripping - to use Malick's translation of *überschwingend* - and binding withdrawal is elsewhere characterised by Heidegger as an oscillation. 'Temporalization is the free oscillation of the whole of primordial temporality; time reaches and contracts itself.'<sup>110</sup> reaches in projection, and contracts in binding withdrawal. This characterisation of temporality as oscillation recurs in the 1929/30 lecture course precisely in the final summation of the character of the fundamental attunement of profound boredom. 'This is *the one* unitary phenomenon in which we, or rather the Dasein in us, oscillates out into the expanse of the temporal horizon of its temporality and thus is able only to oscillate into the moment of vision pertaining to essential action. This oscillating in between such expanse and such extremity is our being attuned, this boredom as attunement.'<sup>111</sup> And again the expanse of the temporal horizon is opened by the withdrawal [*Entzug*] of beings, their telling refusal, which at the same time is a telling announcement of the moment of vision - Dasein being impelled beyond itself into the extremity of its possibilities. Now, how does the investigation into animality, inserted in the lecture course between the attempt to

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<sup>109</sup> *Pathmarks*, p. 129 (trans. slightly altered - see footnote 98); [*The Essence of Reasons*, p. 111].

<sup>110</sup> *MFL*, p. 208.

<sup>111</sup> *FCM*, p. 151.

awaken a fundamental attunement and the analysis of world-projection in the as structure of apophantic assertion, fit into this oscillation?

There is, according to Heidegger in 'On the Essence of Ground', a third form of grounding, and this is precisely what he calls founding [*Begründen*]. 'As ways of grounding, then, they [the first two] give rise to a *third: grounding as founding* [*Begründen*]. In founding, the transcendence of Dasein takes charge of making the manifestation of beings possible, i.e. it takes charge of the possibility of ontical truth'<sup>112</sup>

Founding is what makes intentionality, comportment toward beings, possible. But it should not be thought that it therefore founds an understanding of those beings in the sense of proving it correct, or justifying it. Rather, Heidegger says, 'Founding is *that which makes the question "Why?" possible in the first place.*'<sup>113</sup> The "Why?" arises in the space, as it were, between the excess of possibilities in projection, and the binding withdrawal of attunement. 'There is an excess of possibility in world-projection; the Why springs forth in this excess and is governed by being (reality), which itself presses around Dasein in its situatedness [*Befindlichkeit*].'<sup>114</sup> Founding then does not consist in validating or justifying the basic concepts that underlie our access to and comprehension of a particular realm of beings, rather it consists in laying hold of the question that opens up the field. Gilles Deleuze briefly alludes to this connection between questioning and regional demarcation in some succinct notes on Heidegger's philosophy of difference in *Difference and Repetition*, 'Ontological Difference corresponds to questioning. It is the being of questions, which become problems, marking out the determinant fields of

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<sup>112</sup> *The Essence of Reasons*, p. 113; [*Pathmarks*, p. 129.]

<sup>113</sup> *Ibid.*

<sup>114</sup> *The Essence of Reasons*, p. 115 (trans. altered) 'Im Weltentwurf ist ein Überschwung von Möglichem gegeben, im Hinblick worauf und im Durchwaltetsein von dem in der Befindlichkeit umdrängenden Seienden (Wirklichen) das Warum entspringt.' [p. 114]; [*Pathmarks*, p. 130].



existence. See *The Essence of Reasons*.<sup>115</sup> It is a question, or what I dubbed earlier, the persistence of a problem, which opens up a determinant field because neither projection nor attunement give us beings. Rather attunement always attunes us to the withdrawal of beings, their refusal in the face of the projection of our possibilities. Beings are adumbrated in the curtailment of our possibilities. They are specified not by a positive description of what they are, but by an admission of what they mean we cannot be. It is this “cannot” that constitutes attunement. Perhaps attunement is actually a form of dissonance - the peculiar dissonance in each case between different kinds of Being. ‘On the basis of this upswing, Dasein is, in each case beyond beings, as we say, but it is beyond in such a way that it, first of all, experiences beings in their resistance, against which Dasein is powerless.’<sup>116</sup>

The essential conception which is articulated in a scientific projection can only arise on the basis of an original solidarity with the most elementary content of the field. The projection is bound by an attunement to the withdrawal of beings. But in projecting, science forgets the ‘unity that comes to light in the way in which excess and withdrawal become transcendently attuned to one another.’<sup>117</sup> The statement of essence expresses this unity as the persistence of a problem. Founding, then, holds the self-founding of science to account and calls for its repetition. When we see what this means in terms of the change-over in the understanding of Being, we will be able to answer Heidegger’s question, ‘What does foundation of science mean, and to what extent is there revealed by it an inner limit in the essence of science?’<sup>118</sup>

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<sup>115</sup> Gilles Deleuze, *Difference and Repetition*, trans. by Paul Patton, (London, The Athlone Press, 1994), p. 65.

<sup>116</sup> *MFL*, p. 215.

<sup>117</sup> ‘On the Essence of Ground,’ *Pathmarks*, p. 129.

## The Internal Limit to Science

On the face of it, the notion of an essential limit conflicts with the interpretation of crisis as repetition. The crisis in the sciences does not, or at least should not, represent a repetition of scientific projection, rather it represents the moment at which the sciences admit that they cannot found themselves, reject their own scientific projection and return to philosophy. But this ignores Heidegger's stipulation that the limit is an *internal* limit. After all, it is not as if beings and Being were two adjoining regions over which science and philosophy respectively have jurisdiction.

Obviously, it is not a matter of a demarcation of the sort where science merely borders, so to speak, on something else, from which it is separated by a fence, i.e. it is not a fencing round which might not matter to it; rather it is a matter of a delimitation which its own essence directly lends to it. Science must necessarily take the limit to itself and give a delimitation. The limit lies in it itself as the other, which it is, and over which it precisely as science no longer has any power, but this other gives science the strength of its essence.<sup>119</sup>

What does this mean? The difference between beings and Beings is a matter of what Heidegger calls transcendence. Transcendence no longer refers to beings in themselves outside the realm of appearance as it does with Kant. Rather transcendence is an essential characteristic of Dasein's own Being. Transcendence refers to the fact that Dasein is already outside of itself in the world projecting itself upon possibilities. 'For us transcendence does not mean "out towards an object," the subject is already outside, and it is only outside alongside beings provided that it itself is disclosed. The being

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<sup>118</sup> 'Was heißt Grundlage der Wissenschaft, und inwiefern offenbart sich an ihr eine innere Grenze im Wesen der Wissenschaft?' G27, p. 40.

<sup>119</sup> 'Offenbar handelt es sich nicht um eine Begrenzung derart, daß die Wissenschaft gleichsam lediglich an etwas anderes stößt, davon sie durch einen Zaun geschieden ist, nicht um eine Umzäunung, die ihr gleichgültig sein kann, sondern um eine Begrenzung, die gerade als solche ihr das eigene Wesen verleiht. Wissenschaft muß sich selbst notwendig die Grenze nehmen und eine Begrenzung geben. Die Grenze liegt in ihr selbst als das andere, das sie ist und dessen sie gerade als Wissenschaft nicht mehr mächtig ist. Dieses andere aber gibt der Wissenschaft die Kraft ihres Wesens.' G27, p. 211.

which itself is, and other beings, are already gone beyond in advance.<sup>120</sup> Dasein is transcendent insofar as Being is an issue for it. But this means that in projecting itself beyond beings towards Being, Dasein is capable of distinguishing between them.

Transcendence is not only the inner possibility of ontological truth, and then indirectly also of ontical truth, but rather the condition of possibility for this “and also,” for their hanging together, indeed for the possibility of distinguishing Being and beings, on the basis of which we can speak of ontology at all. [...] The transcendence of Dasein is the condition of possibility of the ontological Difference; for the fact that the difference between Being and beings can break out at all, for the fact that there is this difference.<sup>121</sup>

But science is just the articulation of a scientific projection, an ontological projection of the constitution of the Being of the beings with which it concerns itself. ‘At this point it becomes clear that science is not just something with which one can also occupy oneself along with all the other possibilities, but rather that in order to be what it is, it must have struck its roots into the primordial essence of Dasein itself, into transcendence.’<sup>122</sup> But one might object that any of Dasein’s activities, scientific or not, insofar as they are only possible on the basis of some kind of understanding of Being, must have their roots in transcendence. Here, I think, we have to remember how scientific projection actually occurs. Scientific projection is not just one compartment among others because it is not simply dependent upon an understanding of Being, rather it is an explicit enactment of an understanding of Being that is itself dependent upon a change-over [*Umschlag*] in the understanding of Being. A change-over in the understanding of Being is a possibility of

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<sup>120</sup> ‘Für uns heißt Transzendenz nicht hinaus zu einem Objekt; das Subjekt ist schon draußen, und es ist nur draußen bei Seiendem, sofern es selbst erschlossen ist. Das Seiende, das es selbst ist, und anderes Seiendes ist im voraus schon übersteigen.’ *G27*, p. 208.

<sup>121</sup> ‘Die Transzendenz ist nicht nur die innere Möglichkeit für die ontologische Wahrheit und indirekt dann auch für die ontische, sondern gerade die Bedingung der Möglichkeit für dieses »und auch«, für deren Zusammenhang, ja, für die Möglichkeit des Unterscheidens von Sein und Seiendem, auf Grund dessen wir überhaupt von Ontologie sprechen können. [...] Die Transzendenz des Daseins ist die Bedingung der Möglichkeit der ontologischen Differenz, dafür, daß Unterschied von Sein und Seiendem überhaupt aufbrechen kann, daß es diesen Unterschied geben kann.’ *G27*, p. 210.

<sup>122</sup> ‘Nunmehr wird deutlich, daß die Wissenschaft nicht etwas ist, was es eben unter vielem anderen, womit man sich beschäftigen kann, auch gibt, sondern daß sie, um zu sein, was sie ist, ihre Wurzeln im ursprünglichen Wesen des Daseins selbst, in der Transzendenz, geschlagen haben muß.’ *G27*, p. 211.

transcendence as such. Moreover, insofar as scientific projection delimits a field of beings on the basis of an understanding of their Being, the ontological difference could be said to be inscribed in its very structure. This begins to explain what Heidegger means by an internal limit. Transcendence lies at the very heart of scientific projection. In so far as transcendence is the “there is” of ontological difference, this places the difference in the essence of science, yet at the same time differentiates transcendence from science. Heidegger says, ‘Transcending is the other over which science as such does not have power and which it especially needs in order to be what it can be. Transcending performs the delimitation of science and by this brings it precisely to itself.’<sup>123</sup>

But why does science have no power over transcendence? Why does transcendence inhabit the essence of science as a limit? The clue lies, I think, in the centre of the passage already cited on page 249: ‘Science must necessarily take the limit to itself and give a delimitation.’ Transcendence, going beyond beings towards Being, is a limit within science because science *delimits* a realm of beings on its basis. Scientific projection proceeds on the basis of a change-over in the understanding of Being. This change-over is not itself under science’s control. The change over from understanding entities as ready-to-hand to understanding them as present-at-hand, for example, does not occur within the field of the present-at-hand. It occurs *to* Dasein, and it occurs as a transformation of Dasein, insofar as Dasein *is* understanding of Being, that is to say, insofar as Dasein is transcendent. The change-over belongs to transcendence pure and simple. It is a possibility of transcendence that science must take up into itself precisely by enacting it. But science takes this possibility of transcendence in order to delimit a

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<sup>123</sup> ‘Das Transzendieren ist das andere, dessen die Wissenschaft als solche nicht mächtig ist und dessen sie gerade bedarf, um zu sein, was sie sein kann. Das Transzendieren vollzieht die Begrenzung der Wissenschaft und bringt sie dadurch gerade zu sich selbst.’ G27, p. 212.

realm of beings. How does this delimitation occur? By *embedding* the change-over in the domain of beings as its foundation. Scientific projection opens up the domain of the present-at-hand to thematization by *taking* the change over as the backing of the domain. The change-over as such is unknown to science because it is embedded within the field of investigation as its foundation.

Indeed the very researchers themselves who found a science for the first time and set it going - who, thus, so to speak, perform this change in the antecedent understanding of Being for the first time, while the others merely perform with it afterwards - even they have no knowledge of what has at bottom occurred [*sich ereignet*].<sup>124</sup>

But why should this matter? In a sense it doesn't. There is no criticism implied. The point is not that science chooses to ignore the change-over in the understanding of Being in its eagerness to investigate beings, nor that the delimitation of the realm of beings to be investigated might be better executed if science were to take some notice of it. Rather the point Heidegger is making is that there is *no other way* of delimiting a realm of beings.

The change in the understanding of Being presents itself to them [the scientists] in that form which all scientific representations have, as the delimitation of concepts; only it is now the most general basic concepts and representations which are determined: mass, force, speed, movement, place, time. With regard to the science in question they provide an adequate characterization of its field, but it remains obscure what these concepts mean at bottom; they figure just as the most general concepts concerning beings (Nature, for example). That which is meant in these concepts is itself not asked about any further.<sup>125</sup>

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<sup>124</sup> 'Ja, selbst diejenigen Forscher, die eine Wissenschaft erstmals begründen und in Gang bringen, die also gleichsam erstmals diesen Wandel des vorgängigen Seinsverständnisses vollziehen - während die anderen ihn nur mit- und nachvollziehen -, selbst diese haben kein Wissen von dem, was sich da im Grund ereignet.' G27, p. 193.

<sup>125</sup> 'Der Wandel des Seinsverständnisses stellt sich ihnen vielmehr in derjenigen Form dar, die alle wissenschaftlichen Vorstellungen haben, als Umgrenzung von Begriffen; nur sind es jetzt die allgemeinsten Grundbegriffe und Vorstellungen, die bestimmt werden: Masse, Kraft, Geschwindigkeit, Bewegung, Ort, Zeit; im Hinblick auf das Feld der betreffenden Wissenschaft geben sie hinreichende Charakteristik derselben. Aber es bleibt dunkel, was diese Begriffe im Grunde meinen; sie figurieren eben als die allgemeinsten Begriffe bezüglich des Seienden (Natur, z.B.). Dem, was in diesen Begriffen gemeint ist, wird selbst nicht weiter nachgefragt.' G27, pp. 193-94.

We have to be very careful here. It might seem that Heidegger is proposing that the delimitation of the concepts is not sufficient, that what they mean remains unclear because they are inherently ambiguous. That they require further *conceptual* clarification. Or perhaps Heidegger is referring to the fact that these concepts are not in fact restricted to the individual science that adopts them as basic. After all concepts such as time, change, place are not the sole property of physical science. Time and change are fundamental to history also, but perhaps not in the same way or with the same meaning as in physics. What these concepts mean at bottom then would have to include all the possible meanings in every possible use, whether in the sciences or not. But, that the domain which a science investigates is only *one* among many, and that the concepts which it employs as basic (time, distance, motion in modern physics) are not limited to that domain, but rather are shared across all domains, that is not in itself sufficient to constitute an internal limit. After all if there were some way of adjudicating what was common and what was not to the employment of these concepts in different domains, then we would simply be confronted by an *external demarcation* that imposed no internal limit to the thematization of the domain. Rather the basic concepts are not just implicated (in each case in different ways) in each and every domain, but rather *span* the domains, and indeed as that which spans. They are implicated not just in the domains but in the change-over between domains. The concepts which are specific to the individual science take their meaning not from other concepts, but from what has taken place. This is what remains obscure. Heidegger tells us, that the scientists have no knowledge of what at bottom has occurred (*sich ereignet*). This is a very early occurrence of the semantic cluster that will later come to dominate Heidegger's thinking - *sich ereignen, das Ereignis*. The meaning of the concept of time employed in mathematical physics is not at bottom given by a concept of 'event', a meaning which might rule over all the subordinate meanings of time in the various different sciences; it

is at bottom given by the event as such. Here we might want to say that the meaning of the concepts is 'fulfilled' by and in the event. In other words the concepts that are basic to the determination of the field under investigation are themselves transformations of the transformation of our understanding of Being. The limit is internal because the limit is the foundation of the science, and the limit is constituted as the embedding of the *passage* into the field as the *foundation* of the field itself. This is the twist that 'produces' the transcendental *a priori*. What is *a priori* to the transcendental *a priori* is the change-over as the concrete event of Dasein's transcendence. Concepts are, if you like, the after-image of the event.<sup>126</sup>

This is the internal limit. Scientific projection buries the *passage* into the field as its *foundation*. The internal limit of science is precisely its foundation which cuts it off from its source. It is this separation from its source at its very inception that necessitates repetition. But equally, repetition only 'works' because scientific projection is *at bottom* the enactment of its source. We can say, then, provisionally at least, that what calls for repetition is the internal limit, because the internal limit is both the 'source' of scientific projection within itself, and the delimitation of scientific projection from its source as it takes that source for its basis.

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<sup>126</sup> But as is well known, an after-image is always the complementary colour to the visual impression that produces it. The glowing red bars of the electric fire beside me become pale spring green stripes across the computer screen. Just so, then perhaps, the positivity which Heidegger tells us is the essential characteristic of science. 'We have indeed now achieved an elucidation of the essence of science: it is positive knowledge and has the character of positivity.' ('Zwar gelang uns jetzt eine Erhellung des Wesens der Wissenschaft: Sie ist positive Erkenntnis und hat den Charakter der Positivität.' *G27*, p. 198.) That which makes positivity possible, that which positivity embeds in the field of investigation as its other, is not perhaps its negation but its complement, the nothing which nihilates. 'The nothing does not merely serve as the counterconcept of beings; rather, it originally belongs to their essential unfolding as such. In the being of beings the nihilation of the nothing occurs.' ('What is Metaphysics?', *Pathmarks*, p. 91 [*Basic Writings*, p. 104].)

## Chapter Six

### Science and Philosophy

In the period which we have been examining, Heidegger appears to have held diametrically opposed views about the possible scientificity of philosophy itself, summed up by two equally bald assertions: 'That philosophy is scientific is implied in its very concept.'<sup>1</sup> 'No, philosophy is not a science.'<sup>2</sup> This apparent about-turn has been interpreted, if it has been noticed at all, as simply a change of mind. I want to suggest that these seemingly contradictory positions are in fact interconnected, and a good deal more complicated than is usually supposed. They are both necessary consequences of the existential conception of science.

The 1927 lecture course, *The Basic Problems of Phenomenology*, is devoted to demonstrating two theses: 1.) 'Philosophy is the science of being;' and 2.) 'Phenomenology is the name for the method of ontology, that is, of scientific philosophy.'<sup>3</sup> As Heidegger says in his introductory remarks, 'A discussion of the basic problems of phenomenology then is tantamount to providing fundamental substantiation for this assertion that philosophy is the science of being and establishing how it is such.'<sup>4</sup> As we saw in Chapter Three, Heidegger maintains in *Being and Time* that scientific activity is based upon an initial scientific projection which makes explicit the understanding of the Being of the beings under investigation. The articulation and progressive elaboration of this projection Heidegger calls 'thematization.' And as

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<sup>1</sup> BPP, p. 12.

<sup>2</sup> 'Nein, Philosophie ist keine Wissenschaft.' G27, p.14.

<sup>3</sup> BPP, p. 13, p. 20.

<sup>4</sup> BPP, p. 11.



Heidegger starkly puts it, 'Thematizing Objectifies.'<sup>5</sup> Thematizing, which is the progressive interpretation [*Auslegung*], that is to say, laying out, of the explicit understanding of Being achieved in scientific projection, objectifies those beings which have that kind of Being, but it does not objectify Being itself. That, apparently, is the task of philosophy:

It is in the objectification [*Vergegenständlichung*] of being as such that the basic act constitutive of ontology as a science is performed. The essential feature in every science, philosophy included, is that it constitutes itself in the objectification of something already in some way unveiled, antecedently given. What is given can be a being that lies present before us, but it can also be being itself in the pre-ontological understanding of being. The way in which being is given is fundamentally different from the way beings are given, but both can certainly become objects [*Gegenstände*].<sup>6</sup>

In Chapter Three, we saw that the concept of objectification is to be rigorously distinguished from that of the present-at-hand. This is undoubtedly what authorises Heidegger, in his own eyes at least, to start talking about the objectification of Being, a phrase that to many sounds distinctly un-Heideggerean.<sup>7</sup> Moreover, objectification of Being proceeds on the basis of exactly the same model as was sketched for the objectification of beings in *Being and Time*. 'The basic act of objectification, whether of being or of beings - and regardless of the fundamental diversity in the two cases - has the function of *explicitly* projecting what is antecedently given upon that on which it has *already* been projected in pre-scientific experience.'<sup>8</sup> The analogy between philosophy and positive science is possible because the understanding of Being as understanding must have the structure of projection. 'If we say that being is understood in the

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<sup>5</sup> *Being and Time*, p. 414.

<sup>6</sup> *BPP*, p. 281.

<sup>7</sup> 'just as the particular sciences must objectify their entities against the horizon of their Being, so philosophy, if it is too to become a science, must "objectify Being itself" (!) [...] It is only with the "turn" two years later that Heidegger will undo this very un-Heideggerian way of speaking!' Theodore Kisiel, *The Genesis of Heidegger's Being and Time*, (Berkeley LA, London; University of California Press; 1993, pbk 1995), pp. 457-58.

<sup>8</sup> *BPP*, pp. 281-82.

existentiell understanding of the Dasein and if we note that understanding is a projecting, then in the *understanding of being* there is present a further projection: being is understood only as, on its own part, it is *projected upon something*.<sup>9</sup> But what is this something? Heidegger's answer at least has the merit of being short - time. But surely it merely opens the floodgates. What is time projected upon? And then that, and that, and so on. Heidegger is not unaware of the problem, though he does not seem keen to face it. He says, 'We shall not now touch on the question that arises here, whether this recursion from one projection to the next does not open up a *progressus in infinitum*.'<sup>10</sup> But even ignoring that possibility, the introduction of this new term, time, surely only compounds our confusion. The thought of Being, which is not a being, is hard enough to cope with, one that constantly slips back into the very thinking it is supposed to guard against. But now on top of that, before that problem has even been properly cleared up, indeed supposedly to clear it up, time is thrown in as well - time, which certainly is not itself a being, just like Being, but equally well cannot be Being either, since Being is projected upon it, so that in some peculiar sense time is a priori to Being even. Time, which is not a being, nor Being either, seems to open a whole new wealth of differences. Is the difference between time and beings itself different from the ontological difference between Being and beings. What of the difference between time and Being itself - does this difference stand behind the ontological difference, as some even more profound difference?

The difference between beings and Being is clearly crucial to the whole project of *Being and Time*, and is even alluded to in its opening pages, but the actual term 'ontological

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<sup>9</sup> BPP, p. 280.

<sup>10</sup> BPP, p. 280.

difference' is never used and the difference is never explicitly reflected upon.<sup>11</sup> Indeed, it is only in the 1927 lecture course, as its editor, Friedrich-Wilhelm von Herrmann, points out in his epilogue, that the term makes its first public appearance.<sup>12</sup> And it makes its appearance precisely as that which makes the objectification of Being possible: 'we call the distinction between being and beings, when it is carried out explicitly, the *ontological difference* [die *ontologische Differenz*]. The explicit accomplishment and the development of the ontological difference is [...] a basic comportment of the Dasein in which ontology, that is, philosophy, constitutes itself as a science.'<sup>13</sup> And as if to leave no room for doubt, Heidegger goes on to say a few pages later, 'Our question [i.e. the question of ontological difference] aims at the objectification of being as such, at the second essential possibility of objectification, in which philosophy is [*soll*] to constitute itself as science.'<sup>14</sup> What then is the connection between ontological difference, whose explicit accomplishment constitutes philosophy as a science, and time as that which Being is projected upon?

It is important at this point to realise that Heidegger does not simply conjure time out of thin air. His confidence in the answer rests upon the outcome of the full existential analytic of Dasein, the demonstration that the Being of Dasein is inherently temporal, that existence is made possible by, and in fact makes itself possible as, temporality temporalizing itself. Time, in all its distinct modes, is the result of this temporalizing. But now we remember that the distinction between Beings and beings 'belongs to

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<sup>11</sup> "'Being" cannot indeed be conceived as an entity; [...] nor can it acquire such a character as to have the term "entity" applied to it.' (*Being and Time*, p. 23.)

<sup>12</sup> 'At the same time, the course contains the first public communication of the "ontological difference."' (*BPP*, p. 332.)

<sup>13</sup> *BPP*, p. 319.

<sup>14</sup> *BPP*, p. 322. Albert Hofstadter translates *soll* by 'is supposed to.' But this has the connotation nowadays of 'only allegedly,' whereas I read the *soll* as expressing obligation.

existence. Existence means, as it were, “to be in the performance of this distinction.”<sup>15</sup> Time, then, is in a sense nothing other than the ontological difference. Being is not projected upon something else at all, but only upon its difference from beings, a difference that is itself only opened up as projection. This is why the projection of Being upon time does not in fact open up an infinite regress of projections.

But where is the final stage of this demand for ever further precursory conditions? It is temporality itself as the basic constitution of Dasein. Temporality, due to its horizontal-ecstatic nature, makes possible *at once* [*zugleich*] the understanding of being and comportment toward beings; therefore, that which does the enabling as well as the enablings themselves, that is the possibilities in the Kantian sense, are “temporal”<sup>16</sup>

Temporality makes possible the understanding of Being, which itself is the possibility of any kind of comportment towards beings, i.e. any human possibility at all. Temporality makes possible possibility. It is if you like the possibility of possibility, therefore the possibility of itself. It is, as Heidegger says, the absolute earliest. There is no getting back behind, beyond, or before it. But this does not mean that temporality is an ultimate background. ‘*Temporality is the primordial “outside of itself” in and for itself.*’<sup>17</sup> Temporality is, if you like, the structure of Dasein’s transcendence.

All well and good. But this still leaves us only being able to say in a purely formal way that objectification of Being consists of making explicit the projection of Being upon time implicit in the understanding of Being. Does this say anything about the possibility of ontology as a science. Not really. After all, we have already seen that what is distinctive about science as science is not so much the projection of something upon something, but the fact that that projection is made explicit. It is this making explicit that is decisive for a science. Do we have any indication of how ontology might make

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<sup>15</sup> BPP, p. 319.

<sup>16</sup> BPP, p. 325.

<sup>17</sup> Being and Time, p. 377.

the projection of Being upon time *explicit*? In the case of positive science, it is the change over [*Umschlag*] in our understanding of Being that allows at the same time the encounter with beings and the scientific projection of their Being. As we saw in Chapter Three, scientific projection amounts to the explicit enactment of the change-over in our understanding of Being. Scientific projection awaits or anticipates, the distinction between authenticity and inauthenticity becomes unsustainable here, solely the specific discoveredness of the entities in question. As such science is unconcealment for the sake of unconcealment. But as we saw in Chapter Five scientific projection conceals the change-over *as* change over by embedding it within the field of investigation as its conceptual delimitation. This simultaneous reliance and concealment generates the permanent possibility of crisis that necessitates repetition (Chapter Four). Is there something similar at work in ontology? Does ontology as the science of Being rely upon an analogue to the change-over in our understanding of Being at the level of temporality?

One thing seems to be clear. In *Being and Time* Heidegger envisaged the move from the question of the Being of Dasein to the question of Being in general as turning upon the seemingly insignificant distinction between temporality [*zeitlichkeit*] and Temporality [*Temporalität*].<sup>18</sup> In *The Basic Problems of Phenomenology* Heidegger attempts to perform this move, which is why he flags the lecture course as ‘A new elaboration of division 3 part 1 of *Being and Time*.’<sup>19</sup> The structure of temporality is not just ecstatic, but *also* horizontal. ‘Ecstases are not simply raptures in which one gets carried away.

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<sup>18</sup> ‘Here, in the dimension of the interpretation of being via time, we are purposely making use of Latinate expressions for all the determinations of time, in order to keep them distinct in the terminology itself from the time-determinations of temporality in the previously described sense. [...] If the difference in names is to be justified the two phenomena, the present and the praesens, should not mean the same thing.’ (BPP, p. 305.) But it is precisely the articulation of this difference which Heidegger finds it impossible to make in any clear, intelligible, or indeed productive way. In the end, it appears that the difference consists merely in the insistence that there *must be* a difference, else there could be no understanding of Being. But that would appear to be merely wish-fulfilment.

Rather, there belongs to each ecstasis a 'whither' to which one is carried away. This "whither" of the ecstases we call the "horizontal schema".<sup>20</sup> These horizontal schema, Heidegger tells us, constitute the existential-temporal conditions of possibility for anything like world. Temporality [*Temporalität*] refers to temporality viewed from its horizontal, rather than its ecstatic side, as it were: '*Temporality is temporality with regard to the unity of the horizontal schemata belonging to it.*'<sup>21</sup> The objectification of Being consists in making explicit the Temporal horizons upon which it is projected, which is why Heidegger also calls ontology Temporal science.

It has to be admitted that this recourse to a terminology of temporality and Temporality has not impressed many commentators. William Blattner, for example, has commented coldly on Heidegger's attempt to analyse the *praesensial* horizon that accompanies the ecstasis of enpresenting, 'The material in this chapter names but does not develop an account of presence as the horizontal schema of enpresenting.'<sup>22</sup> Theodore Kisiel simply sees it as a regrettable mistake: 'The bold claims induced by the spell of Kantian transcendental philosophy apparently lead Heidegger to believe that something like a Kantian schematism of human existence is capable of definitively articulating the evasive immediacy of the human situation, that is, of "saying the unsayable."<sup>23</sup> The difficulty that Heidegger encounters is that he cannot find anything to say about Temporality as such, which does not simply reproduce what he has already had to say about temporality. This becomes very clear, as Blattner noted, when Heidegger attempts to articulate the Temporal horizon of the ready-to-hand in terms of *Praesenz*.

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<sup>19</sup> BPP, fn. 1, p. 1.

<sup>20</sup> *Being and Time*, p. 416.

<sup>21</sup> BPP, p. 307.

<sup>22</sup> William D. Blattner, *Heidegger's Temporal Idealism*, (Cambridge, Cambridge University Press, 1999), p. 261. He sums up Heidegger's whole attempt at Temporal science thus: 'I shall deny that *Basic Problems* even vaguely sheds any light on either the ontological framework of being in general or the more limited framework of the occurrent in the widest sense.' *Ibid*, p. 254.

‘Handiness formally implies praesens, presence, but a praesens of a peculiar sort. The primarily praesensial schema belonging to handiness as a specific mode of being requires a more particular determination with regard to its praesensial content.’<sup>24</sup> The problem is that the horizontal schema of an ecstasis is *determined* by the ecstasis itself: ‘each ecstasis as such has a horizon that is determined by it and that first of all completes that ecstasis’ own structure.’<sup>25</sup> There seems, therefore, to be nowhere else to go to look for the ‘wealth of complex structures’ that must be implicit in the Temporal horizon if the full manifold of Being is to get Temporal backing except the ecstasis. But the ecstatic structure of temporality would appear to be only capable of distinguishing three horizons for the understanding of Being, one of which is already praesens, so whence the wealth of complex structures *within* praesens? The switch over from temporal to Temporal analysis does not appear to amount to anything like an *Umschlag*, because there turns out to be no intelligible difference between Temporality and temporality.

At this point, Heidegger seems to admit to his bafflement while simultaneously skirting the issue. ‘Since, without complete mastery of the phenomenological method and above all without security of procedure in this problem area, the understanding of the Temporal interpretation continually runs into difficulties, let us try to procure indirectly at least an idea of how a wealth of complex structures is implicit in the content of the praesens belonging to handiness.’<sup>26</sup> But turning to the question of the wealth of complex structures implicit in the praesens *belonging to handiness*, precisely avoids the question

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<sup>23</sup> Theodore Kisiel, *The Genesis of Being and Time*, p. 457.

<sup>24</sup> *BPP*, p. 309.

<sup>25</sup> *BPP*, p. 306.

<sup>26</sup> *BPP*, p. 309.

of why there should be *a praesens* that belongs to handiness in the first place rather than simply *praesens* as such.

However, buried within what seems like nothing more than a rehash of an analysis of the ready-to-hand that Heidegger has already gone through many times before, there is some evidence, I think, that something rather more interesting is going on. Heidegger attempts to analyse the presence of the ready-to-hand by way of its absence. 'Everything positive becomes particularly clear when seen from the side of the privative. We cannot now pursue the reasons why that is so. Incidentally speaking, they lie equally in the nature of temporality and in that of the negation rooted in it.'<sup>27</sup> The absence of the ready-to-hand is not a pure absence, but rather an absence specific to the kind of presence belonging to the ready-to-hand. Something ready-to-hand can be *missing*, for example, in a way that something merely present-at-hand cannot. The rock buried some hundreds of feet beneath the ground is not missing in the way that the pen which was here beside me a few moments ago has gone missing. But the pen is only missing because what I was doing with it, now waits upon finding it again. Moreover the potential presence-at-hand of the pen is implicit in my attempts to find it. It is only if I stop looking for it in its proper place within the context of equipment, and instead admit to myself that it could in fact be anywhere that I stand any chance of finding it. This suggests that the absence of the ready-to-hand ties the praesensial horizon of readiness-to-hand both to the praesensial horizons of other kinds of Being and to the horizons of the ecstases of the futural and the having-been. The first tie suggests that the 'wealth of complex structures' contained within the specific horizon of a particular mode of Being reflect monadically, as it were, the structural relations between the horizons of different kinds of Being, thus justifying perhaps Heidegger's recourse to the internal structure of

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<sup>27</sup> BPP, p. 309.



the praesens of the ready-to-hand. But the second tie suggests that the horizontal schema are not determined by the ecstasis to which they belong, but rather by the interplay of all three ecstases in the three-fold unity of temporality. If the horizontal schema belonging to an ecstasis is in fact an 'effect' of the interplay of all three ecstases, then the unity of the ecstases means something like the full participation of each in the structure of just one. That is to say an ecstasis already has the 3-fold structure of temporality as such - it is this self-embedding structure of what is inherently self-unfolding that leads to dispersal and manifold diversification. It is here, in the configuration of temporality as a whole, that there is perhaps room for something like the change-over which underlies the positive sciences.

This re-embedding of the three-fold structure of temporality within the two-fold structure of horizontal ecstasis is precisely what we have seen Heidegger struggling to achieve in *The Essence of Reasons* and *The Metaphysical Foundations of Logic*. The description of the various modes of grounding in *The Essence of Reasons* does not simply 'ground' the notion of ground in temporality, thus appropriating one more item out of the philosophical heritage for the existential analytic, it refounds the notion of temporality. The description of ground given in *The Essence of Reasons* and the redescription of temporality given in *The Metaphysical Foundations of Logic*, which stresses the way that the relation between thrownness and projection is oscillatory, taken together provide a more detailed picture of ecstasis as such. The picture of ecstasis given in *Being and Time* is taken solely from projection; temporality is ecstatic because it is projective. 'The phenomenon of projection contains two things. First that *upon which* the Dasein projects itself is a can-be of its own self. [...] Secondly, this projection *upon* something is always a projecting *of*. . . .'<sup>28</sup> This projective character is then simply thrust

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<sup>28</sup> BPP, p. 277.

upon the two other ecstases, even though they are quite simply not projection. This means that the original picture of temporality illicitly understands the whole of Dasein in terms of understanding - the violence done thereby should be clear. Suddenly all the work done of painstakingly separating out the manifold nature of disclosure is lost, and all disclosure becomes akin at least to projective understanding. The new picture undoes the harm by attempting to enfold the full structure of the Being of Dasein, that is to say falling thrown-projection, back into the notion of ecstasis as such, so that temporality cannot be confused with one element of it, i.e. projection. Ecstasis as such is now conceived of as the going ahead of itself back to itself that opens the horizon. But this in turn, means that projection itself is no longer thought of as bivalent as Heidegger laconically admits when at the end of *The Fundamental Concepts of Metaphysics* he says, 'We can comprehend the primordial structure of the fundamental occurrence and its tripartite character as *projection*.'<sup>29</sup>

This effort is directly linked, as is shown by *The Fundamental Concepts of Metaphysics*, to Heidegger's determination to push the existential analysis of science to its foundations, to understand how scientific projection is bound by original solidarity to the most elementary content of the field itself, and how the conceptual delimitation of the field is related to the essential questioning that opens it up. The transformation of the structure of projection, which apparently marks the abandonment of the claim to scientific philosophy, is achieved by pushing the existential account of science to the limit. But the existential account of science can only be pushed to the limit by thinking through the horizontal structure of Temporality, that is to say, by trying to do Temporal science.

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<sup>29</sup> FCM, p. 362.

When in 1928 Heidegger says 'No, philosophy is not a science,' he does so at the beginning of a bewildering series of analogies which he advances only so as then to withdraw them. His purpose, I think, is to adumbrate the structure of the relation between philosophy and science that I have just tried to sketch. He starts by making sure that we have no idea of what to make of the assertion.

Is philosophy therefore inherently unscientific? Does it belong in the university at all? Are those who, imitating Schopenhauer and Nietzsche, maintain that so-called university philosophy is an extremely questionable idea, right after all? Yes and no. Was the effort of modern philosophy from Descartes through Kant and Hegel up to Husserl to raise philosophy to the rank of science not only futile then, but completely wrong headed? Yes and no. Is the title "scientific philosophy" then as meaningless as the concept "wooden iron"? Yes and no.<sup>30</sup>

The statement that philosophy is not a science is equivalent to the statement that the animal is poor in world. It is ambiguous and unpacks itself in a bewildering shuttling back and forth. That philosophy is *at the same time* a science and not a science is something like the statement of essence regarding philosophy. The oxymoron "wooden iron" does not capture the peculiar relation between science and philosophy at all. Heidegger tells us, 'the description "roundish circle" corresponds far better to the phrase "scientific philosophy."' <sup>31</sup> The adjective 'roundish' does and yet does not apply to a circle. It does not because a circle is after all not roundish, i.e. approximately round, but round as such, and yet for this very reason a circle can be said to exemplify the adjective more perfectly than any other shape. 'Correspondingly in the expression "scientific philosophy" something is granted to philosophy that does not befit it - it is never merely

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<sup>30</sup> 'Ist also Philosophie von Hause aus unwissenschaftlich, gehört sie nicht in der Universität, also haben diejenigen recht, die in Nachahmung von Schopenhauer und Nietzsche die sogenannte »Universitätsphilosophie« für ein höchst fragwürdiges Gebilde halten? Ja und nein. Ist dann die Bemühung der neuzeitlichen Philosophie von Descartes über Kant und Hegel bis zu Husserl, die Philosophie zum Range einer Wissenschaft zu erheben, nicht nur vergeblich, sondern von Grund aus in ihrer Absicht irrig? Ja und nein. Ist denn der Titel »wissenschaftliche Philosophie« so widersinnig wie der Begriff »hölzernes Eisen«? Ja und nein.' G27, p. 14.

<sup>31</sup> 'Weit besser entspricht dem Ausdruck »wissenschaftliche Philosophie« die Bezeichnung »rundlicher Kreis«.' G27, p. 16.

a science; but at the same time something is granted to it, which it already has in a primordial sense: it is more primordial than any science, because all science is rooted in philosophy, and first arises out of it.’<sup>32</sup>

But, no sooner has Heidegger introduced the analogy of the roundish circle than he is warning against it, precisely because it could mislead one into thinking that philosophy was after all, at least in some exalted sense, a science. The very inadequacy of the adjective ‘roundish’ means that the circle is its purest exemplar, the most ‘roundish’ of things. ‘Correspondingly science has a deficient similarity to philosophy, thus philosophy is the purest and first science. This is the most disastrous error, which the comparison above could also sponsor. Because philosophy simply is not science, not even the purest and most rigorous; it is not even something like the most rigorous science with knobs on. We can only say: What science for its part is, lies in philosophy in an original sense. Philosophy is indeed the *origin* of science, but precisely therefore *not* science, not even Ur-science.’<sup>33</sup> Which would seem to lead us back to ‘wooden iron.’ We are going round in circles, but this circling does not undo the analogy, rather it seems to square it. The ‘roundish circle’ provides us with an example of simultaneous redundancy and inadequacy. As Heidegger says: ‘To say of the circle that it is roundish is superfluous and inadequate at the same time. That the circle is not roundish, this not-

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<sup>32</sup> ‘Entsprechend wird in dem Ausdruck »wissenschaftliche Philosophie« der Philosophie etwas zugesprochen, was ihr nicht zukommt - sie ist nie lediglich eine Wissenschaft; zugleich wird ihr aber etwas zugesprochen, was sie in einem ursprünglichen Sinne schon hat: sie ist ursprünglicher als jede Wissenschaft, weil alle Wissenschaft in der Philosophie verwurzelt ist, aus ihr erst entspringt.’ G27, p. 17.

<sup>33</sup> ‘Entsprechend ist Wissenschaft eine mangelhafte Angleichung an Philosophie, diese also die reinste und erste Wissenschaft. Hier ist die Stelle der verhängnisvollsten Irrtümer, die auch der genannte Vergleich unterstützen könnte. Denn die Philosophie ist eben nicht Wissenschaft, auch nicht die reinste und strengste; sie ist aber auch nicht etwa strengste Wissenschaft und noch etwas dazu und darüber hinaus. Wir können nur sagen: Was die Wissenschaft an ihrem Teil ist, das liegt in der Philosophie in einem ursprünglichen Sinne. Philosophie ist zwar *Ursprung* der Wissenschaft, aber gerade deshalb *nicht* Wissenschaft, - auch nicht Ur-wissenschaft.’ (G27, p. 18.)

being-able-to-be-roundish is not incapability, but rather over-capability.’<sup>34</sup> Yet the analogy is itself inadequate. Heidegger says literally that it limps (*hinkt*).<sup>35</sup> The analogy is inadequate because the way in which the adjective “roundish” does not do justice to the circle is not the way in which the adjective “scientific” does not do justice to philosophy. A circle is more round than any roundish thing, but philosophy and science are not things that can be compared because philosophy inhabits science as its source.

It is now a question of working out this existential concept of science in order through the working out of the concept of science to push up against a limit within science itself, in order to see concretely that science, precisely to be what it can be in accordance with its essence, must already be something more, something other and more primordial. This other turns out to be philosophy. Thus, as has already been emphasised, we do not compare science and philosophy as solid achievements, but rather in and through the interpretation of the essence of science we push on into philosophy.<sup>36</sup>

Philosophy cannot be entered into except by pushing up against the limit internal to science itself. The limit must not be passed through so as to enter a realm on the other side, rather philosophy must show original solidarity with the limit, must grow into the limit, become one with it so that it becomes apparent that it has been joined to the limit since birth. Philosophy must become limited to become what it can be. Philosophy must be inadequate to itself to enact itself. It is this not coming up to itself that is enacted by pushing through science to the limit. The difference between philosophy and science does not consist of the fact that science is on one side of the limit and philosophy on the other, rather the difference consists solely in the way, so to speak, one *inhabits* the limit.

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<sup>34</sup> ‘Vom Kreis auszusagen, er sei rundlich, ist überflüssig und angemessen zugleich. Daß der Kreis nicht rundlich ist, dieses Nicht-rundlich-sein-können ist nicht Unvermögen, sondern Übervermögen: er vermag wesenhaft mehr zu sein.’ (G27, p. 17.)

<sup>35</sup> ‘Aber so einleuchtend dieser Vergleich sein mag, auch er hinkt und gibt zu einem gefährlichen Mißverständnis Anlaß, das wir gleich zu Anfang beseitigen müssen.’ (Ibid.)

<sup>36</sup> ‘Es gilt jetzt, diesen existenzialen Begriff der Wissenschaft auszuarbeiten, um durch die Ausarbeitung des Begriffes der Wissenschaft in dieser selbst an eine Grenze zu stoßen, um konkret zu sehen, daß die Wissenschaft gerade, um das zu sein, was sie ihrem Wesen nach sein kann, schon und noch etwas mehr, etwas anderes und Ursprünglicheres sein muß. Diese andere weist sich als Philosophie aus. Wir

Once philosophy is separated from science it is the same as science, the science of Beings as opposed to the science of beings. The only way to maintain the essential difference between philosophy and science is to keep philosophy buried inside science as its internal limit - philosophy is not the science of the internal limit, that is to say, the bringing to light of the internal limit through an objectification, it is rather submission to the limit and as such enactment of the limit. But such submission involves at the same time projection, and this projection is projection to the limit.

That Heidegger never relinquished the idea that philosophy or thinking might be entered into by pushing up against the internal limit constituting science is indicated by the following quote from his late essay 'Science and Reflection': 'We will respond to the claim from afar [...] when we begin to reflect by venturing onto the way already taken by the state of affairs [*Sachverhalt*] which shows itself to us in the essence of science - though not only there.'<sup>37</sup>

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Hubert Dreyfus points out that Husserl had already upon his first reading of *Being and Time* identified a contradiction between the account of theoretical activity given therein and the claim also made therein that the existential analytic - hermeneutic phenomenology - is itself a theoretical analysis.<sup>38</sup> 'Heidegger seems to imply that his fundamental ontology in *Being and Time* will be a *full clarification* of the understanding of being, and even a *science of being as such*. This idea conflicts with the

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vergleichen also nicht, wie schon betont, Wissenschaft und Philosophie als feste Größen, sondern in der und durch die Wesensinterpretation der Wissenschaft stoßen wir auf die Philosophie.' (G27, pp. 157-58.)

<sup>37</sup> Martin Heidegger, 'Science and Reflection,' The Question Concerning Technology and Other Essays, trans. by William Lovitt (New York, Harper and Row, 1977), p. 181.

<sup>38</sup> 'It might look as if Heidegger's account of thematizing as objectifying puts his whole project in jeopardy, in that his "thematizing analysis of being-in" ([*Being and Time*, p.] 169) would have to objectify Dasein. Husserl actually made this objection when reading *Being and Time*.' (Dreyfus, Being-in-the-World, p. 82.)

presuppositions of hermeneutics. Likewise, as we shall see, Heidegger's claim that ontology is a "theoretical inquiry" ([Being and Time, p.] 32) conflicts with this account of theory.<sup>39</sup> This leads Dreyfus to conclude that when Heidegger speaks of the existential analytic as theoretical, or of phenomenology as kind of thematization, he *cannot* be using these terms as he himself defines them. 'Heidegger must mean to distinguish his involved *thematic* analysis of existence [...] from the detached, objectifying thematization characteristic of any discipline from physics to factual history.'<sup>40</sup> But those who are convinced that Heidegger cannot have meant what he said, fail to enter upon the path he took, while those who feel vindicated that he failed stand at its end without having been along it. What they miss out on is the path itself. Whatever may be the case about the failure or the necessity (or both) of the analogy between philosophy and science Heidegger's attempt to get into philosophy by pushing the analysis of science to its limit leaves us as rich a store of insights and unearthings as any of his later attempts to push on into thinking. Perhaps that is all that can be asked of an attempt. Certainly it would be a shame to forget it.

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<sup>39</sup> Ibid, p. 39.

<sup>40</sup> Ibid, p. 83.

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