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Heidegger and the Essence of Modern Technology

Michael Gordon Sloane

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A thesis submitted for the degree of Doctor of Philosophy of The Australian National University
I, Michael Sloane, declare that the following thesis is wholly my own original work.

M. Sloane

Michael Sloane

5th February 2006
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Abstract

In this thesis I explore the problem of the nature of modern technology by posing the question: ‘What is the essence of Heidegger’s critique of modern technology and what are its limitations as an account of our relationship to technology?’ My response is that Heidegger’s critique of technology rests upon an investigation of the understanding of the being of beings in modern philosophy and the manner in which this underpins the modern conception of human existence and scientific knowledge. I argue that Heidegger’s work on the metaphysical foundations which underlie the union of modern science and technology yielded two crucial findings. Firstly, the form of knowledge manifest in modern science is indistinguishable from the practical knowledge that Aristotle called techne. Secondly, throughout the history of Western metaphysics being itself has been understood through an analogy with artefacts. Heidegger reaches the first of these conclusions through a critique of the role of the subject in modern metaphysics. This critique consists in a demonstration of the fact that modern philosophy has produced a distorted account of human existence because it has unwittingly carried over an understanding of being and scientific knowledge from medieval philosophy. Heidegger correctly argues that throughout the history of Western philosophy priority has been given to ‘substance’ as a means of understanding being; this is coupled with the fact that being has been understood through an analogy with artefacts. I argue that Heidegger’s critique of technology reveals the structure of natural science in the ancient, medieval and modern periods to be dependent upon the different senses in which beings were understood as artefacts in each period. Furthermore, I argue that despite deficiencies in his interpretation of Descartes and his elevation of a dogmatic reading of the history of metaphysics to a description of the nature of being itself, Heidegger’s critique of the priority given to substance remains an insightful demonstration of the need to rethink our account of being.
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Introduction

One of the dominant features of our society is its dependence upon, and pursuit of, technology. It is a commonplace to observe that modern technological advances have greatly expanded the scope of human action. Indeed, we are now capable of transforming and manipulating both ourselves and the natural world in ways that are unprecedented in their scale and radicality. This new found power of action is, however, by no means a pure good for humanity. Modern technology, despite its advances over its predecessors, remains a means to an end, and in this sense can be both good and bad depending upon the purpose to which it is put. Therefore, our reflection on modern technology is, by necessity, mostly concerned with establishing how new technologies should be employed and which new possibilities should be pursued.

This ethical reflection on technology can be divided into two parts, namely into concerns over the nature of particular new technological devices or techniques, and concern over the large scale system that produces such new devices. The necessity of reflection on the implications of new technological devices is obvious as they simultaneously hold the potential for achieving great good and great harm. For example, such technologies as genetic engineering and nuclear technology open a great wealth of new possibilities for human action. Yet, from our mastery of nuclear technology we are able to produce both nuclear weapons and nuclear medicine. We can use nuclear technology to generate electricity without producing air pollution, yet this process generates highly dangerous nuclear waste. Similarly we derive genetic therapy from our growing mastery of genetic engineering, yet we are also confronted with the problematic expansion of property rights over the genetic structures of natural creatures. Thus, such advances call for constant vigilance in order that they be used for the good.
The second aspect of the ethical reflection on modern technology concerns not its individual products, but the system from which they are produced. This need not be restricted to mechanical and industrial processes, rather it can include the entire social structure that underpins them. Modern technological products are not generally produced by a single craftsman from materials that he has gathered himself, rather they are produced through the operation of a massive social apparatus. The importance of reflecting upon the means of production that are characteristic of modern technology stems from the fact that the character of other aspects of society are, in part, drawn from them. The political, cultural, educational, economic and medical aspects of a society are all closely linked to the means of production that are characteristic of that society. Thus, for example, the industrial revolution was not merely a change in manufacturing techniques, it was also a revolution in the organisation of society in general.

These approaches are vitally important both for understanding the structure of modern society and for its effective practical administration. However, if we focus exclusively on the potential for good or ill of each new technological development, then we come to no insight into the foundations of modern technology as such. Given that technology is not an exclusively modern innovation, what is the distinctive character of modern technology which makes it such an effective tool? The consideration of particular technological developments gives us no understanding of what it is that is new and distinctive about modern technology, as opposed to ancient or medieval technologies. Furthermore, what is it about our relationship to technology that causes it to be pursued so vigorously by modern society? Certainly we pursue technology in order to improve the material conditions of life, however, this was also true of previous ages and yet technology was not pursued with the same vigour as it is in modernity. These questions can only be answered by an investigation of the essence of modern technology, not through an examination of its ever changing products.

In pursuit of an account of the essence of modern technology I intend to examine the works of Martin Heidegger. Whilst Heidegger is by no means the only philosopher to have devoted their attention to technology, he remains unique in his attempt to determine the metaphysical foundations which underpin modern technology. He does not conduct a close examination of the effect modern technology has had upon society and politics. Indeed, far more detailed examinations of that issue have been developed by thinkers associated with the Marxist tradition. I have in mind thinkers
from the ‘Frankfurt School’, such as Theodore Adorno, Max Horkheimer, Walter Benjamin, Herbert Marcuse and Jürgen Habermas. Furthermore, Heidegger does not closely examine specific instances in the history of technological development. His critique of modern technology is focused entirely upon the metaphysical framework within which modern technology has developed.

Due to the unique manner in which Heidegger examines modern technology, he is able to demonstrate that the interdependence of science and technology in the modern age is not an accidental matter. Rather, he argues, modern science itself is essentially technological. The crucial point of this argument is the claim that the ‘nature’ addressed by modern physics is not simply observed and grasped by the intellect, as was the case in Aristotelian and medieval science, but is conceived in advance and subsequently produced through experimentation. Thus, Heidegger explains the explosion of technology in the modern era, not in terms of specific scientific discoveries or technical innovations, nor as a function of economic and social change, but as a metaphysical problem of how we understand beings in general. By pursuing Heidegger’s critique I am not suggesting that these other approaches do not have their own validity. Rather, it is simply that he addresses, at its most fundamental level, the relationship between science and technology in the modern age.

I intend, therefore, to address this problem of the essence of modern technology by asking ‘What is the substance of Heidegger’s account of modern technology and what are its limits as an account of our relationship to technology?’ In my response to these questions I will not immediately turn to Heidegger’s most famous attempt to describe the essence of modern technology, namely his 1954 essay The Question Concerning Technology (Die Frage nach der Technik). Although this essay forms the central focus of many considerations of Heidegger’s critique of technology, I believe that both this essay and his critique in general cannot be properly understood and evaluated unless they are read in the context of his previous analyses of the relationship between modern science and metaphysics. With this in mind, I will only address The Question Concerning Technology in the final chapter of this study. Indeed, before I examine any of Heidegger’s work directly I will use the initial two chapters to provide a sketch of the conceptual foundations that underpin modern science. I will do this by establishing the points of dispute between empiricists, Southwest German neo-Kantians, and Dilthey. This discussion, apart from illuminating the nature of modern science, will also provide a background for chapter
three in which I will provide an interpretation of Heidegger’s *Being and Time* (1927). In the final three chapters I will provide a direct account of Heidegger’s critique of technology, which will culminate in a discussion of his 1954 essay. Thus, the following discussion of *The Question Concerning Technology* is merely intended as an introduction to themes that I will address in more detail in chapters three to six.

1.
In his 1954 essay Heidegger attempted to answer the question, ‘what is modern technology?’ The sense of this first question is provided by an initial reflection on the broader question ‘what is technology as such?’ He notes that we have a ready answer for this second question according to which technology is simply an *instrument* which man employs in order to attain the ends which he sees as desirable. He argues that:

Everyone knows the two statements that answer our question. One says: Technology is a means to an end. The other says: Technology is a human activity. The two definitions of technology belong together. For to posit ends and procure and utilize the means to them is a human activity. The manufacture and utilization of equipment, tools, and machines, the manufactured and used things themselves, and the needs and ends that they serve, all belong to what technology is. The whole complex of these contrivances is technology. Technology is itself a contrivance, or, in Latin, an *instrumentum*.

This ‘instrumental and anthropological’ definition of technology subsumes several distinct senses of ‘technology’. We commonly use ‘technology’ to refer variously to the knowledge that is involved in a practical art, to the artifacts that are produced through the employment of such a practical art, or even to the devices and tools that are used in any productive process. Heidegger argues that these senses all refer to some aspect of man’s practical activities. It is due to their belonging within this instrumental context that they are all referred to as ‘technology’. This definition of technology is accurate, and yet it is so broad that it is able to encompass all forms of technology, ancient, medieval, and modern. In the sense that they are all means to an end, there is no distinction between these categories. Thus, given that Heidegger is asking about the nature of *modern* technology, this instrumental definition is inadequate for his purpose. What is required is an understanding of what is ‘new’ about *modern* technology such that its character,

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within this initial restriction to the realm of instrumentality, can be distinguished from previous forms of technology.

Another common opinion has it that the specific difference of modern technology is its use of modern science. It is through the use of the knowledge of nature that has been gained by modern physics, chemistry, biology and so on, that modern technology acquires its distinctive characteristics. Once again, this ready answer is not wrong, for it cannot be denied that modern technology relies heavily upon modern scientific knowledge. Yet, this relationship is more complicated than it first appears for it is not only the case that technology employs science, but also that modern science employs technology. As Heidegger argues:

> It is said that modern technology is something incomparably different from all earlier technologies because it is based on modern physics as an exact science. Meanwhile we have come to understand more clearly that the reverse holds true as well. Modern physics, as experimental, is dependent upon technical apparatus and upon progress in the building of apparatus.²

Thus, following the clue that is contained in this conception of modern technology, we are led to a series of problems concerning the nature of both modern science and modern technology. If, as Heidegger contends, modern science is essentially involved with modern technology, then the question concerning technology is equally the question concerning science. Indeed, as will become clear, the heart of Heidegger’s discussion of the essence of technology is the recognition that modern science is a form of productive knowledge, or ‘technê’ to use Aristotle’s term, and that its object is an artefact. Heidegger, through his investigations of ancient Greek and Medieval philosophy, eventually sees that natural objects have predominantly been understood as artefacts in the Western philosophical tradition. However, the sense in which objects are ‘created’ changes throughout this period. Heidegger’s important insight is the recognition that this ontological tradition remains present, albeit in a new form, in modern philosophy.

2. Although this alliance of scientific knowledge and technological production seems commonplace, it is in fact a distinctively modern achievement. It unites two concerns that were held to be separate from the first moments of Western philosophy and science in ancient Greece until the dawn of the modern age. In order to display

² Heidegger, _QCT_, p14.
the extent to which this unity of science and technology involves a transformation of some of the most fundamental concepts of Western philosophy, I will briefly outline Aristotle’s conception of *epistēmē* and *tekhne* and contrast them with Francis Bacon’s distinctively modern proclamation that ‘human knowledge and human power come to the same thing’. Although they are separated by a period of roughly two millennia, it is instructive to compare these two thinkers because the proper nature of science is addressed as a question by both, rather than as something which is merely to be assumed.

In his *Nicomachean Ethics*, Aristotle distinguished between two parts of the soul, the rational and the irrational. He bases these distinctions within the soul on the argument that ‘knowledge presupposes a certain kinship of subject and object’ and that different kinds of objects will be known by different parts of the soul. He further divides the rational part into two elements. With one part ‘we apprehend the realities whose fundamental principles do not admit of being other than they are...’, and with the other rational part of the soul ‘we apprehend things which do admit of being other.’ That is, one part is devoted to the apprehension of necessary and unchanging reality and the other part to contingent matters. He goes on to call the first element the ‘scientific element’ and the other the ‘calculative element’. The calculative element is further divided in two on the basis that it contains both a faculty by which we *act* rationally, and a faculty by which we *produce* rationally.

This series of distinctions provides the groundwork within which the relationship of ‘scientific knowledge’ to ‘productive knowledge’, understood as translations of *epistēmē* and *tekhne*, was understood by Aristotle. Essentially they are distinguished by their respective aims, objects, and relative values. *Epistēmē* is defined very strictly as knowledge of that which is by necessity, of those things which *must* be as they are and cannot be otherwise. Aristotle argues that, as a consequence of the fact that science deals with what is by necessity, an object of scientific knowledge is also eternal. He argues that ‘everything that exists of necessity in an unqualified sense is eternal, and what is eternal is ungenerated and imperishable (and hence cannot be otherwise).’ In keeping with the necessity of its object, scientific knowledge itself must be demonstrable. One cannot be said to have scientific knowledge in the fullest sense unless one has knowledge of the principles and causes from which it is derived.

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However, as all demonstrations must *assume* the principles upon which they proceed, Aristotle notes that we must attain these first principles by induction, rather than by demonstration through the use of syllogisms.

In contrast, the objects of the calculative rational element which includes both productive knowledge (*techne*) and practical wisdom (*phronēsis*), are things which can be other than they are. This is because, in the case of practical wisdom, one does not deliberate about what cannot be otherwise, nor about what cannot possibly be done. In the case of productive knowledge or art, one only attempts to produce things that are not already present, or are not natural things which have the power to generate themselves. Although natural things may come into, and go out of, being, their form is eternal and therefore they are properly the subject of scientific knowledge rather than art. The relationship between the necessity of scientific objects and explanations and natural objects is a problematic one as many natural phenomena occur only infrequently. In fact Aristotle elsewhere offers another definition of the objects of natural science which includes 'what is for the most part'. However, I will reserve this problem for my subsequent discussion of Aristotelian natural science.

Aside from this difference of objects, the *goal* of *epistēmē* is also distinct from that of either *techne* or *phronēsis*. Aristotle argues that the aim of scientific knowing is knowledge itself. One does not pursue science for the sake of anything else, rather it is to be pursued for its own sake. He writes of scientific knowledge in the *Metaphysics*, ‘Evidently then we do not seek it for the sake of any other advantage; but as the man is free, we say, who exists for his own sake and not for another’s so we pursue this as the only free science, for it alone exists for its own sake.’\(^5\) The proper means of pursuing this scientific knowledge is *theōria*, or detached contemplation and inspection of things which aims neither at action nor production, but simply at knowing what a thing is. This is not the case for art and practical wisdom for they aim at, respectively, the production of an artefact or acting rationally concerning matters that are good and bad for man.

Finally, Aristotle distinguishes between these three forms of knowledge in terms of the relative wisdom, or *sophia*, which should be attributed to their possessors. He places the possessor of scientific knowledge at the highest point of this ranking, with

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practical wisdom and art both standing below this peak. Thus, concerning the
relative importance of scientific knowledge and art Aristotle argues that,

all men suppose what is called Wisdom to deal with the first causes and the
principles of things; so that, as has been said before, the man of experience is
thought to be wiser than the possessors of any sense-perception whatever, the artist
wiser than the men of experience, the master-worker than the mechanic, and the
theoretical kinds of knowledge to be more of the nature of Wisdom than the
productive. Clearly then Wisdom is knowledge about certain principles and causes.6

With regard to practical wisdom, Aristotle writes in his *Nicomachean Ethics* that
‘practical wisdom has no authority over theoretical wisdom or the better part of the
soul any more than the art of medicine has authority over health. (Just as medicine
does not use health but makes the provisions to secure it, so) practical wisdom does
not use theoretical wisdom but makes the provisions to secure it.’7

This final series of distinctions essentially *equates* wisdom with theoretical
knowledge of beings that are by necessity. Thus, wisdom or *sophia*, understood as
the highest end of man’s rational existence, is equivalent to the detached
contemplation of eternal and unchanging beings. The possession of the other
categories of knowledge is considered wise only in that they either contain a
theoretical element, or aid in the development of theoretical knowledge. The
boldness of this account of wisdom, of what should be considered the highest goal of
man insofar as he is rational, was apparent to Aristotle. Indeed he considers the
objection, raised by some thinkers, that the possession of such science ‘might be
justly regarded as beyond human power; for in many ways human nature is in
bondage, so that according to Simonides “God alone can have this privilege”, and it
is unfitting that man should not be content to seek the knowledge that is suited to
him.’8 In response to this objection, Aristotle does not deny that the science he
describes is divine, both in the sense that its objects are divine and that it is a science
fit alone for God, or at least for him above all others. He merely argues that man
need not fear the pursuit of it for the divine powers are not jealous, contrary to what
the poets of ancient Greece sometimes claimed.

For Aristotle there is a firm difference between science and technology, that is
*epistêmê* and *technê*. In fact they are defined in opposition to one another, *technê*

aims to produce a result, it is knowledge of how to bring into being that which does not come about of its own accord, whereas *epistēmē* aims to stand back from its objects to let them be *as they are* in order that they can be simply known *as they are*. As I noted, although Aristotle is confident that man can pursue such a purely *theoretical* science, he provides no argument as to how man, whose ‘nature is in bondage’, can attain a form of knowledge that is proper only to God. How can man, given his finite nature and his immersion in a world of constant change, come to know that which is necessary, eternal and unchanging? Despite any misgivings that Aristotle may have had regarding the divine nature of his vision of science, it is precisely such knowledge that he counted as the most honorable and the most worthy of pursuit. Thus the various ways in which Aristotle distinguished between science and technology flow from his identification of science with *theoretical knowledge of what is by necessity*.

3. Francis Bacon’s account of science and technology stands in stark contrast to that of Aristotle. In his *Novum Organum* of 1620, Francis Bacon argued that knowledge and power come to the same thing. He writes there:

> Human knowledge and power come to the same thing, for ignorance of the cause puts the effect beyond reach. For nature is not conquered save by obeying it; and that which in thought is equivalent to a cause, is in operation equivalent to a rule.9

To modern ears this statement is merely a truism. However, it was in fact a radical statement at the time. It was radical precisely because of the way it links ‘contemplation’ or ‘the representation of causes’ with mastery over nature. That such a connection between science and power over nature was something quite new is reflected in the fact that Bacon makes this statement prior to the elaboration of his plan for the reformation of the sciences. Indeed, his promise of mastery over nature is inseparable from his rejection of what he takes to be Aristotelian and scholastic science. Thus, for Bacon, the successful combination of science and technology could only be achieved if scientific reasoning was drawn from natural things in the correct manner. The ‘correct’ method of natural science is induction, and if we follow this method we will arrive not at ‘anticipations of nature’ but at ‘interpretations’. I will not delve any further into Bacon’s account of the correct methods of science at this stage. It is enough to note that his hopes for the advance

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of technology were tied to a different mode of deriving knowledge from nature. He writes of science:

There are and can only be two ways of investigating and discovering truth. The one rushes up from the sense and particulars to axioms of the highest generality and, from these principles and their indubitable truth, goes on to infer and discover middle axioms; and this is the way in current use. The other way draws axioms from the sense and particulars by climbing steadily and by degrees so that it reaches the ones of highest generality last of all; and this is the true but still untrodden way.¹⁰

Bacon is certainly right that Aristotelian science does not give us a form of knowledge by which we can master nature. We need only contrast the technology of ancient and medieval times with that of the present to see this. Yet, it would be unfair to Aristotle to say that his science was a failure on this count. For if we consider Aristotle’s position it is clear that he never understood a successful ‘science’ as providing help in man’s practical endeavours. As I described above, he defines epistêmē, scientific knowledge, precisely in contrast to technē, knowledge aimed at production. Aristotle saw no essential connection between the ‘scientific’ and the ‘calculative’ branches of knowledge. No doubt knowledge of what is real, in the strict sense of being necessary, eternal, and unchanging, could be expected to aid man in his practical and productive pursuits. This is, however, vastly different from Bacon’s vision, in which science and technology are simply mirror images of one another, such that ‘what in contemplation represents the cause, in operation stands as the rule’. For Bacon scientific knowledge is, if correctly attained from experience, already technological knowledge.

4.

Although I have used the terms ‘technology’ and ‘science’ as equivalents of ‘technē’ and ‘epistêmē’, for this is how they are commonly translated, the contrast between Aristotle and Bacon demonstrates that these terms are by no means simply interchangeable. Indeed, the difference between them is precisely what is in question when we ask about the essence of modern technology. Thus, far from being an issue of only marginal philosophical interest, the attempt to determine the essence of modern technology is necessarily bound up with a series of fundamental metaphysical problems. As I have shown, following Heidegger’s preliminary suggestions about the metaphysical foundations of this problem, the question concerning the essence of modern technology leads to the question of the nature of

modern science. Although modern and ancient science differ, they retain the fundamental aim of gaining knowledge of beings, of what is. Just as the attempt to differentiate modern technology from technology as such leads Heidegger to examine the nature of science, the attempt to differentiate modern science from science as such leads him to examine the ontological foundations of modern metaphysics. In particular, he wants to establish how the ontological foundations of modern science differ from those of ancient and medieval science, such that modern physical science became essentially dependent upon technology. This question returns us to Aristotle’s thought that there is a kinship between the subject and object of knowledge. His conception of epistêmē was commensurate with his notion of reality as necessary, unchanging and eternal. Following the thought that modern science differs fundamentally from ancient science, the question is now whether there is a new conception of reality that is commensurate with this new mode of knowledge.

This is the sense in which Heidegger thinks that the essence of modern technology can be arrived at through an examination of the ontological foundations of modern science and philosophy. If ‘technology’ denotes the various elements of our practical activities, then its character must alter depending on our understanding of how to bring about an effect. Our understanding of causality is, however, a metaphysical matter which determines the nature of particular sciences. Both science and technology are grounded in this underlying metaphysics of causality. This connection provides a strong hint that the differences between Aristotle and Bacon extend beyond their accounts of science and technology into their metaphysical conceptions of causality.

As I stated earlier, the purpose of this study is to examine the nature of Heidegger’s account of the metaphysical foundations of modern technology and to evaluate the adequacy of his approach as a means of understanding our relationship to technology. In brief, I will argue that Heidegger’s critique of technology rests upon a claim concerning the being of beings in modern philosophy. Essentially he argues that modern philosophy, beginning with Descartes, understands the being of beings with increasing clarity as representedness, that is as objects of a representing subject. Heidegger argues that modern philosophy does not abandon the ontological concepts of scholastic and ancient philosophy. Rather it simply transposes them such that the being of man, that is self-consciousness, is understood as absolute substance. Previous philosophers had identified God as the absolute substance. Thus, although
modern philosophers thought of themselves as beginning philosophy anew upon the foundation of what reason could make certain for itself, Heidegger argues that their inquiries in fact presupposed the ontological categories that underpinned ancient and medieval philosophy.

The force of this argument, which is elaborated by Heidegger with increasing clarity from the mid-nineteen-thirties onwards, depends upon his earlier analysis of the ontology of human beings. In Being and Time, and lecture courses from that period, Heidegger criticised precisely this modern ontology in which self-consciousness is equated with absolute substance. He argues that the concept of substance is defined through a reference to the present whereas the being of human beings is constituted as movement which unifies the past, present, and future. Thus, the concept which has guided the understanding of being throughout the course of Western metaphysics seems inadequate when it comes to understanding the being of human beings. Therefore, Heidegger's later critique of the foundations of modern metaphysics must be seen in the light of his earlier attempts to provide a new ontology of human being. He argues that we are confused about our own nature, the certainty of which is supposed to provide the foundations of modern philosophy and science. This confusion will remain for as long as we do not attempt to reformulate our concept of being in order that it can do justice to the temporal structure of human existence.

These critical aspects of Heidegger's analysis of modern metaphysics are, for the most part, valid. However, his own positive attempts to reformulate the concept of being in order to take into account this problem of temporality become increasingly difficult to justify. Indeed his elevation of a dogmatic reading of the history of metaphysics to a description of the nature of being itself, tends to obscure his early insight into the nature of modern metaphysics. The problematic nature of this 'history of being' points to an essential problem in Heidegger's attempt to distinguish between our scientific knowledge of the past and the existence of man as itself essentially historical. Nevertheless, the negative moment of his work, that is, the critique of the tendency to view the human subject as substance, remains an insightful demonstration of the need to rethink the relationship between being and time. I will expand on this tension in my sixth chapter which deals with Heidegger's technology essay.

5. As I have stated, my intention in this study is to argue that the heart of Heidegger's account of modern technology is to be found in his interpretation of 'subjectivity' as
a continuation of ancient and medieval ontological doctrines. Given this argument, it might seem obvious to begin with Heidegger's essay on technology, a work that is often taken as the centre of discussions of Heidegger and technology. However, as I mentioned earlier, I intend to first focus on his critique of subjectivity as it emerges both in *Being and Time* and in his later writings. Having established the nature of this argument, I will then return to the essay on technology in order to demonstrate how it fits within his broader critique of modern ontology. The advantage of this approach is that once I do come to examine *The Question Concerning Technology*, I will be in a position to establish which of its claims are founded on a sound analysis of the nature of modern metaphysics and which are not.

The six chapters that comprise this study are divided into two groups of three. The first three are devoted to an interpretation of Heidegger's early criticisms of the modern understanding of the peculiar being of human beings. By 'early' I mean those criticisms contained in *Being and Time* itself, and in the lectures courses that immediately precede and follow its publication in 1927. As I will outline shortly, my interpretation of Heidegger's early period will proceed through an examination of his critique of three contemporary philosophical movements, namely positivism, neo-Kantianism, and Dilthey's hermeneutic philosophy. The purpose of these initial three chapters is to understand how Heidegger's examination of the being of human beings serves to undermine two metaphysical doctrines that had survived from ancient Greece up to the present. These two doctrines are: the identification of being with substance; and the evaluation of theoretical knowledge as a paradigm of knowledge in general.

Heidegger's argument is essentially that these fundamental determinations remain current in modern philosophy and prevent us from correctly understanding our own mode of being and the knowledge that is proper to such a being. In order to show this I will follow Heidegger's attempt to demonstrate that history is not simply the object of scientific study but rather a fundamental characteristic of human being. This seemingly obscure debate concerning the nature of history is in fact of central importance because it forms the foundation of Heidegger's claim that the human mode of being is not simply that of substance. I will also examine Heidegger's claim that the being of a human being is not separable from its world. This argument effectively attacks the ancient identification of *theōria*, or simple beholding and contemplation, as the proper means of attaining knowledge of beings. Such
knowledge is ultimately impossible for humanity given its historical and worldly character.

I will compare Heidegger's position with contemporary accounts of the nature of history and science. Although Heidegger does not deal with these traditions in great detail in *Being and Time*, his criticisms of them in surrounding lecture courses are vital for a correct understanding of *Being and Time* itself. In my first chapter I will describe the position of positivism regarding science and history; in particular I will focus on the position of J. S. Mill. I will then contrast the foundations of positivism with the position of two neo-Kantians, Wilhelm Windelband and Heinrich Rickert. By this contrast I hope to demonstrate that despite their radically different approaches to the foundations of the sciences—the positivists are essentially empiricists whilst the neo-Kantians draw inspiration from Kant's 'Copernican revolution'—these two schools hold the same assumptions about the nature of science. They differ over what they consider to be the correct logic of the historical sciences, yet they both attempt to understand science by examining the logical structure of its results. Heidegger differs from this tradition in that he is concerned not with the logical structure of historical science, but with the ontology of its object. The sense in which human beings are themselves 'historical' and the consequences of this for their accounts of science are not addressed by either the neo-Kantians or the positivists.

My second chapter will examine Wilhelm Dilthey's distinctive approach to historical science. Despite the sometimes confused nature of Dilthey's investigations, he was able to see that understanding the foundations of historical science was not simply a matter of developing a different scientific logic which could sit alongside that of the natural sciences. Rather, it depended upon a renewed investigation of the nature of human existence. In particular he saw that, in historical study, humanity is both the subject and the object of the investigation. Such a self-involving model of knowledge seemed to be precluded by contemporary understandings of the knowing subject, and so Dilthey set about investigating the nature of human subjectivity. Thus, Dilthey clearly saw that historical science posed far deeper problems than either the neo-Kantians or the positivists had believed. I contend that Dilthey's recognition of the clash between historical existence and theoretical ideals of science deeply influenced Heidegger leading up to the publication of *Being and Time*. This heritage provides us with a clue by which we can understand Heidegger's attack upon the traditional distinction of 'theory' and 'practice'. 
My third chapter is devoted to interpreting Heidegger's arguments in *Being and Time* in light of his attitude towards these competing accounts of science and history. Aside from demonstrating the manner in which Heidegger undermines our traditional concepts of knowledge and being through his interpretation of the being of man as Da-sein, I will employ Heidegger's open attempts to appropriate Dilthey's work as a means of arguing against recent pragmatist interpretations of his intentions in *Being and Time*. More precisely, I argue that pragmatists misconstrue Heidegger's attempts to develop an account of pre-theoretical knowledge. They take this as an argument about the presence or absence of concepts in our everyday practical activities, whereas it is in fact an attempt to demonstrate the inappropriateness of a detached and contemplative model of knowledge for existing human beings.

This initial set of three chapters describe how Heidegger employs an account of man's historical and worldly existence as a means of questioning the adequacy and the origins of the ontological and epistemological categories within which we understand ourselves and the world. The essential purpose of reconstructing these arguments is to demonstrate that Heidegger was already addressing, in his early career, questions about the nature of scientific knowledge and human being. His examination of these questions underpins his attempt to re-open the question of the meaning of being. However, his later pursuit of this question of being does not lead him away from these initial considerations, rather he takes them up anew from the perspective he gained from their initial examination.

It is due to the fact that Heidegger often returned to consider an issue from a new vantage point that divisions of his career into early and late, or pre-turn and post-turn, phases are generally unhelpful. The issue of when Heidegger's thought underwent a 'turn' and what this 'turn' might consist of has been addressed innumerable times and is a perennial issue amongst Heidegger scholars. Those versed in the details of such discussions will recognise that the way I have organised my chapters mirrors the common, though controversial, division of Heidegger's works into early and late periods with his 'turn' being roughly identified with his 1930 essay *On The Essence of Truth* or *Vom Wesen der Warheit*. Although I believe Heidegger's work certainly did undergo a change during this period, the structure of this study is not intended to imply that this is the only change Heidegger underwent, or that it is the decisive moment of his career. Indeed it is my conviction, and the strategy of this discussion, that Heidegger's 'late' works are best understood as an extension of his 'early' works, and as a return to the themes that occupied him then.
I will have more to say on this in my discussion of Heidegger's account of truth in chapter three, however, I merely wish to avoid misunderstandings by bringing up this issue at this early stage.

The second set of three chapters focus on the account of modern metaphysics that flows from this re-opening of the question of being, and a demonstration of how Heidegger's interpretation of modern technology fits within this framework. Thus, my fourth chapter is devoted to understanding Heidegger's account of the difference between ancient and modern science. As I have outlined above, the fundamental difference between the two forms of science is to be traced back to their metaphysical foundations. Heidegger's recognition of the interdependence of physics and metaphysics leads him to develop an account of ancient and modern science that has many similarities with those developed by other historians of science around the middle of last century. He argues that the transformation of science in the seventeenth century was not simply a matter of paying closer attention to the 'facts', rather it was based upon a reconception of what counted as a fact and how it could be known. Despite some deficiencies in his account of the beginnings of modern science, Heidegger correctly sees that although modern science seemingly operates independently of philosophy, it is nevertheless based on a definite set of metaphysical propositions.

Heidegger's account of the metaphysical ground of modern science provides the focus of my fifth chapter. As I have stated above, Heidegger's contention is that modern metaphysics, beginning with Descartes, is founded upon an understanding of the human subject as the absolute substance. I argue in this chapter that Heidegger's account of Descartes as the beginning of this new ontological order is ultimately untenable for the reason that Descartes himself remains wedded to the ontological order that was characteristic of scholastic philosophy. That is, Descartes still takes God as the true substance and we cannot truly understand his attempts to secure the necessity of our scientific knowledge if we do not recognise this fact. It is John Locke who more fully expresses the conception of modern philosophy that Heidegger describes. It is also with Locke that the foundations for an essentially experimental science are laid. Thus, although Heidegger appears to misconstrue Descartes' position, I argue that he nevertheless captures an essential characteristic of post-Cartesian philosophy.

My sixth chapter will attend to the content of Heidegger's essay *The Question Concerning Technology*. In this chapter I distinguish between the sound claim that
Heidegger makes concerning the common metaphysical foundation of modern science and modern technology, and his highly controversial claims concerning our relationship to the 'essence' of technology. This later element of Heidegger's account of modern technology is based upon a mistaken understanding of the relationship between the metaphysical determination of the nature of being and the character of our everyday interaction with beings. Heidegger's mistake is to attempt to see the modern world as a result of the determination of being as substance. It is this tendency to reduce the richness of human history to an ontological schema which plagues Heidegger's later philosophy and must be avoided if we are to recover the positive elements of his account of modern technology.

In my concluding remarks I suggest that Heidegger's account of the essence of modern technology provides a penetrating critique of the ontological foundations of modern philosophy. In particular it demonstrates the great extent to which the modern philosophical tradition remains wedded to the ontological determinations of previous eras. Heidegger's interpretation of the history of philosophy is fragmentary and dogmatic. Nevertheless, he is correct in pointing out the central role the idea of production or creation has played in Western accounts of the nature of being. In doing so he provides a new means of understanding the significance of modern science and technology.
Chapter 1  
The Philosophical Foundations of Modern Science

In the introduction and first chapter of his lecture course of 1925, published in English as the History of the Concept of Time, Heidegger ponders whether the science of history exhaustively captures the reality of history itself. He argues:

We tend to understand history and nature by way of the sciences which investigate them. But then history and nature would be accessible only insofar as they are objects thematized in these sciences. But it is not certain whether a domain of objects necessarily also gives us the actual area of subject matter out of which the thematic of the sciences is first carved. To say that the science of history deals with history does not necessarily mean that history as this science understands it is as such also the authentic reality of history.¹¹

Heidegger thinks that historical science does not capture the reality of history itself and he devotes the rest of this lecture course, which can be considered a draft of Being and Time, to demonstrating that this is the case.¹² As I stated in my introduction, this question of the nature of history is central to Heidegger's attempt to loosen the hold of the ancient conceptions of knowledge and being which, he believes, have prevented us from attaining an adequate understanding of our own existence. Although this is the ultimate end of Heidegger's phenomenological investigation of the being of human beings, his concrete arguments in Being and Time and its surrounding lecture courses can only be properly understood in the context of contemporary discussions of science and history. Heidegger eventually

comes to see the character of the entire Western metaphysical tradition as based upon the manner in which the ancient Greeks conceived of being, however, he only comes to this position once he has re-opened the question of the meaning of being from within his own philosophical context. This is the explicit task of *Being and Time*. The fact that Heidegger later considered *Being and Time* to have failed in its own project of understanding the temporality of being itself, certainly does not mean that this work achieved nothing. In fact the concept of ‘unconcealment’ that he developed in that period is indispensable for his later investigations, as is his account of the historicity of human being. Thus, if we are to grasp the broad historical sweep of this later work, including *The Question Concerning Technology*, we must attend to the philosophical context from which Heidegger originally tried to break free in *Being and Time*.

In order to carry out this task I will follow a brief sketch that Heidegger himself provides in *History of the Concept of Time*, under the heading “The situation of philosophy in the second half of the 19th century. Philosophy and the sciences.”

This sketch is intended as an introduction to the various achievements of phenomenology, as Heidegger understands them. It involves a brief discussion of positivism, the neo-Kantian critique of positivism, the difference between the neo-Kantianism of Dilthey and that of Windelband and Rickert, and finally the development of ‘psychology’ as the fundamental philosophical discipline.

In this chapter and the next, I intend to investigate the details of this sketch more closely. In particular I will focus on its less well known elements, in the English speaking world at least, namely the neo-Kantianism of Wilhelm Windelband, Heinrich Rickert, and Wilhelm Dilthey. Given Heidegger’s own neo-Kantian beginnings, his reaction against this tradition is particularly interesting. Although I take my direction from Heidegger’s own scheme, I intend to bring it within a broader discussion of the nature of modern philosophy. Thus, rather than beginning with the

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13 He comments in his *Letter on Humanism* that ‘The adequate execution and completion of this other thinking that abandons subjectivity is surely made more difficult by the fact that in the publication of *Being and Time* the third division of the first part, “Time and Being”, was held back. Here everything is reversed. The division in question was held back because thinking failed in the adequate saying of this turning [Kehre] and did not succeed with the help of the language of metaphysics.’ He goes on in this passage to state that the lecture of 1930, *On the Essence of Truth*, provides some insight into the ‘turning’ that he is attempting. This is an oft-quoted passage as it contains one of Heidegger’s rare evaluations of *Being and Time*. See Martin Heidegger, ‘Letter on Humanism’, in *Basic Writings*, ed. David Farrell Krell, (HarperCollins Publishers, San Francisco, 1993), p231.

positivism of Mill, I will begin with John Locke and his separation of real and nominal essences. Having described Locke's position it will be possible to see not only the origin of positivism's understanding of experience, but also the common ground which underlies both positivism and neo-Kantianism. Aside from tracing the conceptions of history, science, and philosophy that are to be found in these different traditions, I also hope to demonstrate the sense in which they are all reactions to the fundamental change in the understanding of essence that was announced by Locke in his An Essay Concerning Human Understanding.

Demonstrating the relationship between British empiricism, positivism, and neo-Kantianism, may appear to be a very roundabout approach to understanding the decisive elements of Being and Time, especially since in that work Heidegger directs his attention towards a critique of Cartesian conceptions of human existence. However, it is my contention that Heidegger, both in his early and late thinking, mistakenly attributes the decisive ontological shift that underlies modern philosophical thinking to Descartes, rather than to Locke. This may appear to be a minor problem, for Heidegger correctly describes the central ontological difficulty of modern philosophy, but attributes its first expression to the wrong philosopher. In fact, the matter is significant because, although he does not state this explicitly, Heidegger's account of truth as aletheia or unconcealment directly addresses Locke's separation of real and nominal essences. By this I mean that the ontological schism, which was first described by Locke, and which so profoundly influenced the character of subsequent philosophy, is brought into question by Heidegger's account of truth. Thus, Heidegger's critique of neo-Kantianism and positivism is simultaneously a critique of the foundations of modern philosophy established by Descartes and Locke. Although Heidegger had not yet developed his account of modernity as the 'age of the world-picture', or as the 'age of technology', I will argue in these opening three chapters that he had already grasped the nature and importance of the ontological transformations that he focused upon in those later accounts.

Given this tension between Heidegger's identification of Descartes as the beginning of modern philosophy and my claim that it is in fact Locke who should be given this role according to Heidegger's own criteria, a discussion of his decisive account of our knowledge of essences is not out of place here. I provide a detailed discussion of Heidegger's reading of Descartes in my fifth chapter and the full consequences of this confusion will become apparent there. With these considerations in mind, the
aim of this chapter will be to demonstrate the mutual dependence of positivism and neo-Kantianism, and their respective accounts of historical science, on Locke’s separation of real and nominal essences. I will only discuss the positions of Windelband and Rickert in this chapter and reserve a discussion of Dilthey for chapter two. I do this because I intend to focus on Dilthey’s conception of history and human existence, a matter which separates him from Windelband and Rickert.

1. In a discussion of Kant’s understanding of being and the phenomenological principle of categorical intuition, Heidegger writes:

   We said that color can be seen, but *being-colored* cannot. Color is something sensory and real. Being, however, is nothing of the sort, for it is not sensory or real. While the real is regarded as the objective, as a structure and moment of the object, the non-sensory is equated with the mental in the subject, the immanent. The real is given from the side of the object, the rest is thought into it by the subject. But the subject is given in inner perception. Will I find ‘being’, ‘unity’, ‘plurality’, ‘and’, ‘or’ in inner perception? The origin of these non-sensory moments lies in *immanent perception*, in the reflection upon consciousness. This is the argument of *British empiricism* since Locke. This argument has its roots in Descartes, and it is in principle still present in Kant and *German idealism*, though with essential modification. Today we are in a position to move against idealism precisely on this front only because phenomenology has demonstrated that the non-sensory and ideal cannot without further ado be identified with the immanent, conscious, subjective.  

This passage provides an early hint of Heidegger’s objections to the primacy of human subjectivity in modern philosophy. More precisely it addresses the issue of how phenomenology can overcome the Kantian understanding of being. However, it is relevant to the theme of this chapter because it contains one of Heidegger’s rare mentions of Locke’s place in the development of modern philosophy. He argues that Locke and Descartes developed a distinctive understanding of reality that remains influential even for Kant and his followers. This is certainly true; however, as I mentioned above, I believe that Heidegger did not pay sufficient attention to the *differences* between Descartes and Locke regarding ontology. As a result of this he misrepresents Descartes’ position. This section is devoted to describing several features of Locke’s philosophy which are decisive in the development of modern philosophy, and which Heidegger does not himself directly address. The full import of Locke’s arguments will not become clear until I have discussed Descartes

ontology, however, I consider that a knowledge of them is vital for understanding Heidegger's attacks upon 'subjectivity' in *Being and Time*.

Locke's stated intention in writing *An Essay Concerning Human Understanding*, the first edition of which appeared in 1690, was much the same as that of Descartes in writing his *Meditations on First Philosophy*. Locke writes that he intends 'to enquire into the Original, Certainty, and Extent, of human Knowledge; together, with the Grounds and Degrees of Belief, Opinion, and Assent...'. He goes on to argue in a manner that was to be repeated throughout the Enlightenment; 'It is therefore worth while, to search out the *Bounds* between Opinion and Knowledge; and examine by what Measures, in things, whereof we have no certain Knowledge, we ought to regulate our Assent and moderate our Perswasions.' Whilst the intention of examining the limits and foundations of human knowledge are common to Locke and Descartes, their respective conclusions are quite different.

There are three elements of Locke's empiricism that are important for my immediate project of identifying the common foundation of positivism and neo-Kantianism. These elements are his rejection of innate ideas as a source of knowledge, his atomistic account of experience, and his separation of real and nominal essences. Perhaps the most well known of these differences is Locke's argument that we do not possess any innate ideas. Descartes' attempt to provide a solid foundation for scientia, or knowledge of necessary truths, had partly depended upon demonstrating that we possess innate ideas and that these innate ideas, because they are stamped upon us by God, could be taken to be true, that is to give us knowledge of the essential nature of God, ourselves, and the physical world. This argument is quite complex and I provide a discussion of it in chapter five. The interesting point to note at this stage is that although Locke is famous for his argument concerning our lack of innate knowledge, he does not contest the claim that innate ideas, if we were to possess them, must be true ideas. To have objected to the use of innateness as a criterion of truth would have been a much more fundamental objection to Descartes arguments, yet Locke does not take this path.

Locke accepts that if we possessed any innate principles, then they would be true. His reasons for accepting this are the same as those of Descartes, namely that such

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17 Locke, *Essay*, I. i. 3.
ideas could only be explained by the fact that God had produced them within us. Locke writes:

I grant, That if there were any Ideas to be found imprinted on the Minds of Men, we have reason to expect, it should be the Notion of his Maker, as a mark GOD set on his own Workmanship, to mind Man of his dependence and Duty; and that herein should appear the first instances of humane Knowledge.\(^{18}\)

Once the divine origin of innate ideas has been established, it must be assumed that they are true, for it is clear that God would not deceive us. Indeed Locke is less questioning in this regard than Descartes himself, for Descartes went on to apply his metaphysical doubt to all of his ideas, even to those which appear to us as utterly necessary.\(^{19}\)

Locke’s argument is, rather, concerned with establishing that innateness is a poor means of explaining the origin of our ideas. He makes this strategy plain at the very beginning of his argument where he writes:

IT is an established Opinion amongst some Men, That there are in the Understanding certain innate Principles; some primary Notions, ... Characters, as it were stamped upon the Mind of Man, which the Soul receives in its very first Being; and brings into the World with it. It would be sufficient to convince unprejudiced Readers of the falseness of this Supposition, if I should only shew...how Men, barely by the Use of their natural Faculties, may attain to all the knowledge they have, without the help of any innate Impressions; and may arrive at Certainty, without any such Original Notions or Principles.\(^{20}\)

Rather than deny the possibility of innate ideas, or that they would be true if we possessed them, Locke is content to argue that we need not resort to such notions in order to account for all the knowledge that we do in fact have. He continues on, after the above passage, to provide his well known arguments that universal assent need not be explained by innateness, and furthermore that there are no principles that are assented to universally.

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Chapter One

2.
Whatever the details of Locke’s arguments against our possession of innate ideas, his rejection of them as a source of knowledge leaves him with the difficult task of establishing a new source of scientific knowledge. He attempts to do this by arguing that all of our knowledge is derived from sense experience. This is the foundation of British empiricism which Heidegger referred to in the quote given above. However, Locke’s account of how a mind that is initially devoid of all knowledge could come into the possession of it through the senses is beset by difficulties. These problems stem partly from the radical new ontology which he employs with very little discussion, and partly from the confused epistemology which arises from his separation of real and nominal essences.

In line with his rejection of innate ideas, Locke argues that there are only two sources of knowledge. These two sources are sensory experience and our reflection upon the materials provided by such experience. Locke puts the matter this way:

Let us suppose the Mind to be, as we say, white Paper, void of all Characters, without any Ideas; How comes it to be furnished? Whence comes it by that vast store, which the busy and boundless Fancy of Man has painted on it, with an almost endless variety? Whence has it all the materials of Reason and Knowledge? To this I answer in one word Experience: In that all our Knowledge is founded; and from that it ultimately derives itself. Our Observation employ’d either about external, sensible Objects; or about the internal Operations of our Minds, perceived and reflected on by ourselves, is that, which supplies our Understandings with all the materials of thinking. These two are the Fountains of Knowledge, from whence all the Ideas we have, or can naturally have, do spring.21

Locke’s elaborations on the operation of the first of these fountains of knowledge, sense perception, exposes his radically particular ontology. He argues that the senses are ‘conversant with particular sensible Objects’ and it is through the various ways such particular objects affect us that we come to our ideas of ‘Yellow, White, Heat, Cold, Soft, Hard, Bitter, Sweet, and all those which we call sensible qualities...’.22 The point here is that Locke, in assuming that the objects which affect the senses are particular objects, is breaking decisively with the notion that what truly exists are universal principles the possession of which gives individual objects their reality. Given the significance of this move it is extraordinary that Locke does not provide any substantial argument for it; he simply asserts that it is so. Having taken this

21 Locke, Essay, II. 1. 2.
22 Locke, Essay, II. 1. 3.
view, Locke’s problem was not that of accounting for how an individual object can exist, given that he thinks that the principle of individuation is ‘Existence it self, which determines a Being of any sort to a particular time and place incommunicable to two Beings of the same kind.’

His difficulty is, rather, to account for the general, or universal, terms and ideas which we employ. These he takes to be the product of the mind’s reflection on its own ideas. As Richard Campbell has argued, Locke is a nominalist in the sense that ‘Not only does he hold that everything which exists is a particular; the only universals he admits are those general ideas and terms (names) which have been made by abstraction.’

Thus, the mind is furnished, through the senses, with distinct ideas generated by particular objects. Locke maintains that of all the knowledge that we possess it is the immediate impression of these simple ideas that is most certain. He argues that in the case of this immediate intuitive knowledge,

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\text{the Mind is at no pains of proving or examining, but perceives the Truth, as the Eye doth light, only by being directed toward it. Thus the Mind perceives, that White is not Black, That a Circle is not a Triangle, That Three are more than Two, and equal to One and Two. Such kind of truths the Mind perceives at the first sight of the Ideas together, by bare Intuition, without the intervention of any other Idea; and this kind of Knowledge is the clearest, and most certain, that humane Frailty is capable of.}\]

The clarity and distinctness with which the mind is presented with these simple ideas is such that the mind cannot be confused about the nature of its own ideas. This forms the foundation upon which Locke bases ‘the Certainty and Evidence of all our Knowledge’.

Locke’s epistemology rests upon these atoms of sense experience and he is concerned to establish that they cannot be confused, either one with another, nor in the nature of each individual experience. This concern echoes Descartes’ attempt to establish which of his ideas are both ‘clear and distinct’ and as a consequence can be taken to be true. In Locke’s case, however, this foundation of knowledge in clear distinct ideas is ambiguous because the knowledge that Locke secures is not knowledge of the real essence of objects. Locke, due to his rejection of innate ideas, is unable to follow Descartes argument that we can take our clear and distinct ideas as giving us knowledge of real essences because they are imprinted.

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23 Locke, Essay, II. xxvii. 3.
24 Campbell, Truth and Historicity, p207.
25 Locke, Essay, IV. ii. 1.
26 Locke, Essay, IV. ii. 1.
upon us by God and God is not a deceiver. As I will demonstrate shortly, the rejection of this recourse to the nature of God, by way of our innate ideas, leads to a dramatic restriction of the scope of human knowledge and ultimately to the distinction of real and nominal essences.

Locke defines knowledge as ‘the perception of the connexion and agreement, or disagreement and repugnancy of any of our Ideas.’\(^{27}\) However, he is quick to qualify this definition as it appears to base knowledge upon each man’s perception of his own ideas. As an objection to his own definition of knowledge, Locke writes, ‘Knowledge, you say, is only the perception of the agreement or disagreement of our own Ideas: but who knows what those Ideas may be? Is there anything so extravagant, as the Imaginations of Men’s Brains?’ If knowledge is based upon each man’s own ideas then ‘if there be a sober and a wise Man, what difference will there be...between his Knowledge, and that of the most extravagant Fancy in the World?’\(^{28}\) In order to counter this objection Locke introduces a distinction between real and verbal truth. He states that ‘...Truth, as well as Knowledge, may well come under the distinction of Verbal and Real; that being only verbal Truth, wherein Terms are joined according to the agreement or disagreement of the Ideas they stand for, without regarding whether our Ideas are such, as really have, or are capable of having an Existence in Nature.’\(^{29}\) Thus, although we are able to truly assert that ‘centaurs are animals’, this statement attains only verbal truth. The idea of a centaur has no analogue in reality and as such our statement that ‘centaurs are animals’ is true only in the sense that it has correctly described the idea of a centaur. Thus, it is the relationship between ideas and reality that is fundamental to real truth in Locke’s account. We can attain real truth only when we correctly combine ideas which themselves refer correctly to reality.\(^{30}\)

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\(^{27}\) Locke, *Essay*, IV. i. 2.


\(^{30}\) This situation is further complicated by the case of mathematical knowledge. Here Locke argues that we can gain real knowledge from an examination of our ideas of ‘circle’ and ‘square’ even if such objects have never been found in reality. He argues that this is unproblematic because in a mathematical investigation we examine the idea itself without reference to any existing circles or squares. According to Locke, we gain knowledge of the properties of actual squares from an examination of our idea of a square, not because our idea corresponds to reality but because reality corresponds with our idea. *Essay*, IV. iv. 6. This last sounds like a very Platonic thesis except that Locke has relocated the ideas (or forms) within the human mind.
Our simple ideas are of such importance to Locke as they form our only link, indirect as it is, with things as they actually exist. The accuracy of our assertions thereby depends entirely upon the fidelity with which our simple ideas present the external world to us. The problem with this scheme is that there can be no way of going beyond our simple ideas in order to establish how they do in fact relate to reality. Due to the manner in which Locke interposes simple ideas between ourselves and reality, we could only ever strike upon the truth by chance and without knowing that we had done so. Locke argues that we can assume ‘...simple Ideas are not fictions of our Fancies, but the natural and regular productions of Things without us, really operating upon us...’ 31 Although it may seem a reasonable assumption that objects produce sensations within us in a regular fashion, this claim must always remain an assumption as it can never be tested. Locke’s separation of reality and our ideas leaves us with the possibility of achieving truth, but no way of knowing whether we have done so.

3.

For my argument, the decisive element of Locke’s philosophy is this restriction of knowledge to our ideas and the various abstractions we can derive from this foundation. He states his novel position on essences in the following passage:

Concerning the real Essences of corporeal Substances, (to mention those only,) there are, if I mistake not, two Opinions. The one is of those, who using the Word Essence, for they know not what, suppose a certain number of those Essences, according to which, all natural things are made, and wherein they do exactly every one of them partake, and so become of this or that Species. The other, and more rational Opinion, is of those, who look on all natural Things to have a real, but unknown Constitution of their insensible Parts, from which flow those sensible Qualities, which serve us to distinguish them one from another, according as we have Occasion to rank them into sorts, under common Denominations. 32

Locke thinks immediate experience serves as our guarantee of epistemological certainty, however, it also has the function of separating us from objects as they actually exist. Locke argues that we know only nominal essences and can have no access to real essences. Indeed, our position is likened to that of the Countryman who views ‘that famous clock at Strasburg, whereof he only sees the outward Figure and Motions’ and knows nothing of its ‘inward contrivance’. 33 Despite this restriction of knowledge, Locke continues to assume that there exists a real external

31 Locke, Essay, IV. iv. 4.
32 Locke, Essay, III. iii. 17.
33 Locke, Essay, III. vi. 9.
world which produces those qualities that we know through our external sense. Indeed he is clearly of a mind that the peculiar nature of a body might be explained by means of the arrangement of insensible particles within it. Yet, no matter how plausible or useful such a theory may be, it remains impossible for us to know the real essence of objects.

Locke’s claim that we cannot know the real essences of objects leaves him in an ambiguous position. He maintains that bodies have real essences, although he has come to identify this with the material constitution of a body rather than its rational form, and that real truth would consist in our correct combination of ideas which themselves correctly refer to reality. Yet he thinks we are unable to know real essences themselves and are therefore unable to know whether we ever attain such real truth. This restriction of human knowledge, if accepted, is a telling blow to the Aristotelian and medieval ideal of scientific knowledge which aimed above all to understand the necessity of natural events. Thus, Locke takes a sceptical view of the reaches of human knowledge:

I deny not, but a Man accustomed to rational and regular Experiments shall be able to see farther into the Nature of Bodies, and guess righter at their yet unknown Properties, than one, that is a Stranger to them: But yet, as I have said, this is but Judgement and Opinion, not Knowledge and Certainty. This way of getting, and improving our Knowledge in Substances only by Experience and History, which is all that the weakness of our Faculties in this State of Mediocrity, which we are in this World, makes me suspect, that natural Philosophy is not capable of being made a Science.\footnote{Locke, Essay, IV. xii. 10.}

Yet this sceptical tone is generated by measuring the knowledge that we are capable of against an ideal that Locke himself has argued is impossible. Gerd Buchdahl has argued that:

The reason for Locke’s vacillating attitude [regarding the status of our knowledge] must hence be sought in his failure to make a complete break with the Cartesian approach, and in his remaining in a position approximately half-way between the earlier period and that of Hume. Locke ascribes the fundamental cause of our ignorance to our inability to perceive the ‘necessary connections’ between each group of qualities of physical substances which the evidence of our senses shows us regularly to ‘coexist’.\footnote{Gerd Buchdahl, Metaphysics and the Philosophy of Science, (Basil Blackwell, Oxford, 1969), p187.}
basis of Locke’s prior efforts. Nevertheless, this image nicely illustrates the sense in which ancient and modern conceptions of knowledge are tenuously held together in Locke’s thinking.

David Hume, in contrast to Locke, was far less ambiguous about the possibility of attaining scientific knowledge. Beginning with Locke’s account of experience he drew the much more radical conclusion that we should redefine our most fundamental scientific terms if we are to retain them at all. He argued that we cannot have gained the idea of any ‘necessary connexion’ between natural events from our experience as it was impossible to find any experience of this connexion itself. Thus, ‘when we look about us towards external objects, and consider the operation of causes, we are never able, in a single instance, to discover any power or necessary connexion; any quality, which binds the effect to the cause, and renders the one the infallible consequence of the other.’ 36 As we are unable to gain any knowledge of real causes and connexions, Hume argues that if the term ‘cause’ is to remain meaningful we should take it to designate either the experience that certain objects are always succeeded by certain other objects, or the experience that the appearance of certain objects induces the mind to think of another object. The necessity of the habitual movement of the mind from one object to another need not be mirrored in reality. The mind may expect one object to appear after another yet this may not in fact occur. This reduction of ‘cause’ to either a habit of mind or the constant conjunction of experiences, rather than a feature of reality itself, was adopted by the positivist tradition.

4.

This is, in broad terms, the context within which John Stuart Mill’s positivism was developed. Mill is often discussed together with the French positivist Auguste Comte, however, for reasons of space I will only address Mill’s position. 37 Heidegger describes positivism in the following way:


37 I do not intend to imply by using this strategy that there are not significant differences between the ‘positivism’ of Mill and Comte. Rather I am using Mill as an illustration of the fundamental character of a broader philosophical development, namely British empiricism. The relationship between the Mill and Comte is quite complex and its interpretation has been coloured by Mill’s own accounts of Comte. Robert C. Scharff has argued that Comte’s ‘positivism’ differs from that of Mill in that he addresses the problem of the historical development of philosophy. On this see Robert C. Scharff, *Comte after Positivism*,
All the scientific disciplines are dominated by positivism, the tendency toward the 
positive, where “positive” is understood in terms of facts, and facts are understood in 
terms of a particular interpretation of reality. Facts are facts only if they can be 
enumerated, weighed, measured, and experimentally determined. In history, facts 
are those movements and events which are in the first instance accessible in the 

sources.

Positivism is to be understood not only as a maxim of concrete research but in 
general as a theory of knowledge and culture. In running together both the actual practice of scientific research and positivism as a 
philosophical school, Heidegger is attempting to point out that the philosophical 
theory of positivism shares the same attitude towards its foundations as scientific 
practice. The sciences, in the normal course of research, assume a certain realm of 
objects within which they conduct their research. Unless the science in question 
undergoes a radical transformation, these initial premises remain unquestioned. 
Thus, the founding conceptions of the various realms of scientific study—the 
physical, the biological, the chemical, and so on—are not the subject of, but rather 
the presupposition of, scientific research. These presuppositions are not a problem 
for the practice of particular sciences; however, these presuppositions do become a 
problem when the founding assumptions of a general theory of knowledge are 
quarantined from reflection.

The difficulties that are generated by such a refusal to reflect on founding 
assumptions are clearly expressed by Mill’s attempt to develop a system of logic that 
could determine how knowledge may be derived from immediate sense experience. 
The problem with Mill’s approach is that he must assume a great deal before he is 
able to take derivation from distinct sensations as a criterion of legitimate 
knowledge. Mill inherits his ontological scheme from Locke’s philosophy in which 
our clear and distinct impressions are produced by the operations of bodies upon our 
senses. This ontology is rendered unjustifiable by an epistemology that regards all 
legitimate knowledge as stemming from these very sensory impressions. These two 

elements of empiricism, namely the restriction of knowledge to sensations and the 
claim that these sensations are the result of operations of material bodies acting upon 
us, undermine one another. Whereas Locke was concerned to explicitly argue for 

(Cambridge University Press, Cambridge, 1995). For Mill’s criticisms of Comte see John 

this account of experience in opposition to the rationalism of Descartes and his followers, Mill never questions its validity.

The epistemic architecture of Mill’s *A System of Logic*, first published in 1843, is broadly that of Locke. Thus, he argues in familiar style that there are only two sources of knowledge. The first source consists of our direct intuitions or sensations. Such things as our ‘bodily sensations and mental feelings’ are ‘examples of truths known to us by our immediate consciousness’. Knowledge that has been gained from this source is understood by Mill to be unquestionable, in the sense that it is not possible for us to increase the certainty with which we know such intuitions. On the understanding that ‘What one sees or feels, whether bodily or mentally, one cannot but be sure that one sees or feels’, there cannot be any doubt which would require the application of scientific methods.

In contrast to this first source of knowledge stands the practice of inference. In this case we make judgments that go beyond the scope of our immediate experience. Mill takes general laws of nature and historical truths as examples of knowledge derived from inference. Given that we cannot gain direct intuitions of events that occurred in our absence, or are yet to occur, we must deduce their character from knowledge that we already possess. As Mill takes the substance of immediate experience to be the ‘original premises from which all others are inferred’, it is vital that this experience is itself beyond doubt. If these premises, on which all knowledge is based, could not be absolutely relied upon then all subsequent inferences would remain questionable. However, as our experience is understood to have always showed itself as it is, only in the leap from the immediate and certain data of intuition to knowledge gained from inference is the possibility of error introduced.

*A System of Logic* addresses the problem of how we can move from immediate to inferred knowledge. The book deals with various areas in which this takes place and details the characteristic methods of inference in each case. Thus, the methods of ratiocination and the syllogism are discussed at length with respect to their logical structure and legitimate use. However, it is Books III and VI that are of particular interest here as they deal respectively with the methods of induction in the natural

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sciences and the methods of the moral sciences. I will deal with Mill's thoughts on induction in the natural sciences first.

Mill argues that whether we are attempting to discover general propositions or merely particular ones, our method remains inductive. He states that 'whenever the evidence which we derive from observation of known cases justifies us in drawing an inference respecting even one unknown case, we should on the same evidence be justified in drawing a similar inference with respect to a whole class of cases.'\(^{41}\) Mill employs this notion, that every induction concerning one unknown case must also be capable of being rendered as a general proposition, to support his view that natural science is essentially only an extension of the reasoning of common life. The manner in which children know to avoid a flame when they have once been burned is taken by Mill as an illustration that common life is maintained through the induction of individual unknown cases. Whilst the child does not explicitly formulate a general law it will nevertheless avoid fire each time it is encountered.\(^{42}\) In natural science the attempt is made to transform these limited and particular inductions into universal laws.

For Mill induction consists of 'inferring from some individual instances in which a phenomenon is observed to occur, that it occurs in all instances of a certain class; namely in all which resemble the former, in what are regarded to be the material circumstances.'\(^{43}\) This procedure is understood to underpin not only our scientific endeavours but also our everyday survival. There is, however, a grave difficulty with respect to how this procedure is to be justified. Mill himself discusses this problem at length. The issue in question is that if we draw conclusions regarding the nature of as yet unknown events upon the evidence of similar events we have observed, then we must assume that the course of nature is regular. This is not to say that the events of nature are constantly repeating themselves; rather, I mean that every phenomenon is preceded by a certain combination of objects and events. Thus, whenever such a combination arises we can be sure that the phenomenon in question will also arise.

This relationship can be described as the 'Law of Causation' provided that we recognize that Mill follows Hume in his conception of causation. If so, then it

\(^{41}\) Mill, A System of Logic, p186.  
\(^{42}\) Mill, A System of Logic, pp122-123.  
\(^{43}\) Mill, A System of Logic, p200.
becomes clear that Mill’s difficulty concerning the legitimacy of induction is in fact a modification of the problem of the separation of real and nominal essences. Mill’s *A System of Logic* is motivated by essentially the same aim as that of Locke’s *Essay*, namely, the delimitation of what we can legitimately know and the operations by which we may come to this knowledge. With respect to our knowledge of external objects, Mill subscribes to the doctrine that we can know only nominal essences or qualities, just as Locke and Hume had done.\(^{44}\)

However, these tenets of British empiricism clash with the status that Mill ascribes to scientific knowledge. The assumption that nature is in fact regular, despite the fact that all we have experience of is the regular conjunction of our simple ideas, amounts to the assumption of a universal and necessary connection or ‘causality’ amongst natural objects. Thus, the metaphysics that is concealed in Mill’s understanding of a ‘fact’ rules out the possibility that scientific knowledge could have as its object the necessary connections in nature. As Hume had already observed, such necessity is not to be found in our ‘experience’ of natural change.

Mill is reduced to the argument that the method of induction should be accepted because our experience justifies us in making *the assumption* that nature is in fact regular. Thus, Mill accepts that upon his own view of experience, the method of induction can only be justified through an *inductive* judgement. That the entirety of nature is in fact regular, and that it exhibits natural laws, is a judgment that we make only after having examined our more limited experiences.\(^{45}\) As this overarching inductive judgment comes at the end of our more limited inquiries concerning particular regions of nature, Mill poses the question ‘In what sense, then, can a principle, which is so far from being our earliest induction, be regarded as our warrant for all the others?’\(^{46}\) We are left in a position whereby a conclusion must be assumed throughout every investigation by which we are supposed to convince ourselves of its truth. Mill provides an historical account in which one begins with the observation of various simple regularities. Through the gradual expansion of these observations of regularities, we will eventually become convinced of the regularity of nature in general.

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That it is impossible to justify the method of induction through an appeal to the regularity of experience was pointed out by Karl Popper in *The Logic of Scientific Discovery* (1935). With regard to the principle of induction he argues that,

if we try to regard its truth as known from experience, then the very same problems which occasioned its introduction will arise all over again. To justify it, we should have to employ inductive inferences; and to justify these we should have to assume an inductive principle of a higher order; and so on. Thus the attempt to base the principle of induction on experience breaks down, since it must lead to an infinite regress.47

This situation is further complicated in the case of the British empiricists due to their account of experience.

5.

I have so far treated Mill’s comments on induction as an attempt to justify the assumption that the events in nature are necessarily connected. However, it has been suggested that Mill’s discussion of the justification of induction is not intended as a response to Hume’s difficulties concerning necessary connections in nature.48 As Geoffrey Scarre has argued:

To the modern reader, the phrase ‘the justification of induction’ immediately brings to mind Hume’s famous attack on the soundness of inductive reasoning...Yet the refutation of Hume was not an objective of Mill, though he did regard himself in Book III as justifying inductive inference. Indeed, Mill seems not to have grasped what Hume’s problem was, and his chief concern was to explain how inference from particulars to particulars – that standard pattern of valid reasoning – despite its appearance of slightness was really the only form of inference which science either needed to, or could, admit.49

On this account, Mill is merely interested in detailing which inductive inferences are valid and establishing that we are justified in applying the inductive method in fields of which we have no direct experience, and therefore no knowledge of whether they exhibit regularities.

Such a reading of Mill certainly explains the weakness of his justification of induction when read as a response to Hume’s scepticism about necessary connections. Yet, if we accept that Mill not only did not attempt to refute Hume, but

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that he did not even seem ‘to have grasped what Hume’s problem was’, then we are left with an even starker picture of the extent to which Locke’s separation of real and nominal essences undermined the ancient Greek and medieval understanding of scientific knowledge.

As I briefly outlined above, Descartes thought that by establishing that our innate ideas are the imprint of God upon us he would be able to provide a sound foundation for scientific knowledge which, following the Aristotelian tradition, he conceived of as knowledge of what is true, evident and necessary. This argument ultimately turns upon God’s constancy, for if the objects of our knowledge are to exist by necessity and yet be the creations of the free activity of God, then it must be that He could alter this reality but that He would not. Locke’s denial of innate knowledge left him unsure as to the possibility of attaining scientific knowledge at all. If this interpretation of his comments on induction are correct, then Mill, who stands firmly in the tradition of British empiricism begun by Locke, appears no longer to even see the connection between necessity and scientific knowledge.

I will not push this investigation further and ask whether Mill nevertheless assumes that scientific knowledge, arrived at by his inductive methods, is necessary. He certainly thinks that the putative knowledge arrived at by this method is always falsifiable by further experience, yet he does not seem to lack faith in the constancy of our experience. Whatever the answer to this problem, if it is true that Mill is no longer sensitive to the problem of necessity, a problem which was so troubling to Locke and Hume, then his intention that A System of Logic be ‘a textbook of the ‘school of experience’ in opposition to apriorism or neo-Kantianism’, must be considered unfulfilled.\(^5\) It is precisely this problem, of providing a justification of our necessary knowledge, that Kant addressed by resorting to ‘apriorism’. Mill fails to properly confront this in his treatise on induction.

6.

Several important features of Mill’s notion of ‘reality’ are now clear. For Mill, as for his predecessors in the empiricist tradition, we cannot come to know reality as it exists in itself. Thus, the investigation of nature amounts to our investigation of our own sensations which we treat as though they were the product of a causally structured reality, although this can never be directly established by us. The

expressed aim of Locke, Hume and Mill was to establish the limits of what could be legitimately inferred from our sensations. Thus, they establish rules concerning the nature and scope of legitimate inferences from our experience. These investigations are aimed at establishing the unity and coherence of the operations we perform upon the ideas we gain from our inner and outer senses, not at establishing the agreement of our thoughts with reality.

Although I have argued that Mill shares in the fundamental doctrines of Locke and Hume, it appears, on occasion, that he took issue with this tradition on some significant points. In particular Mill disagreed with Locke’s interpretation of truth as a matter of propositions agreeing with our simple ideas which in turn agree with reality. In a discussion of Hobbes’ position on names, Mill argues that ‘It seems proper to consider a word as the name of that which we intend to be understood by it when we use it...’ and that for this reason he will speak of names ‘as the names of things themselves, and not merely of our ideas of things.’\(^{51}\) This appears to be a rejection of Locke’s account of words as the signs of ideas and it is difficult to see how Mill could claim that names refer to things themselves at the same time as he argues that ‘our conception of a body is that of an unknown exciting cause of sensations...’ and that it may ‘safely be laid down as a truth...that, of the outward world, we know nothing, except the sensations we experience from it.’\(^{52}\) This problem is only apparent, however, and it can be resolved once it is noted that Mill in fact refers to our sensations as ‘things themselves’. He argues:

> When I say, “the sun is the cause of day,” I do not mean that my idea of the sun causes or excites in me the idea of day: or in other words that thinking of the sun makes me think of day. I mean that a certain physical fact, which is called the sun’s presence (and which, in the ultimate analysis, resolves itself into sensations, not ideas) causes another physical fact, which is called day.\(^{53}\)

The difficulty arises because Mill has taken Locke’s reduction of the scope of knowledge to our ideas so much to heart that he thinks a physical fact can be ‘resolved into sensations’. As for the causes of these sensations, Mill maintains that it is of no importance to logic whether such noumena exist or what their character may be.\(^{54}\) Thus, Mill upholds the idea that we only have access to our sensations, whilst maintaining that the nature of what lies beyond our sensations is of no


importance to the conduct of logic. Initially this appears to be true given that logic, as Mill conceived of it, addresses only inferences based upon experience, not the origin of this experience. However, as I have just demonstrated, the problem of induction hinges upon the issue of the regularity of nature and as such, contrary to Mill’s assertions, the nature and existence of these ‘unknown exciting causes of sensation’ becomes a central problem for logic.

7.
I turn now to Mill’s program for the reformation of the ‘moral’ sciences. He employs this term, ‘moral sciences’, to refer to those investigations which deal with the ‘laws of Mind’ and ‘those of society’. He also uses the term ‘science of human nature’ interchangeably with ‘moral sciences’ and describes the object of these sciences as the ‘...thoughts, feelings, and actions of human beings...’ ‘Moral science’ is therefore a rather broad term for which we have no modern equivalent as it includes the studies of the laws of the mind, human nature, society, political economy, and history.

Given his identification of knowledge that has been derived from experience by means of the inductive method with knowledge as such, it is no surprise to find that in his System of Logic Mill calls for a reformation of the moral sciences in order that they can incorporate this inductive methodology. He states that only the sciences of man remain ‘abandoned to the uncertainties of vague and popular discussion.’ For Mill, the sciences of natural phenomena provide the paradigm of scientific knowledge as they have reached a mature stage in which their method has become secure. By comparison, the sciences of man and society are characterized by mere speculation.

The new moral sciences that are proposed by Mill are to be modelled upon the successful natural sciences. However, he argues that this modelling can only be achieved up to a point as the moral sciences do not lend themselves to the exactness that can be attained in other fields. He argues that ‘even if our science of human nature were theoretically perfect, that is, if we could calculate any character as we

55 Mill discusses various doctrines concerning the nature of noumena, their existence, and our knowledge of them in his Examination of Sir William Hamilton’s Philosophy, (Longmans, Green and Co., London, 1865).
56 Mill, A System of Logic, p546.
57 Mill, A System of Logic, p554.
58 Mill, A System of Logic, p545.
calculate the orbit of any planet, *from given data;* still, as the data are never all given, nor ever precisely alike in different cases, we could neither make positive predictions, nor lay down universal propositions.  

In the study of social and political phenomena it is enough that we are able to arrive at *approximate* truths, provided that these approximate truths can be deduced from the laws of nature. Thus, 'in order to give a genuinely scientific character to the study, it is indispensable that these approximate generalizations, which in themselves would amount only to the lowest kind of empirical laws, should be connected deductively with the laws of nature from which they result—should be resolved into the properties of the causes on which the phenomena depend.'

Mill sees the difficulties presented by the study of psychological, social, and political phenomena. Exact prediction within the sciences of human nature is an impossibility because of the complexity of the phenomena that are under examination. As every person possesses an individual character and no social situation is ever quite alike, it is impossible to precisely determine what the consequences of a given situation might be. Thus, even in the work of this positivist thinker, there is a recognition that the individuality of both characters and situations presents great difficulties to science. If individuality of people and social situations is not to be overlooked, it seems impossible that such phenomena may give rise to general laws.

In the case of the natural sciences we understand that only certain aspects of an object are relevant to a scientific inquiry. We must separate those aspects of a situation that are relevant to the determination of subsequent phenomena from those that are not. Different aspects of the same object become relevant in different sciences. Thus, such matters as location and velocity are of interest in physical studies but not in chemical studies. In every case, the individuality of phenomena is disregarded except as it shows itself in the relevant aspect. If objects are to become evidence of a general law, or are to be deduced from a general law in the reverse case, then they must be considered as members of the *same* order of objects. No two objects are precisely the same, however, through abstracting from their particularities and viewing them under one of their aspects, we can consider them as subject to the same laws. Although no two objects are the same we can consider them *in so far as* they are physical, chemical, or biological objects. It is thereby possible both to

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discover the laws that the objects of each realm follow and to employ each object as evidence for such general laws.

The difficulty in trying to apply this approach to the science of man is that it cannot provide a method of investigating individuality. The logic of the 'moral sciences' as Mill proposed them, follows that of the natural sciences. They can thereby only investigate a man, a society, or an historical event, in terms of the general laws that govern humanity, societies, and historical development. Due to the complexity of these phenomena, these sciences can never be exact. However, the fact that general laws can be discovered, and that these laws provide us with relatively accurate predictions, remains the mark of scientific validity for Mill. Indeed, the sciences that he proposed have been largely established. We are familiar with forms of psychological and sociological inquiry which rely heavily upon statistics in order to deal with the complexities of mental and social phenomena. Mill in fact cites statistics as the method whereby the regularities of history are revealed. The fact that the murder rate is found to change little from year to year, and that 'the same thing is found true of suicides, accidents, and all other social phenomena of which the registration is sufficiently perfect', is taken as proof that the course of history is governed by general laws.  

It is true that, through the use of statistics, we can reveal general trends such as these. In Mill's scheme, the seemingly chance events of history are revealed to follow general laws provided we examine a large enough sample. The complexities of mental and social phenomena preclude us from understanding individual events. We can only see the trends that groups of events manifest. Just as the number of times a coin lands on heads will be roughly equal to the times it lands on tails if it is tossed enough times, the 'increasing preponderance of the collective agency of the species over all minor causes is constantly bringing the general evolution of the race into something which deviates less from a certain and preappointed track. Historical science, therefore, is always becoming more possible.' History conceived in this way can only be studied in general as trends cannot be revealed by a single instance.

The problem with this approach, to anticipate the objections made against Mill by the Southwest German neo-Kantians and Dilthey, is that it simply reduces history to nature. Yet they are distinct fields with different characteristics. Nature, as it is

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understood in the modern tradition, is simply the realm of physical objects whose motions and interactions follow rules which can be calculated mathematically. There is no purpose or intention in the movements of this vast mechanical system, at least none which is discernable to our finite intellect. History is, in contrast to nature, constituted precisely by purposive human activities. The statistical sciences that Mill hoped would come into being through the reformation of the moral sciences seem inadequate to this realm of history. It is certainly true that human beings are partly natural beings, and that in physiological and even some psychological matters they can be studied using natural scientific methods. However, in so far as human beings are capable of acting, with varying degrees of self-awareness, they must be understood by different means.

This difficulty regarding the fitness of general laws as a means of understanding historical events points to the limitations of Mill’s understanding of scientific knowledge. He essentially admits only one legitimate method by which it is possible to derive scientific knowledge from experience, which he in turn views simply as an accumulation of sensations. Thus, there is no basis for a distinction between the ‘moral’ sciences and the natural sciences, either in terms of the method of these sciences or in terms of the nature of their objects. Mill certainly sees that the study of human objects presents particular difficulties, yet he does not think that these difficulties are grave enough to warrant reconsidering his account of a unified inductive logic as the foundation of all scientific knowledge. The thought that historical science in particular relied upon a different logical structure to that of the natural sciences was developed by the philosophical tradition that Mill most vehemently opposed, namely neo-Kantianism.

8. Having examined Mill’s positivist approach to the moral sciences and its foundation in the empiricism of Locke, I turn now to a tradition that more directly influenced the development of Heidegger’s thought, namely the neo-Kantianism of Wilhelm Windelband and Heinrich Rickert. These two philosophers were the leading figures in the ‘Southwest German’ school of neo-Kantianism, also referred to as the ‘Baden’ or ‘Heidelberg’ school. It has been suggested by R. Lanier Anderson that this Southwest school, along with the ‘Marburg’ school which included such thinkers as Hermann Cohen, Paul Natorp, and Ernst Cassirer, ‘have a claim to be counted as orthodox adherents of neo-Kantianism because of their common commitments to anti-psychologistic readings of both the normative force and the a priori status of
Chapter One

philosophical principles for Kant." Whether this is a legitimate means of determining orthodoxy from non-orthodox neo-Kantianism is beyond the scope this discussion. Indeed the history of neo-Kantianism is notoriously complex due partly to the vagueness of the term itself, and partly to the intricacies of German academic politics. Lewis White Beck provides an outline of these difficulties in the opening passages of his article on neo-Kantianism in *The Encyclopaedia of Philosophy*. He writes there:

Neo-Kantianism is a term used to designate a group of somewhat similar movements that prevailed in Germany between 1870 and 1920 but had little in common beyond a strong reaction against irrationalism and speculative naturalism and a conviction that philosophy could be a “science” only if it returned to the method and spirit of Kant.

Of the politics of this movement he writes:

Neo-Kantianism grew out of the peculiar social—cultural situation of German science and philosophy, and in turn it constituted a new academic situation with many characteristics of a long intellectual fad... Doctrines were known by the names of the universities where they originated; men entered and left the movement as if it were a church or political party; members of one school blocked the appointments and promotions of members of the others...

With this vexed history in mind, I will abstain from any attempt to adjudicate on the matter of orthodoxy amongst the various neo-Kantian schools. However, I do intend to take up Anderson’s suggestion that Windelband and Rickert, along with the Marburg neo-Kantians (whom I will not discuss here), were concerned with defending an ‘anti-psychologistic’ foundation for philosophical principles.

This ‘anti-psychologism’ stems from the nature of Kant’s attempt to provide a new foundation for *necessary* scientific knowledge. It is of particular interest here because it brings to a head the issue of whether the ancient ideal of theoretical knowledge can survive once we have surrendered the idea that the order of being is directly intelligible to us. Whereas Mill seemed either not to have realised, or not to have been troubled by, the fact that he was unable to provide a foundation for this

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ideal of natural scientific knowledge, Kant resolutely tried to achieve just that. The
Kantian solution to this problem is, however, burdened with its own difficulties.
Kant must establish that the categories by which the subject synthesises the raw
matter of experience can be considered the categories that should be employed,
rather than the categories that it simply happens to employ. Should this initial
difficulty be overcome, there is the further matter that Kant secures our knowledge of
appearances rather than of being itself, a problem which he shares with the
empiricists.

The aim of this section is to trace these characteristics of Kantian philosophy and to
examine how they influence the attempts by Windelband and Rickert to provide an a
priori logic of the human sciences. The difficulties that this project faces are
symptomatic of the contradiction between the essentially un-historical conception of
knowledge that survived in the neo-Kantian tradition, and the historical existence of
humanity.

9.
Kant writes in his Prolegomena that, since the inception of metaphysics, ‘no event
has occurred which could have been more decisive in respect of the fate of this
science than the attack which David Hume made on it.’65 He refers here to Hume’s
argument that we have no grounds upon which to base our idea of a necessary
connection between cause and effect. Kant sees that this argument is relevant not
only to our idea of causality, but to all metaphysical knowledge. He describes
Hume’s argument as a challenge to reason,

who pretends to have conceived this concept [necessary connection] in her womb, to
give an account of herself and say with what right she thinks: that anything can be of
such a nature, that if it is posited, something else must thereby also be posited
necessarily; for that is what the concept of cause says. He [Hume] proved
irrefutably: that it is wholly impossible for reason to think such a conjunction a
priori and out of concepts. For this conjunction contains necessity; but it is quite
impossible to see how, because something is, something else must also necessarily
be, and how therefore the concept of such an a priori connection can be introduced.
From this he inferred that Reason completely deceives herself with this concept, in
falsely taking it for her own child, whereas it is nothing but the bastard of the
imagination fathered by experience.66

65 Immanuel Kant, Prolegomena to any Future Metaphysics, trans. Peter G. Lucas, (Manchester
66 Kant, Prolegomena, p6.
Kant accepts Hume's arguments that it is neither possible to deduce necessary connections in nature simply from concepts, nor possible to find any evidence of such necessity in experience. Indeed, he thinks this argument places the entirety of our metaphysical knowledge in need of justification due to the fact that it is *a priori*, universal, and necessary.

Yet Kant does not follow Hume in asserting that the *necessity* of our metaphysical knowledge is merely a *subjective* necessity, founded in the regularity of experience, to which we unthinkingly and without justification give *objective* status. Rather he thinks this conclusion is 'hasty and incorrect'. Apart from the ambiguities of Hume's actual account, which seems to include two different definitions of causality, the entire thrust of his psychological account is aimed at explaining away the notion of necessary connection. Thus, as I said above, he argues that what we naively take to be necessities of nature itself, are merely a product of the habitual and involuntary movement of the human mind. This strategy would not be so objectionable were it not for the fact that it relies, in its mechanistic account of human psychology, upon the very necessary causal connections it argues cannot be found in nature.

Rather than follow Hume's sceptical conclusions, Kant was sufficiently impressed by the successes of the new mathematical sciences of nature that he did not question the legitimacy, or possibility, of the model of science as necessary knowledge, rather he took it as an established fact that only needed to be provided with a philosophical foundation.\(^{67}\) Thus, he took it that the recently developed physics *in fact* contained knowledge that was both universal and necessary, and which was therefore *a priori*, or not produced by experience. Beginning from this position, he states that, 'The real problem of pure reason is now contained in the question: How are synthetic judgements *a priori* possible?'\(^{68}\) Kant distinguishes between 'analytic' and

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\(^{67}\) It is important to note the extent to which the successful development of 'modern' physical sciences changed the nature of philosophical reflection. M. B. Foster puts this point well, '...the relation of philosophy to science varied according to the degree of development which the latter had achieved at the time. By the later centuries of the modern era the sciences of nature had become so firmly established that they formed a datum from which philosophical speculation could start. This does not of course mean that the philosopher dogmatically accepted the truth of any scientific hypothesis. He assumed only that a science of nature was possible (because it was actual), enquired into the presuppositions of its possibility, and tested his conclusions by their compatibility with it. This procedure is what Kant first named the Critical Method...'. See M. B. Foster, 'The Christian Doctrine of Creation and the Rise of Modern Natural Science', *Mind*, 43, (1934), p447.

‘synthetic’ judgements. Analytic judgments are those in which ‘the predicate B belongs to the subject A as something that is (covertly) contained in this concept A;’ whilst in synthetic judgements ‘B lies entirely outside the concept A, though to be sure it stands in connection with it.’ He goes on to argue that analytic and synthetic judgements can be called ‘clarifying’ and ‘amplifying’ respectively. This is because the predicate in the analytic judgement merely brings out what was inexplicit in the subject, whilst in a synthetic judgement we ‘add to the concept of the subject a predicate that was not thought in it at all, and could not have been extracted from it through analysis.’

This division allows Kant to clarify which judgements he considers are in need of philosophical justification. Analytic judgments are all a priori, however, this is not a problem because ‘I do not need to go beyond my concept at all in order to formulate the judgement, and therefore need no testimony from experience for that.’ The case of synthetic judgements is more complex. Some synthetic judgements have their foundation in experience and are therefore only contingent, rather than necessary. Kant provides the judgement ‘All bodies are heavy’ as an example of such an a posteriori synthetic judgement. The concept of ‘weight’ is not analytically contained in that of ‘body’, yet they ‘nevertheless belong together, though only contingently, as parts of a whole, namely experience, which is itself a synthetic combination of intuitions.’ Kant’s difficulty is with judgments that are both synthetic and a priori, for they seem to extend our knowledge beyond mere concepts, yet they have no warrant from experience, and can have none because they are supposed to be universally and necessarily valid. He thinks that mathematics and natural science do contain such judgements as their principles, the classic example of such knowledge being the principle of causality discussed above.

Kant’s critical project is then to reflect on the foundations of the synthetic a priori knowledge that is contained in the mathematical and natural sciences, and from this to clarify the limits to which metaphysics can be extended as a science rather than as an exercise in ungrounded speculation. This project is ‘critical’ because it involves the self-examination of reason itself. Kant writes of the science he hopes to establish through a critique of reason,

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...this science cannot be terribly extensive, for it does not deal with objects of reason, whose multiplicity is infinite, but merely with itself, with problems that spring entirely from its own womb, and that are not set before it by the nature of things that are distinct from it but through its own nature; so that, once it has become completely familiar with its own capacity in regard to the objects that may come before it in experience, then it must become easy to determine, completely and securely, the domain and the bounds of its attempted use beyond all bounds of experience.\footnote{Kant, \emph{Critique of Pure Reason}, B23.}

10. Kant’s solution to the question ‘How are synthetic \emph{a priori} judgements possible?’ is inseparable from the problem of delimiting the sphere of objects to which reason can rightly apply itself. His answer to the first question is that the mass of sensory experience we receive, which in itself seems to be merely contingent as Hume had claimed, is provided with an order and structure by the operations of the judging subject. This takes place in two stages, firstly the ‘matter’ of appearances is provided with the ‘forms’ of space and time. Secondly, these objects which are ordered by space and time are further determined through the ‘categories’ of the understanding, which includes such concepts as possibility, necessity, existence, cause and effect, substance and accident, and so on. Thus, by ordering the ‘manifold of sensations’ with these various categories we are able to produce a unified experience.

The details of how Kant arrives at these categories is far too complex to consider here, although it is worth noting that they are designed to be comprehensive enough to account for the mathematical and natural scientific knowledge that he took to contain incontestable examples of synthetic \emph{a priori} knowledge. The more relevant issue is that Kant introduces \emph{two} sources of knowledge. He writes that:

\begin{quote}
Our cognition arises from two fundamental sources in the mind, the first of which is the reception of representations (the receptivity of impressions), the second the faculty for cognizing an object by means of these representations (spontaneity of concepts); through the former an object is given to us, through the latter it is thought in relation to that representation (as a mere determination of the mind). Intuition and concepts therefore constitute the elements of all our cognition, so that neither concepts without intuition corresponding to them in some way nor intuition without concepts can yield a cognition.\footnote{Kant, \emph{Critique of Pure Reason}, A50/B74.}
\end{quote}
Thus, our knowledge of objects depends upon our receptivity to phenomena and our ability to structure this experience according to the forms of intuition and the concepts of the understanding. Working backwards from what he took to be the necessary and universal knowledge contained in the natural and mathematical sciences, Kant comes to the conclusion that these necessary elements are derived from the structuring activity of the mind. In this way he provides a necessary structure within which appearances can be known.

However, Kant only provides this necessary framework by restricting our knowledge to appearances. What is known in Kant’s account of knowledge, the object of knowledge, is appearances. As he states:

> Appearances are the only objects that can be given to us immediately, and that in them which is immediately related to the object is called intuition. However, these appearances are not things in themselves, but themselves only representations, which in turn have their object, which therefore cannot be further intuited by us, and that may therefore be called the non-empirical, i.e., transcendental object = X.\(^{73}\)

This is the point at which Kant’s attempt to justify our claim to universal and necessary knowledge coincides with his ‘transcendental idealism,’ that is his insistence that we cannot go beyond the conditions of our own experience and attain knowledge of things in themselves. Anderson summarises this point well when he writes of Kant’s strategy:

> Kant returns to his insistence on idealism at the close of many of the arguments of the Transcendental Analytic. His claim in these passages is that the valid applicability he has shown for the category in question, and therefore genuine knowledge using that category, is possible only because the objects of knowledge are appearances. That is, the objects are just the ‘fillings in’ by empirical details of a priori valid schemata for synthesis. Therefore, the conditions placed on the proper representation of objects by the normative rules of synthesis are at the same time conditions on the things to be known.\(^{74}\)

This is the crux of Kant’s position. He claims that we have necessary and universal knowledge of nature and that this is to be found in the principles of physics and mathematics. As this necessary knowledge cannot arise from experience, it must

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74 R. Lanier Anderson, ‘Synthesis, Cognitive Normativity, and the Meaning of Kant’s Question, ‘How are synthetic cognitions a priori possible?’’, *European Journal of Philosophy*, 9, (2001), p294. In this article Anderson provides a detailed discussion of the nature in which Kant envisioned the synthesis of *a priori* knowledge with appearances, a matter which I have not addressed here due to its complexity.
arise from the necessary structures of cognition. However, if this knowledge is to be considered objectively valid, it must be assumed that the objects in question are only objects insofar as they appear to us. The resulting division of appearances and things in themselves, however formal this division may be, appears to renounce the possibility of us coming to know being itself. Yet it was the vision of being itself as necessary and therefore unchanging which initially brought about the idea that scientific knowledge should itself have these characteristics. Kant’s argument, putting aside questions about its plausibility, secures the necessity of scientific knowledge whilst it renounces any knowledge of being itself.

11.

Having seen something of the strategy Kant employs in order to provide a foundation for necessary scientific knowledge, it is possible to understand why the problem of ‘psychologism’ was so central to neo-Kantian philosophy in the latter part of the nineteenth century. This is of particular interest because it provides the framework in which Windelband and Rickert approach the problem of developing a logic for the human sciences and the source of their concept of ‘validity’.

The problem of ‘psychologism’, which essentially consists of the claim that logical laws are founded on laws of psychology, stems from the ambiguity of Kant’s account of mental synthesis. On the one hand Kant clearly intends his logical categories, by which we bring unity to the manifold of sensory experience, to be free of any foundation in psychology. He writes of this logic, ‘As pure logic it has no empirical principles, thus it draws nothing from psychology (as one has occasionally been persuaded), which therefore has no influence at all on the canon of the understanding. It is a proven doctrine, and everything in it must be completely a priori.’ Yet Kant also thinks that the process by which we come to know objects involves mental acts of synthesis. Thus there is some basis for thinking that the logical laws by which this synthesis is carried out are in fact psychological laws. These two different ways of reading Kant mark a deep division amongst neo-Kantian philosophers. The Marburg and Southwest schools of neo-Kantianism both held to an anti-psychologistic reading of Kant in opposition to such thinkers as F. A. Lange.

There have been two basic lines of argument by which the validity of psychologism has been denied. These strands of argument have different emphases yet they are

75 Kant, Critique of Pure Reason, A54/B78.
closely related. The first is concerned to uphold the objectivity of logical laws and proceeds by asserting that logical laws have their own reality which is not dependent upon the contingent psychological structures of knowing subjects. Thus, logic is not a matter of how reasoning minds actually conduct themselves, but is rather concerned with a realm of abstract objects which possesses its own reality. This response to psychologism, was developed by Frege and Husserl. The second response is that logical laws are normative laws. This means that they are binding on any thought which aims to achieve knowledge, regardless of whether they are actually followed. Hermann Cohen's interpretation of Kant, outlined in his *Kants Theorie der Erfahrung* of 1871, developed this second line of attack upon psychological readings of Kant's transcendental philosophy. His critique is focused upon how we should understand the 'a priori' in Kant, and is well summarised by Anderson in the following passage:

Kant claims that various structures (space, time, the categories) are a priori preconditions of the possibility of experience, and he locates these in the transcendental mind. For the psychological reader, this may look like a claim about the innateness of these structures, and such an interpretation invites a Lange-style extension of Kant's thought by means of attempts to discover the innate mental structures through empirical psychology. But according to Cohen, treating the Kantian forms of experience as mental 'organs' that cause transformations of the incoming data of sense fundamentally misreads Kant's notion of apriority. Close to the heart of Kant's complaint against empiricism was a charge that it offered only a theory of the natural laws of cognition - what Kant calls a 'physiology of the understanding'. Whatever such accounts might show about the way our concepts emerge in fact, they leave untouched Kant's main question viz., with what right we can use them to produce justified, objective cognitions...For Cohen's Kant, the transcendental forms that structure our experience are 'not psychological categories, but rather epistemological conditions of the possibility of experience'.

Cohen's argument forms the foundation for an anti-psychological reading of Kant which focused upon this question of the justification or validity of knowledge. Windelband and Rickert also pursued this line of argument. These two lines of attack on psychologism are often brought together. Thus, the independent reality of the logical realm is often taken as an explanation of the normativity of logical rules, and logical normativity is sometimes thought to imply such an independent logical realm. However, my aim in discussing Kant's critical philosophy was to provide a framework within which to discuss the attempts made by the Southwest neo-

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76 Anderson, 'Neo-Kantianism and the Roots of Anti-Psychologism', pp299-300.
Kantians to extend Kant's account of the transcendental foundations of natural scientific knowledge into the realm of the human sciences. I turn now to this issue.

12.

The discussion of history and the other 'human' sciences amongst German philosophers towards the close of the nineteenth century was conducted in light of the fact that such learning was already well established in German academia. Thus, more so than Mill, German philosophers were confronted with the achievements of established humanistic disciplines. Thus, it was not possible for them simply to dismiss such scholarship as 'unscientific'. The fact of such human 'sciences' brought the question of how science should be defined into prominence. Anderson summarises the difficulty for German philosophers of the period in this way:

On the one hand, humanistic learning was prominent in the German intellectual landscape, both because of nineteenth-century scholarly achievements, and because of the central place of classical languages and literatures in gymnasium education. Work in the Geisteswissenschaften thus served as an example of intellectual rigour for students and scholars alike, and it was standard to see humanistic learning as exemplary science. On the other hand, the older and more established natural sciences were still paradigms of mature science, and the progress of the natural and human sciences had carried them far apart, both in their methods and in the nature of their results. Natural sciences subjected phenomena to relatively simple quantitative laws, which permitted improvements in precision and confirmation of theory by controlled experiment. By contrast, the Geisteswissenschaften in Germany were dominated by the 'Historical School', whose highest accomplishments rested on sensitive historical interpretations of unique and valuable cultural achievements.77

The difficulty was that the methods of the natural sciences were considered paradigmatic for well established sciences, yet these methods were not followed in the humanistic disciplines. Thus the question was, what were the methods of the humanistic sciences, and insofar as they differed from those of the natural sciences, could they be considered legitimate?

Much of the debate concerning the humanistic disciplines centred upon the role of psychology. Both Wilhelm Dilthey and Wilhelm Wundt considered the development of psychology as fundamental to the Geisteswissenschaften although they differed greatly in their conception of psychology. I will address Dilthey's concept of psychology in the next chapter and devote the remainder of this chapter to a review of the Southwest neo-Kantian contribution to this debate. In opposition to the

positivism of Mill and his German followers, and to the emphasis on psychology in
the work of Dilthey and Wundt, these neo-Kantians sought to provide a
transcendental logic for the human sciences. In doing this they attempted to maintain
a rigorously anti-psychologistic account of this logic.

Wilhelm Windelband is perhaps best known now for his works on the history of
philosophy. However, he also developed several ideas regarding knowledge and the
division of the human and natural sciences which were very influential amongst the
Southwest neo-Kantians. With regard to knowledge, he argued that the most
fundamental problems of epistemology are in fact problems of ‘validity’. His other
well known idea was that the customary division of the sciences in to the
Geisteswissenschaften and the Naturwissenschaften was ambiguous because it did
not take into account the distinct logical ‘aims’ of each discipline. I will begin by
outlining Windelband’s ‘logical’ division of the sciences.

The understanding that the sciences could be divided into two realms on the basis of
the ontological difference of their respective objects was one of Windelband’s targets
in his Rectorial Address of 1894. He argues there that we are in need of a new
means of classifying the sciences. The inadequacy of this substantive division is
illustrated by the case of psychology. Using such a division means that ‘psychology
cannot be classified unambiguously either as a natural science or as a science of the
mind.’ The reason for this lack of clarity lies in the fact that whilst psychology is a
science of the mind, insofar as its object is the human mind, it proceeds in a manner
that is, in terms of methodology, indistinguishable from the natural sciences. He
states that it is for this reason that psychology has been referred to as the ‘natural
science of the mind’. Thus, Windelband’s complaint concerning a substantive
definition of the sciences is that such a definition tells us nothing about the method of
the science itself.

Windelband goes on to argue that, ‘At present, a certain classification of the
disciplines which attempt to establish knowledge of reality is regularly employed.
They are distinguished into natural sciences [Naturwissenschaften] and sciences of
the mind [Geisteswissenschaften]. Stated in this particular form I regard the

78 Wilhelm Windelband, ‘History and Natural Science’, trans Guy Oakes, History and Theory, 19,
(1980).
dichotomy as unfortunate. Nature and mind is a substantive dichotomy. He claims that this means of separating the sciences has dominated recent philosophy as it has been maintained from 'Descartes and Spinoza to Schelling and Hegel'. Hans-Georg Gadamer has pointed out that the term Geisteswissenschaften was made popular in Germany by the translator of J. S. Mill's Logic. Here the term is employed as a translation of Mill's term 'The Moral Sciences'. Having already examined what Mill meant by the term we can understand what its German rendering denoted. Mill understood the 'moral sciences' as the sciences of the thoughts, feelings, and actions of human beings. This included the study of the laws of mind, human nature, society, political economy, and history. It should be clear from this list that both the terms 'moral sciences' and 'Geisteswissenschaften' have no obvious equivalent in modern English. The slightly ungainly character of substitute terms such as 'human sciences' or 'historical sciences' should be understood in this light. It should also be noted that the notion of 'Wissenschaft' is a broader term than 'science'. Whilst the English term 'science' is often used simply to mean the physical sciences, or investigations that employ their exact methods, 'Wissenschaft' retains a broader meaning. It is true that the English term is sometimes used in a broader sense, for instance in 'Political Science'. Nevertheless, the narrower sense of 'science' appears to be more common. In German, any branch of systematic scholarship or learning can be described as 'wissenschaftlich'. In this discussion of the concept of an 'historical science' or a 'human science', I employ 'science' in its broader meaning of 'scholarship' or 'branch of learning', which it shares with the German notion of 'Wissenschaft'.

Windelband is dissatisfaction with a substantive division of the sciences, as it is based upon a belief that there can be only one scientific method. His conviction that the sciences must be divided on the basis of their logical structure is also based upon his Kantian understanding of scientific knowledge. If, as Windelband believes, 'these objects are not given simply as such, but are shaped by the scientific work of the concepts themselves', then we cannot speak of the object independently of the science. In contrast to the substantive division, Windelband proposes that the

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80 Windelband, ‘History and Natural Science’, p173.
82 Mill, A System of Logic, p554.
sciences can be distinguished upon the basis of their aims. In developing this theory he introduces the terms ‘nomological’ and ‘idiographic’ and uses them to distinguish between those sciences that aim at the production of general laws, the ‘nomological’ sciences, and those that aim at the description of a single reality, the ‘idiographic’ sciences.

The reason we are led to describe psychology as the ‘natural science of the mind’ is that it shares its method with the natural sciences. Thus, Windelband states that ‘...both psychology and the natural sciences establish, collect, and analyze facts only from the viewpoint and for the purpose of understanding the general nomological relationship to which these facts are subject.’ Windelband describes the idiographic sciences, which largely coincide with what were previously known as the Geisteswissenschaften, as seeking to provide ‘a complete and exhaustive description of a single more or less extensive process which is located within a unique, temporally defined domain of reality.’ Rather than seeking to understand an event insofar as it is the same as other events and thereby bring it under a general rule, the idiographic sciences attempt to understand events in their individuality. It is the fully historical event which the idiographic science attempts to capture and as such it cannot aim at the development of general laws. It must rather describe the event itself. It is for this reason that the idiographic sciences aim at the ‘singular, assertoric proposition’ whilst the nomological sciences aim at the ‘general, apodictic judgment’.

Just as the natural sciences are characterized by nomological aims, the human sciences are taken up with idiographic aims. However, Windelband does not propose that the division of nomological and idiographic sciences necessarily follows the old division of human and natural sciences. Rather, it is precisely because this mode of defining the sciences does not follow the lines of the old division that it is able to unambiguously characterise the nature of psychology. The earlier division

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was unable to indicate that whilst psychology was a study of mind, it nevertheless employed the methods of the natural sciences. Employing Windelband's schema it is obvious that psychology is a nomological science. Thus, if we wish to assimilate the terms natural and human, or historical, sciences to Windelband's new division of the nomological and idiographic sciences, then we must say that psychology is a natural science.

The important feature of this new mode of definition is that, although it lends legitimacy to the methods of the Geisteswissenschaften by arguing that they possess an independent method of investigating reality, it does not rely upon the accurate description of any existing investigations. Rather, it is a purely logical distinction. We must not understand the terms 'nomological' and 'idiographic' as replacements for the previous categories of Geisteswissenschaft and Naturwissenschaft. As we have noted, these terms are applied to the sciences based upon the object of their investigation. In the case of Windelband's terms, 'nomological' and 'idiographic', these descriptions do not apply to any science in particular. They describe the logical aim of scientific conceptualization, rather than an actual investigation. Indeed, Windelband explicitly states that his 'methodological dichotomy classifies only modes of investigation, not the contents of knowledge itself.'

As a consequence of this it is possible that a single phenomenon may become the object of both nomological and idiographic inquiries. Windelband argues that the fact that the same object can become subject to both modes of inquiry is partly a matter of the scale in which it is viewed. Thus, we can investigate an historical phenomenon that has remained constant for a period of time in a nomothetic fashion. However, if we view the same phenomenon within a broader historical framework, that is we see that it is an individual event that has come into being and passed away, then we can investigate it in an idiographic manner. This leads us to the further point that the two methods must be thoroughly intertwined in many investigations with only the final aim of the investigation determining its character as nomological or idiographic. We can see, for example, that the natural sciences will require idiographic methods in order to precisely determine individual facts in order that they may then be made available as instances of general rules, whilst the Geisteswissenschaften will inevitably make use of general laws in their inquiries of historical processes and events.

87 Windelband, 'History and Natural Science', p175.
Windelband presents his account of the sciences as a development of Kant’s position. As Charles Bambach has argued, we can see Windelband as having ‘applied Kant’s epistemological critique of mathematics to the new science of history and developed a logic of both the \textit{Naturwissenschaften} and the \textit{Geisteswissenschaften}.’\textsuperscript{88} In his \textit{Introduction to Philosophy}, Windelband provides a very basic account of the Kantian critique of ‘naïve realism’. Essentially this position involves the conception of reality as a ‘reality which needs no sort of consciousness for its reality.’\textsuperscript{89} Windelband argues that it was the great innovation of the \textit{Critique of Pure Reason} to have recognized that we can not know reality, or the ‘thing-in-itself’, as it exists outside of consciousness. Thus, the central problem for Windelband, given that ‘the object is not real as such outside the mind, but merely in virtue of the form in which the mind brings together the various parts of its content in a unity’, is ‘under what conditions this synthetic unity of the manifold has the value of knowledge.’\textsuperscript{90} The answer is that we have knowledge only when we think about objects in a manner that belongs to them. Thus, although it is through the unifying action of the subject that reality is produced, this should not be seen as undermining the requirement of thought to direct itself towards its objects.

Windelband supplements Kant’s conception that empirical science is only the study of ‘nature’. He argues: ‘Opposed to this study of nature...are those scientific activities which have to establish and thoroughly study particular realities.’\textsuperscript{91} Given that these studies cannot aim at generalisation, they must be guided by another logical end or value. In the case of these idiographic sciences, the guiding values of the inquiry are ‘the structures of civilized life, which, engendered and perfected in the course of human history, we regard as the historical cosmos as distinguished from the natural.’\textsuperscript{92} Windelband is arguing here that just as the nomological sciences form their objects on the basis of a view of the cosmos as regular and governed by law, the idiographic sciences must form their objects in line with a ruling conception of the cosmos as related to values. Both idiographic and nomological sciences must select their objects from the fullness of reality and in the case of idiographic sciences

\begin{footnotes}
\item[89] Windelband, \textit{Introduction to Philosophy}, p198.
\item[90] Windelband, \textit{Introduction to Philosophy}, p199.
\item[91] Windelband, \textit{Introduction to Philosophy}, p204.
\item[92] Windelband, \textit{Introduction to Philosophy}, p205.
\end{footnotes}
this must take place on the basis of the relevance of the object to the guiding values of human life, whatever they may be. Thus, although all events are historical in the sense that they are in time, only some of them will be seen as significant with regard to these guiding values.

Windelband makes a distinction between unscientific and scientific production of a world of objects. In our unscientific dealings with the world, he states that ‘not only in perception, but also in the opinions that are based thereon, the objects seem to take shape so much of themselves...that they seem to be something foreign, introduced, seen, reproduced and pictured in the soul.’ However, in the production of scientific knowledge ‘the objects are consciously engendered, and therefore deliberately shaped.’ In the case of the objects of the rational sciences, logic and mathematics, Windelband argues that it is clear that they are not derived from experience, even though experience may be the occasion for thinking about such objects. Our knowledge depends upon the pre-structuring of the object as a mathematical or logical object. The knowledge that is derived from these rational sciences is independent from any ‘correspondence’ to an object in reality (in the naïve realist sense). Rather the basis of knowledge in these sciences is the manner in which the objects are conceived. Thus, it is not through empirical examples that we learn about the mathematical properties of triangles, but rather by attending to the original concept of a triangle.

Although they are not derived from experience, the rational sciences provide us with an understanding of the nature of reality. Both mathematics and logic, according to Windelband, give us an account of the forms of reality. By this it is meant that reality always agrees with the laws of mathematics and logic. However, in saying this we must recognize that our conclusions are restricted to the form of reality and that we are unable to derive the content of reality from these formal laws. This is simply a point concerning the difference between logical possibility and actuality. Although we may know the necessary structure of reality, this does not tell us anything about the state of reality itself. These logical forms are hypothetical in that they only tell us that if there is a real object, then it must agree with the laws of logic and mathematics. Whether there is in fact a real object or not cannot be determined from this formal knowledge. Windelband argues that, ‘A description of the present state of the universe follows from the general laws of nature only if the immediately

preceding state is presupposed. 94 This is simply a restatement of Kant’s thought that it is the conceptual form of knowledge that is necessary, not its empirical content.

Windelband emphasizes the finitude of human knowledge. He understands science as based upon a process of selecting from ‘the immeasurable richness of reality.’ 95 This is true in the sense that given our limited existence and powers of perception, it is simply impossible to comprehend all aspects of reality. Thus, there must be a process of deliberate selection through which the sciences obtain their objects. Windelband contends that this is done in the sciences of reality with a logical purpose in mind. First, there are the nomological sciences in which objects are placed under general laws. These nomological investigations coincide with what Kant understood as the investigation of nature. Kant states: ‘By nature (in the empirical sense) we understand the combination of appearances as regards their existence, in accordance with necessary rules, i.e., according to laws.’ 96 Thus the logical aim or value that rules in the study of ‘nature’ in this Kantian sense is generalisation. Second, there are the idiographic sciences which aim at the production of a complete picture of an individual reality. Windelband takes history as an example of this sort of science as it seeks to understand individual realities within a cosmos which is governed not by universal laws, but by the progression of values.

14.

Windelband understands his account as a logical exercise and one which does not seek to alter the actual sciences in any way. Thus, ‘The task of the logician is simply to define the general form of specific methods which have proven to be successful and, following this, to determine the significance, the cognitive value, and the limits of these methods.’ 97 Philosophy thereby concerns itself only with the forms of knowledge which are manifested by the sciences. Thus, although we can say that Windelband understands the project of philosophy to be the development of an understanding of the methodology of the sciences, once again we must emphasise that this is true only if we understand methodology in a formal logical sense. Methodology is for him the manner in which the sciences approach their objects with a guiding understanding of the cosmos already in mind. The particular

95 Windelband, Introduction to Philosophy, p204.
96 Kant, Critique of Pure Reason, A216/B263.
manipulations and operations of any *actual* scientific investigation are of no importance in such an understanding of methodology. It is rather the *forms* of knowledge and their *validity* that is of interest to Windelband in his transcendental inquiry.

This returns us to Windelband’s contention that epistemological problems are essentially problems of *validity*. This point is founded upon Kant’s understanding of knowledge as a *product* of the synthetic activity of the mind. Windelband takes this to mean that knowledge is essentially an activity, that is, it is the result of our unifying the infinite manifold of experience under categories that we take to be valid for such production. Indeed, Kant likens his rethinking of the nature of knowledge in general to that Copernican revolution in natural science in which it was ‘comprehended that reason has insight only into what it itself produces according to its own design; that it must take the lead with principles for its judgements according to constant laws and compel nature to answer its questions, rather than letting nature guide its movements by keeping reason, as it were in leading strings…’.

As I have already shown, the central difficulty of this revision of our understanding of knowledge lies in providing a justification for the validity of the principles that are employed in this process of unification. Windelband maintained an anti-psychological interpretation of logical laws, both for idiographic and nomological sciences. He writes:

> ...this philosophical idea of validity always points beyond the process of knowledge in empirical subjects. The validity of truth is independent of all behaviour of fallible and evolving subjects. A mathematical truth was valid long before anybody conceived it, and it is valid even if an individual erroneously refuses his assent to it. For this reason the meaning of validity-in-itself has become one of the main problems of modern logic.  

On this point, Windelband made little headway. Indeed, he seems to have confused the matter by trying to maintain the distinction between normative rules of judgements and simple psychological laws, whilst arguing that Kant was wrong to have so strictly separated the realms of freedom and nature. The details of Windelband’s defence of an anti-psychological account of logical validity are not of

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98 Kant, *Critique of Pure Reason*, Bxiii.
great interest here. However, what is of interest is his account of historical reality as a progression of values. By this he means that the categories which are taken to be valid by a society, and in terms of which an historical age understands itself, change over time. This presents an obvious difficulty for Windelband’s claim that historical science differs from the natural science only in that it has a different logical ‘aim’. If historical science is to attain the necessity and universality of the natural sciences, the categories by which it produces objective knowledge must themselves be necessary and universal. That is to say, the categories by which the historian constitutes the historical ‘cosmos’ must be valid for all of human history. Unlike the realm of nature, the laws of which are said to be unchanging, the objects of history are unique developments of human culture. What these generally valid categories of historical judgement might be, or how we might come to know them given our own historical position, are difficulties that Windelband never resolved.

15.
Heinrich Rickert goes much further than Windelband in attempting to develop a rigorous transcendental logic of the human sciences. There are two elements of his work that are of particular interest here: his determination of reality as the limit of concept formation; and his account of ‘value’.

The notion that reality forms the limit of concept formation is based upon the idea that reality is itself irrational. Rickert argues that reality is irrational because it is both extensively and intensively infinite. By this he means that reality cannot be fully comprehended through the formation of concepts. Thus, ‘Every empirical science proceeds from immediately experienced reality in its concrete actuality and individuality, and every empirical science must single out what is essential from reality. In other words, it must destroy the immediacy of reality.’ By ‘extensively infinite’ Rickert means that there is no sense in which we can come to know the totality of reality. From our perspective as human beings reality is without spatial and temporal limits and as such we cannot find its end.

The notion of ‘intensive infinity’ indicates the fact that each segment of reality, no matter how well it is sealed off from its relationships with the rest of reality, remains

100 For more thorough discussions of this see Anderson, ‘Neo Kantianism and the Roots of Anti-Psychologism’, pp314-316, and Bambach, Heidegger, Dilthey and the Crisis of Historicism, pp58-81.
infinitely complex. There is no sense in which one can arrive at a basic element of reality which cannot be further analysed in its various constitutive aspects. Rickert argues that this is true not merely of physical objects but also of mental phenomena. Although we may content ourselves with knowledge of only certain important or relevant aspects of reality, this does not mean that reality itself is restricted to these particular determinations.

Thus, for Rickert, reality is understood as an infinitely extended series of infinitely complex events. Furthermore, as he understands knowledge to arise only in the form of the judgement, the correspondence theory of truth becomes an impossibility for Rickert. As all concepts address reality only in its relevant aspect, they are unable to produce a true copy of reality. The fact that knowledge is possible only in the form of a judgement means that knowledge can never consist in a complete representation of reality. As Rickert states the problem: ‘Knowledge of nature can only undertake an analysis and transformation of empirical reality. That is because the totality of this reality simply cannot be pictured: The attempt to provide an exact reproduction of what has no limits is an absurd enterprise.’

Rickert agrees with Windelband that the natural sciences are ruled by the value of generalisation. The procedure of the generalising sciences is to eliminate as much specific information as possible from its concepts. In order to move from a collection of observations concerning particular historical events, the information that is specific to these observations must be eliminated. Once this has been achieved, then we will arrive at a judgement that is valid in general but which can tell us nothing about the nature of any real cases. It is the essence of nomological concept formation that everything that anchors the general judgement to particular existing instances must be removed. This process leaves us with a hypothetical judgement which is valid in general but which can tell us nothing about reality as it exists.

It seems problematic to claim that the general concepts of natural science tell us nothing about reality given that we are able to predict the course of reality by

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102 Rickert, *Limits of Concept Formation*, p43.
employing them. This claim is meant only in a certain sense. We have seen that Rickert believes that ‘What fixes the limits of natural scientific concept formation, and which the natural sciences can never surmount, is nothing but unique empirical reality itself, just as we directly experience it in sense perception, in its concrete actuality and individuality.’ It is this individuality of empirical reality as we experience it which sets the limit of nomological, and as we shall see idiographic, concept formation. Thus, a general concept cannot tell us about reality itself because reality can never be fully captured in concepts. General concepts can certainly tell us about reality conceived as nature, that is as governed by general laws, but Rickert contends that this is not reality as we find it in experience. Our ability to calculate the course of nature in advance is dependent upon the fact that nature is composed of instances that can be brought within the scope of general laws. It is not the complete and unique reality that we calculate in advance, rather it is the object seen only with reference to its subsumption under a general law.

This is a slightly different point from that made by Windelband with respect to our ability to predict the future course of events. Windelband made the point that we cannot simply derive reality from general laws due to their hypothetical nature. We must presuppose a state of reality in order to predict what will occur after it. It is a great mistake to confuse these laws with reality itself for there remains an insurmountable leap between hypothetical laws and the brute fact of reality. Rickert’s point is different in that it concentrates upon the inability of concepts to capture the fullness of reality. Although he would probably agree with Windelband’s point, the issue here is that nomological science does not in fact deal with complete reality but only with an aspect of it. Taking these two points together we can say that science does not deal with reality in its fullness and that its predictions therefore do not tell us how events truly unfold. Rather we see only that aspects of reality conform to general laws in their development.

16.

We have seen that, according to Rickert, ‘The empirical perception of reality cannot be represented by any science, because it remains infinitely diverse under all conditions.’ The issue now is Rickert’s understanding of the relation of the historical or idiographic sciences to this empirical reality. As he states, ‘The problem

103 Rickert, Limits of Concept Formation, p40.
104 Rickert, Limits of Concept Formation, p78.
of concept formation in history, therefore, is whether a scientific analysis and reduction of perceptual reality is possible that does not at the same time—as in the concepts of natural science—forfeit individuality. Is it possible that we are able to form scientific concepts that present objects not in their similarity with other objects but in their uniqueness? As discussed earlier, to achieve this by a simple description of reality is impossible. Rather, the simplification of reality must be guided by an ideal of individuality rather than that of generality.

Rickert spends some time outlining the ideal of individuality that is dominant in the idiographic sciences. His famous example involves a contrast between a lump of coal and the Koh-i-noor diamond. He argues that both the lump of coal and the diamond are individuals, however, they are individuals of a different order. Both the diamond and the lump of coal are individuals in the sense that they are simply one diamond, or one lump of coal, and that they are each different from every other diamond and piece of coal. Thus, if we take individual to mean unique then both the coal and the diamond are unique. However, in terms of their indivisibility, it is clear that the diamond and the coal are of a different order. Whilst it is certainly possible that both can be divided, in the case of the diamond we recognise that this should not occur. One piece of coal can always be replaced with another and as such there is no significance or value attached to the individual piece of coal. Were we to split one piece of coal nothing would be lost as pieces of coal are not significant in their individuality. In the case of the diamond the opposite is true. If we were to split the diamond something would be lost as the significance of the diamond is attached to its irreplacability. We are interested in coal only in a general sense, whilst we are interested in the Koh-i-noor diamond as an individual. Or, as Rickert puts this point, 'The meaning possessed by the diamond rests on the value attached to its irreplaceable uniqueness. The diamond should not be split because it is valuable.'

In this example Rickert is attempting to formulate a notion of the historical individual that would allow him to distinguish between events that are 'historical' in the sense that they have simply occurred, and events that are 'historical' in the sense that they are significant for us. Although every individual part of reality gains a place in time, it is only certain individualities that we are willing to call historical. He argues that this differentiation can be maintained if we recognise that there are

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105 Rickert, Limits of Concept Formation, p78.
106 Rickert, Limits of Concept Formation, p84.
two orders of individuals: those that are related to values and those that are not. It is this relationship to values that renders the unity of the individual important. Thus, ‘We take note of uniqueness and have occasion to become explicitly aware of it only when they are related to a value and thereby become indivisibly unified in their uniqueness’. \(^{107}\) Although all realities are individuals in a broad sense, only certain objects qualify as *historical individuals* through their relationship to values. Thus, for Rickert, when we compare the personalities of the average person with that of Goethe, it is clear that ‘Goethe is related to such a person as the Koh-i-noor diamond is related to a lump of coal.’ \(^{108}\) With reference to general values the ordinary person could be replaced by any other person, whilst the significance of Goethe lies in his irreplaceability.

17.

The question is then, what does Rickert mean by a ‘relationship to values’ and ‘general values’? He recognises a prescientific relationship with reality in which we are constantly valuing and reacting to values. Thus, at the centre of Rickert’s account is a *valuing* person which provides the ‘primordial conception of reality, which is prior to every science’. In the course of acting and achieving our ends, various aspects of reality will stand out as essential for us. In some cases we are interested in objects only in so far as they are instances of general concepts. In other cases it is precisely the uniqueness of an object that is essential. Thus, ‘for the real person, therefore – who is always a person who wills, values, and takes positions – reality conceived...as in part generalizing and in part individualizing, actually becomes reality simpliciter.’ \(^{109}\) For Rickert, reality as it is experienced by the living person is itself constituted by valuations and selections.

This leads us to the same problem that developed in Windelband’s account of historical science, namely how the necessity of historical values is to be secured. How can a *science* of history be based upon the peculiar valuations of individuals? Will not this science become an account of the various inclinations of the historian and his subjects? In response to this problem Rickert makes two important points regarding the manner in which historical science must avoid becoming arbitrary in its selection of objects. His first concern lies in demonstrating how historical science avoids becoming meaningless through the obscurity of its objects. If the origin of

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\(^{107}\) Rickert, *Limits of Concept Formation*, p86.

\(^{108}\) Rickert, *Limits of Concept Formation*, p89.

\(^{109}\) Rickert, *Limits of Concept Formation*, p86.
valuations is the real person then how are we to overcome the fact that the significance of objects differs wildly from person to person? What is of great significance to one person may be of no interest to another. Rickert’s solution to this problem lies in distinguishing what can be recognised as valid for everyone, from that which is of only personal significance. He contends that ‘the value with reference to which objects become historical individuals must be a general value: in other words, a value that is valid for everyone.’

Having said this, Rickert does not want historical science to be understood as taking part in the process of valuing and willing that occurs in practical existence. He argues that the historian in so far as he is a scientist does not participate in this process of valuing. He must consider reality from the perspective of values, however, he does not himself participate in the act of valuing or willing. Rickert’s point depends upon his distinction between positive and negative valuations and the relationship of an object to values. The point here is that it can be generally agreed that an event is significant without there being a decision regarding what this significance consists in. Thus, in the case of Martin Luther, ‘it can never occur to a historian to claim that Luther’s personality is historically unimportant’. However, there is certainly great scope for disagreement as to the nature of this significance. Whether Luther’s actions were a good or a bad influence upon German history remains a matter of great controversy.

One of the abiding ambiguities of the philosophy of Rickert and Windelband is their confusing use of the term ‘value’. They both distinguish between what we can call ‘evaluation’, or the process of determining the positive or negative worth of something, and values themselves. The first notion, that of ‘evaluation’, is restricted to determining the worthiness or importance of an object, whilst the second notion includes those concepts that are held to be significant or important. Thus, ideas of truth and beauty and freedom are encompassed under this second notion. This distinction is vital if we are not to be confused by the notions ‘a value’ and ‘to value’, or in German ‘ein Wert’ and ‘werten’. Although Rickert insists on this separation, it is far from clear that these two senses of ‘value’ can be distinguished in historical studies.

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110 Rickert, Limits of Concept Formation, p89.
This separation of valuation and significance implies a common conception of reality. The contours of this historical reality are defined by the generally valid values. This underlying historical reality in fact allows, according to Rickert, controversy over the positive or negative value of historical events. Indeed, it is upon the basis of an agreement over what constitutes a significant event that such a controversy can first arise. Rickert is arguing here that 'the claim that every object that falls within the domain of history must be related to a value only articulates in logically useful terms the quite trivial truth that everything history represents is interesting, characteristic, important, or significant.' 111 In so far as it is essentially reliant upon these generally valid values, historical science is in fact involved with generalities. However, these generalities are not its logical aim, as is the case with natural science; rather they provide the framework within which the selection of significant individualities can take place.

18.

I come finally to Rickert's account of how values in general stand in relation to science. In the preceding discussion I focused upon the issue of how values govern the concept formation of the historical sciences. Thus, historical science must be guided in its selection of historical individuals by general values. However, this does not include an account of how the natural sciences are also bound up with values. Indeed it is Rickert's position, following Windelband, that all science is founded upon these 'meta-empirical' values.

In the case of natural science this seems incongruous given that, as we have seen above, it is part of the procedure of natural science to ignore the value relevance of its objects. Indeed, as Rickert states, 'The essence of natural science...requires abstraction, even abstraction from the theoretical relation of objects to values.' 112 Thus, the positive and negative valuations that are made in everyday existence are purposefully overlooked in natural scientific considerations. Although this is true, it is also the case that natural science cannot do entirely without values. The very ideals of nomological science through which this expunging of values is carried out, can themselves only be understood as values. The forms of every science must themselves be valued by the existing subject. The forms of science, both natural and historical, must be pursued and thereby considered worthwhile. There is no case in

111 Rickert, Limits of Concept Formation, p97.
112 Rickert, Limits of Concept Formation, p218.
which science can become completely free of values. The most fundamental of these commitments is to ‘truth’ itself. Rickert writes:

A “fact” is relevant for science only insofar as it is known, that is, insofar as the judgement, which as a fact it states, can be considered true. Consider, however, the idea that what is called “true” is what has theoretical value for the cognitive subject. On no account is this idea to be detached from the concept of a true judgement. So the statement of every fact in a judgement that makes a claim to truth already implies as a necessary presupposition the commitment to the value of truth and its recognition by the cognitive subject. 113

Although their objects differ, both the historical and natural sciences are dependent upon a meta-empirical or an a priori element. Both sciences are reliant upon an original conception of their field of objects in order that these objects may be constituted from the infinity of reality. Given this, Rickert argues that natural science is in fact a more restricted version of the historical a priori. He states that ‘The most general presupposition on which an objective conception of the world in historical science is based includes even fewer metaempirical elements than the presuppositions of natural science.’ Indeed the only presupposition that is required by the historical scientist is that there are some absolutely valid values, which may be completely unknown to him.’ This presupposition is necessary for a science of history as it must be assumed that the attitudes of actual people more or less approximate these assumed absolutely valid values. Although we are not in a position to know what absolutely valid values there are, it must be assumed that the course of history is significant in that it is related to these absolute values. Given that science relies upon these absolute values, it is dependant upon this conception of historical reality. The more specific values involved in the pursuit of nomological science cannot be conceived unless we have previously recognised the relation of reality to these absolute values. Thus, ‘...history can be pursued without making the metaempirical assumptions of natural science; but without the metaempirical assumptions of history, natural science loses its meaning. This is because every natural scientist has implicitly set the unique historical development of natural science in relation to a value that is absolutely valid.’ 114

113 Rickert, Limits of Concept Formation, p219.
114 Rickert, Limits of Concept Formation, p225.
19.

Anderson provides an excellent summary of the difficulties that are raised by the value theories of the Southwest school of neo-Kantianism. He argues, rightly I believe, that:

In the end, then, the value theories at the centre of the system of philosophy for the Southwest neo-Kantians fail to resolve the basic philosophical problems about the transcendental status of a priori norms. In Rickert as in Windelband, it is very tempting to conclude that, metaphysically speaking, transcendental norms would simply have to be Platonic ideal objects, of just the sort that the Kantian critique of transcendent metaphysics rendered problematic. Moreover none of the attempts by Southwest neo-Kantians to account for our access to such norms succeed to offer a plausible epistemology, capable of explaining how we grasp the a priori transcendental norms in such a way as to render rational our rich, fully articulated normative judgements.\(^{115}\)

The fundamental problem for Rickert and Windelband was that they began with the same atomistic understanding of experience as the British empiricists, and indeed Kant himself. The empiricists were unable to resort to the concept of *a priori* knowledge in order to generate necessary and universal scientific knowledge from our merely contingent sensory experiences. Kant resorted to *a priori* knowledge as a means of overcoming this problem and he was followed by Rickert and Windelband, although they disagreed with Kant’s account of the details of our *a priori* knowledge. By restricting the range of our knowledge to appearances, rather than being itself, Kant and his followers managed to circumscribe a realm in which we could achieve necessary and universal knowledge of nature. This has been an unhappy compromise to many philosophers, perhaps most famously to Hegel, as it seems to sacrifice the very essence of scientific and philosophical knowledge as this had been pursued since the time of Plato and Aristotle. Nevertheless it did appear to provide a means by which philosophy could account for the *fact* of science.

Thus, the Southwest neo-Kantians conceived of philosophy as a ‘science of knowledge’ whose function was not metaphysical speculation, nor interference in the actual course of scientific research, but a critical reflection on the fact of scientific knowledge. They proceeded from an anti-psychological reading of Kant and attempted to determine what *a priori* logical apparatus was required in order to produce not merely natural scientific knowledge, but also knowledge of humanity, in particular psychology and history. However, the extension of Kant’s critique of

\(^{115}\) Anderson, ‘Neo-Kantianism and the Roots of Anti-Psychologism’, p318.
natural scientific knowledge to include historical and psychological science only
serves to emphasise an inherent problem in Kant’s account of knowledge. This
difficulty arises from the fact that Kant simultaneously describes knowledge as a
product of the synthesising activity of the judging subject, and holds that the
principles of this synthesis are necessarily valid.

Windelband and Rickert, in their attempts to provide a transcendental logic for
historical science, bring this problem to a head. There are three elements to this
problem. First, Windelband and Rickert adopt Kant’s view that all scientific
knowledge is a product of the cognitive activity of existing subjects. The subject
must select objects from the infinite manifold of sensory experience and bring order
to them by the application of objectively valid categories of judgement. Second, they
recognise that the everyday, practical existence of the human subject consists of the
same process of judging, evaluating, and selecting from sensory experience, although
this is not done with the same explicit attention as in scientific research. Third, they
think that the changes and developments of the categories, in which the existing
subject understands its own activities, form the material of historical science.

The question is then, what status do the categories of historical science have? If
Rickert and Windelband are to maintain that our knowledge of history is ‘scientific’
in the sense that it is necessary, universal and true, then they must establish that the
categories or ‘values’ by which the historical cosmos is constituted are themselves
necessary and universal. The difficulty is that they have acknowledged that science
is merely a careful and self-aware form of producing knowledge from contingent
experience, and that the categories by which this takes place, have developed through
time. Thus, there is a contradiction between the ahistorical status that is claimed for
historical science, and the historical development of its objects, namely the self­
understanding of human beings. Yet the scientist is himself a human being and
therefore subject to the same historical conditions as the objects of his study. How
can the historically situated scientist assure himself that the categories by which he
produces historical knowledge are not themselves contingent? He must be able
somehow to immediately recognise them as valid for judging not only his own
actions, but those of humanity in all of its ages and cultures. Rickert and
Windelband’s appeal to ‘generally valid values’, and indeed their strongly anti­
psychological reading of what Kant means by a priori knowledge, is designed to
address this problem. Yet they were never able to successfully progress much past
this simple appeal to provide an account of what these values might actually be, or
describe how we might come to know them. Rickert and Windelband maintained that the proper categories by which an age should be judged are not those of the age itself, nor those of the historian, but categories which are universally valid. However, leaving aside the question of how these universal categories could be recognised, there is a further difficulty, namely in what sense can these categories be considered objectively valid if they are not those in which people understood their own activities. If we are to truly understand an historical achievement, it seems important that we understand the values according to which it was carried out.

Thus, following Kant's 'Copernican Revolution' the Southwest neo-Kantians attempted to ground the necessity of science in the human mind. However, their attempt to expand 'science' to include history undermines this initial strategy because it recognises the contingency of human self understanding. History, by virtue of the fact that it involves a reflexive examination by humanity of its own development, unsettles the ancient conception of science as the attainment of a 'divine' perspective on being. Windelband and Rickert sought to restrict history to a theoretical object, yet this view ultimately proved untenable because both the subject and object of historical knowledge are historical. What it means to say that human being is itself 'historical', and the effect such a claim has on our understanding of science, are matters that were more self-consciously addressed by Wilhelm Dilthey. His attempts to clarify the historical nature of man are the subject of the next chapter.

Although these controversies over the foundations and status of scientific knowledge initially appear far removed from Heidegger's critique of technology, they are in fact of central importance to my project for two reasons. Firstly because this critique of technology is essentially concerned with the manner in which modern philosophers secured scientific knowledge within the human mind. As I argued at the beginning of this chapter, it is possible to see the spur for this distinctively modern project in Locke's separation of real and nominal essences. Although there was certainly widespread scepticism about the extent of human knowledge prior to Locke's Essay, it is only in that work that a decisive ontological break is made with the medieval period. By distinguishing between real and nominal essences and arguing that we only have access to the latter, Locke was forced to find a new foundation for scientific knowledge. Heidegger argues in his critique of technology that Descartes marks the beginning of the modern period. However, I believe this is not correct because Descartes remains committed to the idea that we can know the real form of
natural objects and that the being of objects consists in their being the creatures of God. I will return to this issue in my fifth chapter.

The second reason I pursued this sketch in such detail is that it demonstrates the profound effect Locke's particularist ontology had on subsequent philosophy. As I have already demonstrated with regard to Mill, Kant, and the Southwest neo-Kantians, this particularism produced a distorted understanding of experience which made it extremely difficult to account not only for the validity of scientific knowledge, but also for everyday human interaction with the world. Both Dilthey and Heidegger saw that this concept of experience produced an impossibly 'theoretical' vision of human existence. Their attempts to overcome this doctrine form the subject matter of the next two chapters. Thus, the preceding discussion provides a background for my interpretation of both Heidegger's Being and Time, and his later critique of technology.
Chapter 2
Dilthey’s Critique of Positivism and Neo-Kantianism

In this chapter I will address both Wilhelm Dilthey’s critique of Kantian philosophy and Heidegger’s appropriation of his insights. This is the final element of my exposition of modern attempts to provide a foundation for scientific knowledge within the human subject. This sketch serves the purpose of illustrating the understanding of subjectivity that Heidegger criticises both in Being and Time and in his later critique of technology. Of course his focus changes between these two periods. In Being and Time he is concerned to undermine the ‘theoreticist’ assumptions that had blocked the way to an accurate account of human existence, whilst in his later work he is more concerned with the ontological foundations of modern science. As I will argue in this chapter and the next, the work of Dilthey and Heidegger makes clear that human subjectivity cannot serve as a foundation for universal and necessary scientific knowledge due to the fact that it is essentially historical and worldly. These early arguments are the means by which Heidegger distances himself from the tradition he criticises in his later works on technology.

Dilthey is best known for his attempts to develop a philosophical foundation of, and a hermeneutic method for, the human sciences. In particular he was focused upon the science of history. However, the manner in which he went about this task involved him in a radical critique of the two philosophical traditions that I discussed in the previous chapter, namely positivism and neo-Kantianism. I demonstrated that these two traditions shared a common ground in Locke’s empiricism. Although Windelband and Rickert differ from Mill over both the possibility of a priori knowledge and the logic of the human sciences, all three philosophers were concerned with establishing how scientific knowledge can be legitimately produced from simple sensory experience. Yet none of these thinkers set about questioning the
most fundamental element of their Lockian inheritance; they all retained the idea that sensory experience, prior to its combination and organisation by the mind, is originally atomistic and particular. Dilthey, on the other hand, questions whether this abstract opposition of a pure subject and pure sensory experience can provide a legitimate foundation for the sciences. Thus, although Dilthey retains this epistemological orientation and is vitally concerned with the foundations of the sciences, he differs from both positivists and neo-Kantians in that he questions the assumptions upon which the modern philosophical tradition had, for the most part, proceeded.

Heidegger is right, therefore, when he comments in *The History of the Concept of Time* that Dilthey,

...saw that the task of understanding the historical disciplines philosophically can succeed only if we reflect upon the object, the reality which is the actual theme in these sciences, and manage to lay open the basic structure of this reality, which he called *life*. It was in this way, from this positively novel and independently formulated task, that he came to the necessity of a *psychology, a science of consciousness*. But this was not to be a psychology fashioned after a natural science nor one invested with an epistemological task. Its task is rather to regard ‘life’ itself in its structures, as the basic reality of history. The decisive element in Dilthey’s inquiry is not the theory of the sciences of history but the tendency to bring the reality of the historical into view and to make clear from this the manner and possibility of its interpretation.\(^\text{116}\)

Dilthey’s interest in providing a foundation and method for historical science is inseparable from his attempt to describe the structure of ‘life’. This is because he recognised that the presuppositions that are made about the objects of historical science, the past actions of human beings, must also be valid for the historian, for the historian is also an existing human being. In the sense that both the knower and the known are human beings, historical understanding is reflexive. Thus, any reflection upon the methods of historical science must draw upon the historian’s understanding of their own being. As Bambach put it: ‘Dilthey’s study of Schleiermacher made it apparent to him that the practical problems of historical research are always tied to the theoretical problems of philosophical critique; both are mutually determinative.’\(^\text{117}\) This is why Dilthey’s attempts to develop a hermeneutic method for historical science are inseparable from his reflections on the structure of ‘life’.

\(^{116}\) Heidegger, *HCT*, p17.
\(^{117}\) Bambach, *Heidegger, Dilthey, and the Crisis of Historicism*, p133.
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Dilthey provides the third element in my examination of the fraught issue of 'history' in the philosophical context from which Heidegger developed the arguments of Being and Time. Heidegger's reaction to the tension between Dilthey and the Southwest neo-Kantians concerning the nature of history, understood both as a science and as a feature of human existence, provides the framework for my interpretation of his account of theory and practice in Being and Time. This in turn will serve as a context for my interpretation of his critique of technology. With this end in mind, I will divide this chapter in two and devote the first section to a brief outline of Dilthey's position and its difference from the transcendental philosophy of the Southwest neo-Kantians. The second section will be dedicated to a discussion of Heidegger's appropriation of Dilthey's work and the significance this relationship holds for interpreting Being and Time.

The task of describing Dilthey's philosophy is not an easy one for his career was long, his interests were many and diverse, and his thought underwent constant revisions and restatements. As such, my account of his work will provide only a very limited sketch. Nevertheless, his thought is unified by its aim, namely the hope of finding a middle path between positivism and idealism in order to expose the relationship between theory and practice, thought and life. Dilthey hoped to achieve these two tasks through an examination of 'life' as it is lived rather than how it is abstractly conceived of in empiricist and idealist theories of judgment. As both Michael Ermath and Charles Bambach have argued, this project is best seen as a response to the sense of crisis that was pervasive among German intellectuals from the second half of the nineteenth century onwards.\footnote{See chapters one and four of Bambach, Heidegger, Dilthey, and the Crisis of Historicism, and chapter one of Michael Ermath, Wilhelm Dilthey: The Critique of Historical Reason, (The University of Chicago Press, Chicago, 1978).} Ermath writes that:

Dilthey's thought cannot be understood apart from this context of prolonged, even endemic, crisis. The period through which he lived was marked by controversy and upheaval in almost all levels and sectors of existence. In none was the agitation more radical and far-reaching than in the realm of ideas. He lived through the Hegelstreit, Religionsstreit, Materialismusstreit, Darwinismusstreit, Pessimismusstreit, and the Methodenstreit; it was, as one observer noted in retrospect, "an endlessly strife-racked age." The sense of crisis was all the more acute for the fact that it reached down to the very foundations of thinking and knowledge. Although the symptoms of crisis were often lodged in abstruse terms and intricate arguments, it was far from being a merely academic matter. The very
nature of reason and knowledge were at stake and, with them, the prospects of a
civilization increasingly shaped by their imperatives.\textsuperscript{119}

Thus, Dilthey felt that although humanity had achieved an unprecedented dominance
over nature through the development of the modern natural sciences, the nature and
purpose of human existence itself remained unclear. He argued that the development
of both the natural and human sciences had contributed in different ways to this
impasse. He writes of this difficulty:

\begin{quote}
But when, today, we ask what is the final goal of action for the individual or for
mankind, the deep contradiction which pervades our time emerges. We face the
enigma of the origins of things, the value of our existence, the ultimate value of our
actions, no wiser than a Greek in the Ionian or Italian colonies or an Arab at the time
of Averroës. Today we are even more at a loss for an answer to this question than
any earlier period. For (1) the sciences have progressively dissolved the
presuppositions which lay at the foundations of the religious faith and philosophic
convictions of former centuries. The reality experienced by our senses has proved to
be merely the appearance of something unknown. (2) The greatest achievement of
philosophy in the last century, the analysis of consciousness and knowledge, has
itself contributed most effectively to this destruction. ... (3) Historical comparison
reveals the relativity of all historical convictions. They are conditioned by climate,
race and circumstance. ... From this dissonance between the sovereignty of
scientific thought and the inability of the spirit to understand itself and its
significance in the universe springs the final and most characteristic feature in the
spirit of the present age and its philosophy.\textsuperscript{120}
\end{quote}

Dilthey’s thought is directed towards healing this rift in modern society by
developing a fundamental science of ‘life’. He came to call this science
\textit{beschreibende Psychologie} or ‘descriptive psychology’ in order to distinguish it
from established sciences of the human mind. In doing this he believed he could
provide a secure foundation for the human sciences, such as history, theology,
economics, political science, and philology, and thereby provide a means by which
‘spirit’ could come to understand itself. As Heidegger stated in the quote above,
Dilthey did not conceive of descriptive psychology along natural scientific lines.
Nevertheless, he was criticized for his alleged ‘psychologism’ by Husserl and the
Southwest neo-Kantians. As I have already outlined the neo-Kantian objection to
psychologism, I will distinguish Dilthey’s position from that of Windelband and
Rickert by determining the justice of this charge. In order to do this I will focus

\textsuperscript{119} Ermath, \textit{Wilhelm Dilthey}, p16.
upon four points: Dilthey’s appropriation of Kant; the demarcation of the realms of the human and natural sciences; his account of *Verstehen* or understanding as a distinct scientific method; and his account of the structure of consciousness.

1.

Dilthey summarises his attitude towards ‘epistemological philosophy’, both empiricist and Kantian, in a famous passage from the preface to his *Introduction to the Human Sciences (Einleitung in die Geisteswissenschaften)* of 1883:

> Although I found myself frequently in agreement with the epistemological school of Locke, Hume, and Kant, I nevertheless found it necessary to conceive differently the nexus of facts of consciousness which we together recognise as the basis of philosophy. Apart from a few beginnings, such as those of Herder and Wilhelm von Humbolt, which were not scientifically developed, previous epistemology—Kant’s as well as that of the empiricists—has explained experience and cognition in terms of facts that are merely representational. No real blood flows in the veins of the knowing subject constructed by Locke, Hume, and Kant, but rather the diluted extract of reason as a mere activity of thought. A historical as well as psychological approach to whole human beings led me to explain even knowledge and its concepts (such as the external world, time, substance, and cause) in terms of the manifold powers of a being that wills, feels, and thinks…

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This passage illustrates the complexity of Dilthey’s relationship with the epistemological tradition stretching back to Locke. On the one hand he remains committed to the spirit of this epistemological standpoint in general and to Kant’s reduction of knowledge to appearances in particular. Yet on the other hand he sets about undermining the very understanding of experience and knowledge which this tradition both developed and relied upon.

According to Dilthey, the achievement of this epistemological tradition lies in its recognition of the fact that all knowledge is subject to the conditions of consciousness. This is because all science is dependent upon experience and all experience occurs ‘within’ consciousness. Thus: ‘Only in inner experience, in the facts of consciousness, have I found a firm anchor for my thinking’.122 Dilthey often employs the term ‘inner experience’, despite the fact that it is highly misleading. He does not mean by this that somehow all knowledge arises from the examination of the self. As I will demonstrate shortly, he thinks that distinctions between self and world, or between history and nature, must occur *within* the original context of

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consciousness. Dilthey is simply saying that we must consistently recognise the ‘impossibility of going behind these conditions. To attempt this would be like seeing without eyes or directing the gaze of knowledge behind one’s own eye.’

However, this acknowledgement that experience is limited by the conditions of consciousness is stripped of many of the doctrines that had accompanied its development. As I have already mentioned, Dilthey attempts to overcome the atomistic account of experience that Locke, Hume, Mill, and Kant, had all employed. He also denies the possibility of arriving at any a priori knowledge, a matter I will turn to shortly. Perhaps the only significant element of this tradition that Dilthey maintains is its claim that we cannot directly experience the essences of natural beings. This argument is crucial to his distinction of the ‘human’ and ‘natural’ realms. Thus, from the ‘epistemological’ standpoint ‘our conception of the whole of nature proves to be a mere shadow cast by a hidden reality; by contrast, only in the facts of consciousness given in inner experience do we possess reality as it is.’

This account of nature harks back to Locke’s crucial argument that we cannot discern the real essences of natural objects, merely the impressions they leave upon our senses.

2.
As I described in the previous chapter, Kant’s attempt to turn reason upon itself in order to determine with what right it could claim to have necessary knowledge of nature led to controversy among his interpreters over the nature of his a priori logic. Windelband and Rickert, along with the Baden neo-Kantians, argued that Kant’s a priori logic should not be taken as a psychological, that is a natural scientific, account of the innate structures of the mind. This is because Kant was not concerned with establishing a ‘physiology of the understanding’, meaning a natural science of the mind. Rather, he intended to determine how, in general, such natural scientific investigations could lay claim to necessary knowledge. Thus, the a priori logic that he develops is not intended to be an empirical description of the categories which the understanding happens to employ in the natural sciences. It is rather an account of the right or validity with which these categories are used to judge nature.

This is, I believe, a more accurate interpretation of Kant’s intentions, as opposed to those who thought his a priori logic was meant as a psychological account of the

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123 Dilthey, Introduction, p50.
124 Dilthey, Introduction, p50.
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innate structures of the mind. Dilthey understood this point well, however, he thought that it was simply not possible to completely separate a theory of knowledge from all psychological foundations. He writes that the Kantian school,

claims absolute independence of epistemology from psychology. It alleges that Kant’s critique of reason has in principle emancipated the theory of knowledge from psychology by giving it a particular method. It is this method which this school wants to develop. The future of epistemology appears to depend on it.

But it is evidently impossible to connect the spiritual data which form the matter of epistemology without relying on some idea or other of the psychic nexus. Absolutely no magical trick of a transcendental method can make possible what is in itself impossible. Utterly no legerdemain of the Kantian school can be of any help here. 125

Kant believed that in order to provide an apodictic foundation for scientific knowledge the inquiry into the validity of knowledge must proceed independently of all experience. However, Dilthey points out that even such ‘transcendental’ reflection upon knowledge itself, despite its greater level of abstraction, is an empirical matter. Kant’s great failing, according to Dilthey, was that he did not proceed from an examination of the nature of consciousness, but rather began with a series of abstractions and from this basis derived the transcendental forms that were necessary to account for mathematics and natural scientific knowledge. As Ermath explains:

Dilthey, in contrast [to Kant], insisted that “knowledge of knowledge,” for all its second-order claims of superior jurisdiction, is itself an empirical inquiry and that it too must rely upon an extended concept of experience for its “proof”. Kant was correct in positing the primacy of consciousness, but wrong to take an abstract and formal approach to his own discovery. The knowledge which we have (including the knowledge of mind itself) is not the result of a deduction of transcendent forms, but the distilled product of man’s cumulative experience. The proper critical approach to consciousness is not only empirical but historical, for knowledge is developmental in character. 126

In this way Dilthey attacks the validity of one of Kant’s most important distinctions, namely that between the ‘matter’ and ‘form’ of experience. He believes that this absolute distinction is founded upon the faculty psychology which Kant uncritically adopts. Thus, ‘The classification theory of the faculties during the time of Kant resulted in the drastic separations...of his critique of reason. This can clearly be seen

126 Ermath, _Wilhelm Dilthey_, p151.
as regards the separation between intuition and logical thought, as well as between the matter and form of knowledge.' 127 Such separations arise not from an observation of experience itself, but from the empiricist psychological theories. Dilthey argues that, if we examine the nature of experience itself, we find that form and matter are inseparable. Even if we conceive of a Kantian ‘manifold of sensations’, it is impossible to remove all ‘form’, all distinctions and relationships, from this ‘manifold’. Indeed, even ‘distinct’ sense impressions presuppose a unifying consciousness in which they can be set apart and known as distinct.

3.
Thus, although Dilthey often aligned himself with the ‘critical spirit’ of Kant’s philosophy, his approach constitutes a fundamental breach with his transcendental strategy. He argued that Kant’s investigation of the transcendental a priori was an attempt to recombine what should not have been considered separate in the first place. This is the case not simply with his separation of the form and content of knowledge, but also in the entire methodology of transcendental reflection. Because Kant seeks an absolute foundation for necessary scientific knowledge, he attempts to judge the validity of our knowledge from a position beyond, or outside, experience itself. The difficulty with this approach is that it illegitimately and artificially separates the transcendental level of reflection from the experience that is being reflected on. Rational self-reflection can only attain a relative distance from its object, precisely because this object is itself. Although Kant claims that we can hold the categories in one hand and the matter of sensory experience in the other for the purposes of reflecting upon the validity of applying the one to the other, he necessarily assumes the validity of this secondary, transcendental, knowledge in the process.

Kant’s attempt to separate the forms of consciousness as such from all empirical contents is, of course, central to his attempt to salvage the necessity of scientific knowledge. Indeed his project repeats, in a modified form, the ancient Greek ambition of attaining a completely theoretical view of beings. Although Kant renounces the possibility of attaining such a vision of the natural objects through his distinction of ‘appearances’ and ‘things in themselves’, he nevertheless attempts to find an absolutely detached point from which to observe the realm of experience. If such an enterprise were possible, then Kant could discover the necessary structures

127 Dilthey, Descriptive Psychology, p32.
of this realm, thereby replacing the ancient goal of attaining necessary knowledge of being itself, with necessary knowledge of the forms of appearances. Yet, as Dilthey saw, consciousness can never entirely detach itself from itself. As Ermath explains:

For Dilthey, the theory and practice of knowledge, as well as its form and content, cannot be separated, for they are linked in the real source of our knowledge—experience in the broadest sense. We cannot hope to get fully outside the actual experience of the mind in order to test the formal validity of its operations. In contrast to the Kantian postulate of a rational ego or transcendental consciousness, we must recognise that there is no higher consciousness which validates our thought. We can never arrive at a Kantian Bewusstsein überhaupt, for consciousness is always immersed in the actual experience of the world. 128

Dilthey’s rejection of Kant’s transcendental philosophy leaves him no stable point on which he might ground any necessary scientific knowledge. Accordingly he thinks that all knowledge arises from, and is relative to, the consciousness from which it develops. Given his extensive background in historical research, he is aware of the manner in which consciousness develops through the course of history. Yet he does not see this as a ‘loss’, or as a problem to be overcome. Rather, he takes it as a liberation of humanity from a misunderstanding of its own character. He writes:

We must first become fully conscious of what the relativity of all historical reality implies. The study of all the conditions of man on this earth, the contacts between nations, religions and concepts, inevitably increased the chaos of historical facts. Only when we have grasped all the forms of human life, from primitive peoples to the present day, does it become possible to see the generally valid in the relative... A historical consciousness which is no longer abstract or conceptual and, therefore, does not dissolve into unlimited ideality, forms a basis for the unity of mankind in universally valid thought. 129

Both the neo-Kantians and Husserl charged Dilthey with ‘psychologism’ and ‘historical relativism’ due to his rejection of the transcendental method. Indeed, from a Kantian perspective, this charge has some merit. Yet the ‘psychology’ that Dilthey proposed to develop was by no means a natural science of the mind—a ‘physiology of the understanding’ as Kant put it. In fact it was far closer to Husserl’s own phenomenological project as it sought to study how the ‘form’ and ‘matter’ of knowledge were both imminent in experience. As I have argued above, Dilthey objected to the very foundations of Kantian philosophy and he was certainly aware that his arguments undercut any claims for the absolute validity of human

knowledge. Yet this does not mean that the historical and natural sciences are not ‘objective’. It simply means that this objectivity is an historical achievement rather than the result of a transcendental deduction. Dilthey argued that scientific objectivity was the result of an initial conceptual limitation of a region of objects and that these limitations developed over time. In this way he sought to maintain the objectivity of scientific knowledge whilst denying its absolute validity.  

This strategy was closely followed by Heidegger, and I will examine his position on the objectivity of science in chapter four.

4.

Charles Bambach argues that the tension between scientific demands for universal knowledge and the recognition of the historical nature of man, remained unresolved in Dilthey’s work. He writes:

Dilthey never really resolved the tension between the finitude of historical consciousness and the scientific demand for universality. He could admit that "the development of historical consciousness destroys faith in the universal validity of any philosophy" at the same time as he charged historical reflection with the task of finding validity within the realm of the relative. But the tensions within Dilthey’s thought are not unique; they reflect the contradictions within German philosophy itself. The concurrent demands for a historical and a scientific approach to the human world of the late nineteenth century were part of both the historicist and Kantian traditions.

Thus, Dilthey occupies an uneasy middle position in which he denies that any elements of knowledge escape the contingency of their historical development, whilst maintaining that we can work towards knowledge which is ‘universally valid’. He writes that,

...history does indeed know of various assertions of something unconditional as value, norm, or good. Such assertions appear everywhere in history—now as given in the divine will, now in a rational concept of perfection, in a teleological order of

130 For an account of the difficulty Dilthey’s interpreters have had in establishing his position on the objectivity and relativity of knowledge, with particular emphasis upon Husserl’s assessments, see Michael Ermath, ‘Objectivity and Relativity in Dilthey’s Theory of Understanding’ in Dilthey and Phenomenology, ed. Rudolf A. Makreel and John Scanlon, (Center for Advanced Research in Phenomoneology & University Press of America, Washington, D. C., 1987), pp73-91. He writes: ‘Dilthey insisted that "Every science concerns a delimited objectivity" (GS, VII, 41). It is conceptual limitation which constitutes the very conditions of objectivity in the first place, yet this delimited objectivity is not static and a-temporal: there is a larger and longer-term objectivity which is a function of expanding horizons and processes of reciprocal correction and critical probation...It is not eternity but history which discloses both the grounds and growth of knowledge...'.

131 Bambach, Heidegger, Dilthey and the Crisis of Historicism, pp176-177.
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the world, in a universally valid norm of our conduct which is transcendentally based. But historical experience knows only the process, so important for it, of making these assertions: on its own grounds it knows nothing of their universal validity.132

Michael Ermath has suggested that Dilthey's position on the 'relative certainty' of scientific knowledge is quite close to that of J. S. Mill.133 This seems correct in that Dilthey thinks that there are no absolute starting points for knowledge, but rather a constant interaction between experience and reflection which gradually provides us with knowledge of greater universality and validity. This is essentially the same as Mill's understanding of the progress of his inductive method. However, Dilthey, unlike Mill, was acutely aware that this procedure involved both circular reasoning and an abandonment of the central ancient and medieval scientific ideals. Dilthey addressed the circularity that is involved in attaining this relatively certain knowledge in his account of hermeneutics, a matter I will address shortly.

Despite this unresolved tension, Dilthey managed to develop a critique of modern philosophy that is remarkably similar to Heidegger's. Dilthey argues that humans are in 'life', the original realm of experience, not as observers but as actors. Thus, reality, as it is originally given, is shaped by the fact that we are practically engaged in life. It is constituted by the vital interests and evaluations of each person. Or as Ermath puts it: 'The connotative and affective sides of mental life are constitutive of our experience along with the more strictly cognitive functions'.134 Dilthey argues that the distorted account of experience which is found in the epistemological school, is ultimately the result of the ancient Greek conception of reality and knowledge. He argues that:

All reality is given in experience. Thought is an analysis of reality. These propositions cannot be disputed. And yet the metaphysical school claimed to be able to show that there is within thought itself, a source of knowledge independent of and outside of experience.

This epistemological foundation of the metaphysical school can be shown to be untenable. But a tendency that has been dominant in European thought for many centuries, from Plato to the victory of the nominalists in the fourteenth century, can lose its power over men only when its colossal error is understood historically.

133 Ermath, Wilhelm Dilthey, p155.
134 Ermath, Wilhelm Dilthey, p118.
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The scientific outlook was preceded by a conceptual world that held that reality proceeds from divine knowledge. I will show how this conceptual world is the product of the totality of our mental powers and how crucial features of it can only be <...> with our mental powers themselves.\textsuperscript{135}

This passage from the drafts for volume two of Dilthey’s *Introduction to the Human Sciences*, anticipates the most important elements of Heidegger’s critique of the modern philosophical tradition, a critique that was developed several decades later. The central point of Dilthey’s, and Heidegger’s, arguments is that if we are to take human existence as the foundation of philosophical and scientific knowledge, then the ancient Greek and medieval ideal of disinterested and necessary scientific knowledge must be revised.

5.
Dilthey’s account of the relationship between ‘life’ and the sciences is of great importance because it is here that he develops the idea that history, and the subjects of the human studies in general, are not simply the objects of scientific research, they also characterise the nature of the historian. Given this reciprocal relationship between the subject and object of human science, I will demonstrate the important elements, for my study at least, of Dilthey’s concept of ‘life’ by examining his account of the difference between the human and the natural sciences.

In the opening passages of his *Introduction to the Human Sciences*, Dilthey argues that ‘What is contained in the concept of science is generally divided into two subdivisions. One is designated by the name “natural science,” while for the other there is, curiously enough, no generally accepted designation. I shall follow those thinkers who refer to this second half of the *globus intellectualis* by the term *Geisteswissenschaften*.\textsuperscript{136} However, he employs this term with some caution as it is burdened by its associations with various philosophical traditions. First, Dilthey explains, the term ‘*Geisteswissenschaften*’ became widely known in Germany as a translation of Mill’s term ‘Moral Sciences’, as was already mentioned in chapter one. Second, the term ‘*Geist*’, translated variously as ‘spirit’ or ‘mind’, played a very prominent role in Hegelian philosophy. Third, ‘*Geist*’, carries connotations of the Cartesian separation of extended and mental substances, and thus it may be thought that the *Geisteswissenschaften* consist of those sciences which deal with the non-

\textsuperscript{135} Dilthey, *Introduction*, p281.
\textsuperscript{136} Dilthey, *Introduction*, p57.
physical elements of human existence, in opposition to the Naturwissenschaften which deal with the physical realm.

Dilthey argues that the separation of the human sciences, that is the Geisteswissenschaften, from the natural sciences, is difficult because humanity possesses both mental and physical aspects. Thus, although he does distinguish between these two scientific realms, he does not think that the human sciences can be conducted in isolation from the natural sciences. Dilthey argues that:

To be sure, the reference to the spirit (Geist) in the term Geisteswissenschaften can give only an imperfect indication of the subject matter of these sciences, for it does not really separate facts of the human spirit from the psychophysical unity of human nature. Any theory intended to describe and analyse socio-historical reality cannot restrict itself to the human spirit and disregard the totality of human nature.  

Although there is a difference between nature and ‘socio-historical reality’, this does not mean that we can gain an adequate understanding of the latter in isolation from knowledge of the former. Human being consists not simply of a spiritual component, but also of a physical element. Importantly, Dilthey maintains that these two elements of human existence are not ‘externally’ related, but that the natural aspect of humanity determines, to some extent, the social and historical aspects. He argues that ‘In reality...an individual comes into being, survives, and develops on the basis of the functions of an animal organism and its connections to his natural environment. His feeling of life is, at least partly, based on these natural functions...’. Thus, human beings are not simply mental but also natural, and the structure of mental life is partly determined by this physical composition.

Thus, having adopted the term ‘Geisteswissenschaften’ and argued that it forms one half of the ‘globus intellectualis’, Dilthey is concerned that we not jump to any hasty conclusions concerning the grounds of this distinction. In particular, that we not think that this division of the sciences implies any separation of humanity’s mental and physical aspects. Dilthey’s actual demarcation of the two forms of science is far more complex than this and he differs from both the positivists and the neo-Kantians in this respect. Mill thought that there was only one legitimate method by which scientific knowledge could be derived from raw sensory experiences. He considered social and historical reality as the subject of scientific knowledge only to the extent

137 Dilthey, Introduction, p58.
that this inductive methodology could be applied to them. The neo-Kantians argued that there were in fact two legitimate scientific methodologies, the nomothetic and the idiographic. By this they meant that there were two legitimate modes in which the subject could judge the infinite and irrational manifold of sense experience. Therefore, although they recognised two distinct scientific methods, it was the methods themselves that produced either a 'historical' or a 'natural' scientific object from the same field of experience. Dilthey's distinction of the natural and human sciences is more complex than both of these approaches because he recognises two distinct scientific methods and two distinct orders of objects to which they apply.

Thus, Dilthey distinguished two modes in which reality could be experienced and thought that there was a different method appropriate for knowing each of them. The two different modes of experiencing reality are described as 'inner lived experience' and 'outer sensory experience'. Ermath explains that:

Lived experience is the “originruy” way in which we perceive reality. As living persons we have an awareness of things and ourselves which is immediate, direct, and nonabstractive. We “live through” (erleben) life with an intimate sense of its concrete, qualitative features and myriad patterns, meanings, values, and relations. It could be said that we “know” these features and relations more by tacit acquaintance than by explicit inference or discursive thought—but they are nonetheless real or empirical for being often below the threshold of conscious objectified attention.139

It is from this original level of experience, in which we conduct our everyday lives, that both the human and natural sciences develop. According to Dilthey, there exists a unified realm of experience prior to all distinctions of the mental and physical. This idea is based upon the argument that nothing exists for us unless it is given in consciousness. Dilthey names this tenet the ‘principle of phenomenality’. This is not a denial of the existence of external reality or any related sceptical claims. It is merely a statement that ‘Whatever is there for us—because and insofar as it is there for us—is subject to the condition of being given in consciousness.’140 This implies no scepticism of the existence of the external world. Rather it makes the point that the categories of inner and outer experience, and the related categories of physical and mental worlds, must be distinguished within consciousness, not the other way around.

139 Ermath, Wilhelm Dilthey, p97.
Dilthey's references to inner and outer experience are meant to indicate that the original context of lived experience can be regarded from two points of view. These two points of view form the most basic conceptual limitation of the natural and human sciences. Dilthey argues that the defining aspect of nature is its 'alien' quality. In contrast to the world of human affairs we only have knowledge of the outer aspect of nature. Indeed a successful natural science was only possible based upon the strict separation of man and nature. Thus, the overcoming of anthropomorphism is the prerequisite of natural science. As nature is only presented to us through appearances, we can have no understanding of its inner order. Dilthey states that 'Nature is alien to us. It is a mere exterior for us without any inner life. Society is our world.'\textsuperscript{141} The fact of our estrangement from the inner workings of nature expresses itself in the procedures of the modern natural sciences. Despite his fundamental disagreements with the epistemological school Dilthey adopts their definition of nature. As Locke, Hume, and Kant had argued, we have no immediate sensory experience of the causal connections between the various occurrences we witness in nature.

Dilthey argues that the opposite is true in the case of the human world. Here we have an immediate experience of the inner nature of society. We have this immediate experience because, in contrast to the world of nature, the human world is the world that we \textit{live} in. In order to understand why this is so we must take heed of Dilthey's argument that we are never originally enclosed subjects that are separate from the world. Rather, it is impossible to separate the subject from the world in which it lives. Dilthey argues that: 'Man as a fact prior to history and society is a fiction of genetic explanation; the man whom sound analytical science has for its object is the individual as an element of society.'\textsuperscript{142} We never live as isolated knowing subjects, rather we always experience ourselves as within a world of meaningful and significant relationships. We have no immediate knowledge of the relationships between the elements of nature. However, our knowledge of the human world is such that we have an immediate awareness of the relationship between its elements. Indeed we are aware, \textit{originally}, of the elements of the human world as part of an encompassing nexus or coherence (\textit{Zusammenhang}). Dilthey argues that:

\textsuperscript{141} Dilthey \textit{Introduction}, p88.
\textsuperscript{142} Dilthey \textit{Introduction}, p83.
Human sciences have indeed the advantage over the natural sciences in that their object is not sensory appearance as such, no mere reflection of reality within consciousness, but is rather first and foremost an inner reality, a nexus experienced from within. Yet the very way in which this reality is given in inner experience raises great difficulties for its objective apprehension.\textsuperscript{143}

We are unavoidably aware of the relationships of value that are at play in the human world and it is for this reason that our knowledge of this world is an ‘inner’ knowledge. In the case of the human world ‘we sympathetically experience the interplay of social conditions with the power of our total being. From within we are aware of the states and forces in all their restlessness that constitute the social system.’\textsuperscript{144}

Thus, the difference between ‘inner’ and ‘outer’ experience lies in their respective distances from our lived experience. Simply put, nature is ‘alien’ to us because it is understood as a realm that is free of human values and interests. As I argued above, this realm is nevertheless derived from the original context of experience and produced through a careful process of abstraction. We see only the outer side of nature because we have no experience of what animates it. We must provide hypotheses to fill this gap. In our study of the human world, we are equipped with knowledge of its animating forces, for these forces are also to be found within ourselves. Just as we must avoid anthropomorphism in natural science, we must also avoid attributing too much weight to our personal experience in the human sciences. Thus, abstraction from the original context of experience is required in both forms of science; however, insofar as the human sciences do not seek to overcome the interests of man, they remain closer to this original experience.

7.

This is the basis of Dilthey’s distinction between the processes of understanding (verstehen) and explanation (erklären). Explanation, that is the method employed by the natural sciences, is unable to rely upon any ‘inner’ knowledge of its objects. It is unable to provide anything beyond an explanation of the appearances of nature because it is based upon hypotheses. The Geisteswissenschaften on the other hand are able to call upon an inner knowledge of their object. The categories which are employed in the Geisteswissenschaften are found immediately in the human world


\textsuperscript{144} Dilthey, \textit{Introduction}, p88.
itself. Our consciousness is fundamentally bound up with the social and historical world insofar as our existence cannot be separated from this context. As I noted above, for Dilthey there is no original isolated subject. This notion is only an abstraction from the original context of consciousness in which we are always bound up in relationships with the historical world. It is not possible to completely separate the human world from the individual consciousness because they arise as a unity. The human world can never be something completely alien to us. As we already live within this world and are familiar with it, what is required here is not a hypothetical construction of a world, but a deepening and refining of what is already understood.

The distinction between *verstehen* and *erklären* is one that has a long history in German thought. Herbert Schnädelbach has pointed out in his discussion of the history of ‘*verstehen*’ that the notion that ‘only what is made by human beings can be understood’ can already be found in Kant’s philosophy.\(^{145}\) This is true, however, this claim can ultimately be traced back to the work of Giambattista Vico and his ‘maker’s knowledge principle’. This principle is well summarised by Stephen Gaukroger in the following passage:

> Vico argued that we have a special kind of access to the civil world, which we do not have to the natural world and which is due to our having created the former but not the latter. The kind of understanding which we can achieve of the former is consequently deeper than, and more secure than, that which we can have of the latter.\(^{146}\)

Vico employs this principle as a replacement for Descartes’ criteria of truth, which were that ideas which are both clear and distinct are also true. This may seem a strange criterion of truth, and Gaukroger has argued that it is ultimately mistaken. He argues that, even if it is true that we must understand the intentions of the maker if we are to understand an artefact, and that makers have direct access to their own intentions which others lack, the privileged knowledge of a maker does not appear to depend upon them actually making anything. Gaukroger argues that,

> all the point amounts to is that people know their own intentions in a way others do not. It would follow from this that we may not be able to know their artefacts in the


way that they do, but what they know is not dependent upon their making anything.  

In contrast to this, Campbell argues that we must take note of Vico’s Aristotelian understanding of causality if we are to see his point. Thus, he is not employing Hume’s understanding of cause as the orderly sequence of events, but Aristotle’s notion of cause as denoting all those elements which are brought together and ordered by the maker to produce the artefact. Thus, it is the act of synthesising these original elements which gives rise to the artefact. Only the maker, or one that can retrace the maker’s act of synthesis, can know the object in this sense.

This principle remains at the foundation of Dilthey’s separation of the human and natural worlds, and his subsequent division of understanding and explanation. He thinks that because the human world consists of the products of conscious and intentional human activities, it is possible for us to retrace these actions and to ‘understand’ them in a way that we cannot with the natural world. As Locke first argued, and Dilthey maintained, we cannot know the real essences of natural beings. Therefore, we cannot know the elements from which natural objects are formed and can have only an outer knowledge of them. Although our knowledge of the human world does not attain the precision of our natural knowledge, it is superior in the sense that it is direct knowledge of the elements by which this world is constructed.

8.

Understanding, taken in Dilthey’s specific sense as a manner of comprehending the human as opposed to the natural world, has two aspects. As Bambach observes:

Understanding, in Dilthey’s interpretation, signified not only the specific procedure of the human sciences but the fundamental movement of human historical life as well, a movement whose beginning is impossible to isolate epistemologically.

In accordance with his rejection of faculty psychological approaches to understanding life, Dilthey argues that life is originally a purposive whole and that it is inherently ‘structured’. Thus, rather than beginning with atoms of sense experience on the one hand, and empty conceptual structures on the other, Dilthey conceives of life as a unified process of understanding. Dilthey describes the

148 For this discussion of the plausibility of Vico’s principle and its importance for the concept of historicity, see Campbell, Truth and Historicity, pp251-268.
149 Bambach, Heidegger, Dilthey and the Crisis of Historicism, pp160-161.
different premises of his descriptive psychology and explanatory psychology in this way:

Explanatory psychology arose from the analysis of perception and memory. The core of it was constituted from the beginning by elements—such as sensations, representations, agreeable and disagreeable affects—as well as by the processes among them, notably that of association, which were subsequently added, as other explanatory operations, apperception and fusion. It therefore did not have for its object the totality of human nature and the full content of the psychic nexus. In view of this, I would oppose to explanatory psychology...the conception of a realistic psychology whose descriptions would permit us to comprehend the totality of psychic life, its prevailing contexts, content, and forms.\footnote{Dilthey, Descriptive Psychology, p39.}

Furthermore, the whole ‘nexus’ of life is temporally structured such that the flow of time is also, originally, the flow of life. For Dilthey, time is in fact grounded in our original consciousness of a past, present, and future. In the drafts for the unpublished second section of the \textit{Introduction to the Human Sciences}, Dilthey formulates his account of time in opposition to that of Kant. Kant sees time as the form of inner intuition which cannot be derived from experience due to its apodictic certainty. In response to this Dilthey argues that in fact time certainly is a concept that can, and in fact must, be derived from our experience for our consciousness is always determined by a \textit{before} and an \textit{after}.

Dilthey also objects to the conception of time as a line consisting of homogeneous elements. Thus, ‘if one attempts to understand the time-line as composed of homogeneous elements—so that after abstraction from their specific content the elements as time elements are uniform like those of space—then this is a mistake that is rooted in abstraction being carried too far.’\footnote{Dilthey, ‘Drafts for Volume Two of the Introduction to the Human Sciences’, in \textit{Introduction}, p386.} His point here is that there is no more basic conception of time than that of our everyday experience of the past, present, and future. It is our experience and recognition of past elements of consciousness as always memories and reproductions, along with our recognition of the future as populated by possibilities and potentialities, that forms the basis of time. It is not possible to go behind this original ordering of our experiences in order to find an ‘empty’ flow of uniform time which we ‘fill up’ in the course of our life. Dilthey states that ‘From the present we run through a series of memories back to the point where our small, malleable, and unformed self is lost in the twilight and we press forward from the present to possibilities, which are grounded in it, but, at the
same time, assume vague and vast dimensions.\footnote{Dilthey, 'The Construction of the Historical World in the Human Studies', in \textit{Selected Writings}, p185.} The ordering of experiences in this structure of past, present, and future, forms the basis of all our later theorising about the nature of time. Although our experience is fundamentally structured by this order, we are not necessarily aware of this. Dilthey argues that it requires a certain level of abstraction and the development of self-consciousness to see our consciousness as sequential. We are mostly not concerned with our experiences as experiences, rather, they find their place in the context of our present situation. Their significance is determined by their position with regard to future projects and past experiences. Life itself is already meaningfully structured and understood. As Dilthey states:

\begin{quote}
We are first of all historical beings before we are inquirers into history, and it is only because we are the former that we become the latter...The first important factor for the solution of the problem of historical knowledge is revealed: the primary condition for the possibility of historical knowledge lies in the fact that I am a historical being, that one who studies history is the same one who makes history.\footnote{Dilthey, \textit{Gesammelte Schriften}, vol. VII, p278, quoted in Ermath, \textit{Wilhelm Dilthey}, p250.}
\end{quote}

Here lies the basis for Dilthey’s claim that knowledge in the human sciences is ultimately circular and without any absolute foundations. Dilthey describes the hermeneutic circle in which any interpretation becomes involved in the following passage:

\begin{quote}
Description, which is based on observation, demands the construction of concepts; the concept and its definition presupposes a classification of the phenomena; if this classification is to be an orderly totality, if the concepts are to express the essence of the facts which they represent—then they presuppose a knowledge of the whole. There arises a circle here. At base, it is an artistic process in which the power, the universality, and the objective character of the intuitions determine the value of the results.\footnote{Dilthey, \textit{Gesammelte Schriften}, vol. XI, p258, quoted in Ermath, \textit{Wilhelm Dilthey}, p252.}
\end{quote}

Dilthey’s point is that all interpretation must proceed by \textit{anticipating} the nature of the object in question in order to then subject it to more detailed empirical examination. There is a constant tension between this initial determination of a field of objects, and the results that are gained from examining those objects. It may be that our initial conception may have to be revised based upon results that were gained by assuming that it was in fact adequate. This interplay between parts and

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wholes is the essential element of the hermeneutic method that Dilthey advocates for the human sciences.

In our practical engagement with the world we already possess an understanding of ourselves and reality. This understanding is, for the most part, tacit, yet it nevertheless forms the intelligible framework in which we act. Furthermore, we do not construct this framework ourselves but inherit it from our society and its traditions. It is certainly possible to reflect upon the categories and structures of meaning which we have inherited and even come to understand them differently through this process. Indeed, the very point of scientific investigations of the human world is to bring these inherited categories into view and to test their adequacy. Dilthey’s point is that we can never go behind life, or stand outside it, in order to know it ‘scientifically’. Rather we must work from within an historical context and attempt to gradually develop a greater awareness of its character.

9.

Although I have only provided a sketch of Dilthey’s thinking, it is sufficient to understand the significance of Heidegger’s claim that his analysis of the problem of history in Being and Time ‘grew out of an appropriation of Dilthey’s work.’ As I stated above, the aim of examining the issues of history and science in the work of Mill, the neo-Kantians, and Dilthey, was to provide a context for Heidegger’s account of theory and practice in Being and Time. In particular, I aimed to demonstrate that the problem with the scientific ideal of theoretical knowledge, as Dilthey saw, was that it was impossible for an existing human to attain. It is not possible for humans to attain a divine view of beings because they are historically situated. Our knowledge does not begin from absolute principles but from categories and concepts that have developed through the course of history. As human existence cannot be separated from its historical era, except as a convenient abstraction, it can never attain a purely contemplative view of the world. Yet this is the ideal which lay at the heart of ancient Greek, Medieval, and even modern accounts of scientific knowledge. As I noted in the introduction, Aristotle recognised that his account of science seemed to render it fit only for the gods. Dilthey’s account of the thoroughly historical character of human existence demonstrates why this is so. Humans cannot stand outside the world and view it as a pure spectacle, as could a god. Rather their

very nature is dependent upon this world and although they can understand their situation more thoroughly, they cannot stand beyond it.

I will conclude this chapter with a brief account of the significance of Dilthey and the neo-Kantians in Heidegger’s philosophical development. This is by no means intended as a definitive account of Heidegger’s early philosophical development. The influences on, and directions of, Heidegger’s early thinking constitutes a large field of study in its own right. I merely intend to establish that Heidegger recognised the essential difficulty with which Dilthey struggled; and that his comments in *Being and Time* on theory and practice should be read as an extension of Dilthey’s objections to theoreticist ideals of knowledge.

Initially, it is worth noting that Heidegger had himself approached the problem of understanding the relationship between philosophy and the sciences from within the neo-Kantian schema. If we examine a trial lecture he delivered in 1915 to the philosophy department at Freiburg entitled “The Concept of Time in the Science of History”, then his identification with the neo-Kantian position is clear. This is perhaps not surprising given that leading up to this lecture Heidegger had studied with Heinrich Rickert, who directed his dissertation. This 1915 lecture aims at the description of the peculiar nature of the understanding of time that is employed in historical science. Heidegger initially provides an account of the concept of time in the natural sciences, physics in particular, in order that the concept of time assumed in historical science could then be displayed by way of contrast.

Importantly, the target of this lecture is the *logical structure* of both the natural and historical sciences. In fact Heidegger goes so far as to state that, ‘Bringing into relief the logical foundations of methods of research in the particular sciences is thus the concern of logic as theory of science.’ Furthermore, he sets out to determine what the concept of time in historical science is, based upon the nature of existing historical science. The problem this lecture addresses is thus posed as ‘*What structure must the concept of time in the science of history have in order for it to be able to function as a concept of time in a manner corresponding to the goal of this*'}
The goal is thus to proceed in a purely descriptive manner with the hope of unveiling the logical structure of the concrete investigation of history.

It is clear that this early lecture is framed in a classically neo-Kantian manner. Heidegger even displays the concern that was shared by Rickert, Windelband, and Dilthey to identify the distance between the natural and historical or human sciences. The conclusions of this lecture, namely that the concepts of time in the historical and natural sciences are distinct and that this distinction revolves around the homogeneity of time points, are thoughts that will be taken up again by Heidegger in different modes of questioning throughout his career. He argues in this 1915 lecture that the time of physical science, or indeed the clock time of our everyday understanding, is merely one view of time, in particular a view of time as a homogeneous parameter of measurement of the physical world. Rather than being merely a matter of quantity or a parameter of the physical world, the time of historical science is determined by its quality. Although it is bound up here with the neo-Kantian philosophy of science that Heidegger would later come to reject, his attempt to demonstrate the limitations of the natural scientific understanding of time already pointed to a concern for the reality that lay behind the obfuscations of psychological and scientific theory.

This early lecture is worth considering as it allows us to see the movement of Heidegger’s thought in the decade leading up to the publication of *Being and Time*. We can now see that he traveled from a neo-Kantian approach to the theory of the sciences, *through* Dilthey’s conception of a grounding of the sciences in a descriptive psychology, into the radical questioning of the being of Da-sein and temporality that characterised *Being and Time*. I am not suggesting here that Heidegger ever adopted Dilthey’s position as his own. Rather, Heidegger came to see neo-Kantian philosophy as ungrounded in that it was unable to account for the reality of values and valuation in our everyday existence. He came to view science as an issue for philosophy, not as a matter of determining its logical structures and transcendental conditions, but as a problem of determining how the scientific practice grew out of everyday existence. It should be clear that this was also the tendency that was active in Dilthey’s thought. He sought to gain a clear view, through descriptive psychology, of the character of ‘life’ understood as the foundation of understanding.

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Therefore, the importance of Dilthey for Heidegger is that he provided a critique of the philosophical position in which he himself had worked as a student of Heinrich Rickert. Although he was able to state later that Dilthey’s work had been inadequate in that it did not manage to pose the problem of life in a sufficiently radical manner, it should be recognised that Heidegger did not say this as an onlooker, but as one that also had to overcome the outlook of Windelband and Rickert. Thus, Heidegger states in the lecture course *History of the Concept of Time*, delivered at the University of Marburg in 1925, that Dilthey ‘did not come to a more rigorous formulation of the phenomenon, but, and this is what is most important, he already saw quite early that reality is experienced not only in knowledge and awareness but in the whole “living subject”, as he puts it, in this “thinking, willing, feeling being.”’

Dilthey certainly saw the unity in which experience took place but was unable to recognise the manner in which this undermined the isolated psychological categories of thinking, willing, feeling, and so on.

Dilthey provided an important element in the overcoming of the presuppositions of the neo-Kantians. Although he understood himself to be providing a foundation for the conduct of the *Geisteswissenschaften*, the central problem that he constantly addressed was the standpoint from which we address the issue of the sciences. The fundamental insight in Dilthey’s work was that we must understand the sciences as developing out of the context of lived experience. This is certainly how Heidegger saw the matter. Returning to the quote with which I began this chapter, he states, again in the *History of the Concept of Time*, that:

*The decisive element in Dilthey’s inquiry is not the theory of the sciences of history but the tendency to bring the reality of the historical into view and to make clear from this the manner and possibility of its interpretation. To be sure he did not formulate the question so radically. He continued to operate in the interrogative ambience of his contemporaries.*

Heidegger understood the vital issue in Dilthey’s thought to be the attempt to work out the implications of a recognition that thinking must take place from within the context of life. Once we recognize that all questioning and research must take place from out of our concrete existence, then the vital task, as Dilthey recognized, is to understand the nature of this concrete existence from which questioning and research first arise.

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159 Heidegger, *HCT*, p220.
10.

It is Dilthey’s abiding sense of the historical situation of human existence that was vital for the development of Heidegger’s thought leading up to *Being and Time*. His analysis of the structure of life, the original temporality that can be found in this structure, and his later advocacy of hermeneutics as the proper method of approaching the objects of the *Geisteswissenschaften*, all contain hints in the direction of what was to come in Heidegger’s thought. However, none of Dilthey’s concrete findings are wholly adopted by Heidegger. It is only the exhortation that in our attempt to arrive at an understanding of ourselves we must begin with life as it is given, not with psychological constructions, that we can say was truly taken up.

Thus, Dilthey’s thought was crucial for Heidegger in his project in *Being and Time*, and the drafts and lectures that led up to this work throughout the 1920’s. Indeed, the two works that Theodore Kisiel describes as drafts of *Being and Time*, the lecture entitled *The Concept of Time* delivered to the Marburg Theological Society in 1924, and the lecture course *The History of the Concept of Time* delivered at the University of Marburg in the summer semester of 1925, are dominated by the aim of providing a description of the character of human life as it shows itself.\(^{161}\) We can trace Heidegger’s involvement with the problem of the ‘self-interpretation of facticity’, as he then called it, to the last lecture course of his early Freiburg period, delivered in the summer semester of 1923. Here we find Heidegger already stating what he repeated several times in the later works already mentioned. Namely, that although Dilthey remained trapped within the project of providing a foundation for the *Geisteswissenschaften*, as Kant had earlier done for the *Naturwissenschaften*, his approach was superior due to the depth of problem with which it grappled. Thus, for Heidegger, ‘Rickert and Windelband are only scions of what Dilthey tackled in concrete research and indeed with far scantier resources.’\(^{162}\) Even before he gained access to the correspondence between Dilthey and Count Yorck von Wartenburg, Heidegger took Dilthey’s work as having touched upon something essential.\(^{163}\)

In attributing such importance to the encounter with Dilthey, I am not suggesting that there are not other highly significant influences that express themselves in the make

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161 See part three of Kisiel, *The Genesis of Heidegger’s Being and Time*.
up of Being and Time. Indeed there can be no doubt that in methodological terms, the influence of Husserl's phenomenology upon Heidegger was of much greater significance than that of Diltzhey. Husserl's analysis of intentionality indicates, in much more concrete manner than Diltzhey ever achieved, how it is that we can overcome the presuppositions that plagued not only the neo-Kantians but also all theorists that subscribed to a representationalist psychology. Indeed, Heidegger argues that it was Diltzhey that first saw the significance of Husserl's Logical Investigations (1900-01) because it achieved the first concrete breakthrough towards a founding science of life that he had been seeking. Heidegger attributes to Diltzhey the comment that the Logical Investigations were 'the first great scientific advance in philosophy since Kant's Critique of Pure Reason.' Thus, in terms of how Heidegger drew upon these two philosophers in the course of his early career, it appears that Diltzhey provided the direction and Husserl the partial means for the rethinking of the nature of man, world, and temporality, that occurred in Being and Time.

11.
At this point it is worth spelling out precisely why Heidegger found Diltzhey's approach to the understanding of life and history inadequate. This dissatisfaction is an important element in coming to understand Heidegger's account of life in Being and Time and his later critique of the effect of technology on our understanding of life. Both Diltzhey and Husserl responded to the neo-Kantians through a return to the concreteness of life. As Hans-Georg Gadamer has pointed out, the concept of life plays the same role in Husserl's thought as the concept of the coherence of experience in Diltzhey's. What is meant here is that in both cases, the concept of life as it exists prior to its development into scientific practice is employed as the founding basis of these philosophies. Both Husserl and Diltzhey exhort us to recognise that the conduct of the natural and human sciences is possible only upon the basis of this originary experience of life.

164 Heidegger, HCT, p24.
Heidegger's dissatisfaction with Husserl's phenomenology stems from the fact that although Husserl sees the field of everyday experience, and indeed even understands its foundational role, he is unable to focus adequately upon it. Heidegger argues that Husserl, having glimpsed the importance of the 'life-world', immediately sets about describing our interaction with this world in terms of a subject bringing itself into relationship with this world through acts such as perceiving, willing, comparing, distinguishing, and so on. Thus, although Husserl characterizes his account of the 'natural standpoint' as 'a piece of pure description prior to all "theory"', he in fact introduces the essential aspects of a Cartesian account of subjectivity. Rather than turning his phenomenological inquiry to the issue of what in fact shows itself in the natural standpoint, Husserl adopts the idea that in its being, this standpoint involves the 'subject' and it correlation with 'objects' through 'acts'.

The being of the natural standpoint thereby never becomes fully thematic for Husserl. Heidegger argues, both in Being and Time and in preceding works, that it is precisely these categories of act, subject, and object, that never show themselves in life as it is lived. He states in History of the Concept of Time that:

This primary kind of experience, which provides the basis for every further characterization of consciousness, turns out to be a theoretical kind of experience and not a genuinely natural one, in which what is experienced could give itself in its original sense.

Heidegger's critique of the fundamental inadequacy of the notion of subjectivity, as it is conceived from Descartes onwards, must also apply to the work of Husserl. He too is unable to see behind the account of consciousness as the explicit correlation of a subject and its object.

Dilthey is also seen by Heidegger as suffering from the same fundamental inability to overcome the traditional definition of man. The traditional Cartesian epistemological orientation, taken up by Kant, and later by the neo-Kantians and Dilthey himself, involved itself with the question of how the subject is to reach outside of itself and achieve secure knowledge of its objects. The very name of the science of lived experience which Dilthey hoped to establish speaks of his place within this tradition. His formulation of a 'descriptive psychology' immediately introduces the subjective schema. Although the aim of this psychology is the description of the 'nexus of facts

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of consciousness’, this description presupposes that the elements of this nexus are comportments of a subject towards objects of perception, whether inner or outer. There remains in Dilthey’s work the same inability to let the reality of life show itself as it is.

12.
Given that Dilthey was unable to overcome this Cartesian inheritance in just the same manner as Husserl, we must look further in order to pin down precisely why it was Dilthey that came in for such praise in Being and Time. In section 77 of Being and Time Heidegger states that his ‘analysis of the problem of history grew out of an appropriation of Dilthey’s work. It was corroborated, and at the same time strengthened, by Count Yorck’s theses that are scattered throughout his letters to Dilthey.’

Heidegger argues that the thoughts of Count Yorck express the true and fundamental direction of Dilthey’s thought more clearly than Dilthey himself was able to, due to his entanglement in the neo-Kantian problematic of philosophy of science.

Heidegger believed that the constantly provisional and fragmentary nature of Dilthey’s work was a result of the fact that he was never able to grasp his project with sufficient clarity. This was achieved, according to Heidegger, by Count Yorck when he refers to the ‘common interest in understanding historicity’ shared by himself and Dilthey.

The fundamental contribution of Dilthey and Yorck is thereby the manner in which they opened up the question of the nature of historicity for further exploration. Furthermore, they provided the guideline for how to approach this problem in that they saw a re-examination of the being of man as the key to understanding historicity itself. Thus, Heidegger attributes to Count Yorck the opening up of a more primordial approach to historicity. He states that ‘Yorck gets his clear insight into the fundamental character of history as “virtuality” from his knowledge of the characteristics of being of human existence itself, thus precisely not in a theoretical and scientific way oriented to the object of historical observation.’

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169 Heidegger, BT, p363/397.
170 Dilthey – Yorck Correspondence quoted in Heidegger, BT, p363/398.
171 Heidegger, BT, p366/401.
13.

It appears that we must take seriously Heidegger's claim towards the end of *Being and Time* that this work had been an extension of the thoughts of Dilthey and Count Yorck. Thus, this work is in fact best understood as a critique which employs the phenomenological techniques developed by Husserl towards the fundamental aims of Dilthey's philosophy. Thus, whilst Husserl, through his work on the problem of intentionality, provides much of the phenomenological methodology of *Being and Time*, we must recognize that the aim of this work involves a questioning of the being of human existence in order to further clarify the question of being itself. The guideline for this investigation was provided by Dilthey and Count Yorck.

The importance of Dilthey, and Count Yorck's correspondence with him, for our reading of Heidegger's thought leading up to *Being and Time* is now clear. *Being and Time* is dedicated 'in friendship and admiration' to Edmund Husserl. Further into the text we find Heidegger stating that 'The following investigations would not have been possible without the foundation laid by Edmund Husserl; with his *Logical Investigations* phenomenology achieved a breakthrough.' Given Heidegger's high appraisal of the work of Dilthey and Count Yorck we must be somewhat wary about how we understand Heidegger's acknowledgement of his debt to Husserl. I suggest that it is not tenable to understand *Being and Time* as an extension of Husserl's work. This work in fact contains a fundamental critique of Husserl's position, standing as it does firmly within the Cartesian tradition. In the lecture courses that lead up to the publication of *Being and Time*, Heidegger always portrays Husserl's work in the *Logical Investigations* as of great importance in the development of phenomenology. However, he is also quick to point out the limitations of Husserl's position in these works. Already in the summer semester lecture course of 1923 Heidegger argues that although Husserl provided great insight into the phenomenological 'question of access' to the subject matter, the subject matter itself did not undergo a fundamental analysis. Husserl is not directly criticized in *Being and Time*, however, it is clear that Heidegger's critique of the tradition holds also for his position.

The implications of Heidegger's identification of Dilthey as the originator of the line of questioning that was pursued in *Being and Time* are quite serious. Initially this should provide us with a guide to understanding problematic aspects of *Being and

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Time. In particular the problem of how we are to understand the relationship between Heidegger’s analysis of our everyday existence and scientific practice. The relationship between the practical and the theoretical in Being and Time is of profound importance if we are to achieve an understanding of Heidegger’s account of technology. This is because it is there that Heidegger establishes the fundamental determinations of human understanding, truth and the world, that remain the foundation of his later discussions of technology. It is impossible to assess Heidegger’s later work without some understanding of these fundamental determinations. Thus, it is to this problem of how a recognition of Heidegger’s appropriation of Dilthey’s problematic can aid us in understanding Being and Time that I will turn in the next chapter.
In my preceding discussion of Dilthey, I noted that he had, in a brief passage from the drafts for the second volume of his *Introduction to the Human Sciences*, managed to point to the central difficulty of the 'epistemological school' of Locke, Hume, and Kant. He argued that this school was correct in its restriction of knowledge to the realm of human experience, although it was certainly wrong in its account of the nature of this experience. Thus, he agreed that humanity can have no direct insight into the real essences of natural beings. The problem with this modern tradition was that it had not altered its ideals of scientific knowledge in accordance with this restriction. However, as Dilthey argues: 'The scientific outlook was preceded by a conceptual world that held that reality proceeds from divine knowledge.'\(^{174}\) This model of knowledge implied the ability to view the world from a position that is entirely independent of it. According to Dilthey, the continuing power of this model of knowledge is demonstrated by such notions as the transcendental subject and the pure, inductive logical methods of J. S. Mill. Such attempts to re-establish this 'divine' knowledge on a subjective foundation simply misconstrue the essentially finite, historical, and worldly nature of human existence. Thus, what was required was an explicit investigation of human existence in order that philosophy and science may be securely founded, even if this meant the abandonment of any absolutely valid knowledge.

This contradiction between human existence and scientific knowledge is the point that Heidegger takes up in *Being and Time*. In so doing he laid the foundations of his later meditations on the nature of modern technology. He describes *Being and Time*...
as an attempt to re-open the question of the meaning of being, which has, he contends, been forgotten. He continues:

But the question touched upon here is hardly an arbitrary one. It sustained the avid research of Plato and Aristotle but from then on ceased to be heard as a thematic question of actual investigation. What these two thinkers achieved has been preserved in various distorted and “camouflaged” forms down to Hegel’s Logic. And what then was wrested from phenomena by the highest exertion of thought, albeit in fragments and first beginnings, has long since been trivialized.

Not only that. On the foundation of the Greek point of departure for the interpretation of being a dogma has taken shape which not only declares that the question of the meaning of being is superfluous but sanctions its neglect. Heidegger’s point is not that philosophers have, since the time of Plato and Aristotle, neglected to think about being. Indeed, he thinks that the tradition of metaphysics is characterised by a certain understanding of being, namely that which was developed by the ancient Greeks. His point is, rather, that philosophers have simply assumed these initial ontological determinations and have not turned to an inquiry into their adequacy. They have not investigated whether the concept of substance is adequate to describe the mode of being of all beings.

Heidegger correctly saw that within the modern philosophical tradition the question of being is inextricably linked to the question of human nature. As I demonstrated in the preceding discussion of Dilthey, the southwest neo-Kantians and Mill, the central difficulty for modern metaphysics was attempting to secure a foundation for necessary and universal scientific knowledge. The philosophers of the ‘epistemological school’, to borrow Dilthey’s phrase, began their reflections on the basis of a separation of real and nominal essences. Without any direct access to the real essences of natural beings, which had been the foundation of all previous metaphysical and scientific knowledge, they were left in the difficult position of trying to secure scientific knowledge within the subject itself. This project relied upon the assumption that human existence possessed a stable essence upon which the edifice of scientific knowledge could rest.

This assumption is the point at which Heidegger attacks, both in Being and Time and in his subsequent writings, the modern philosophical tradition as it has progressed

\[175\] Heidegger, BT, pl.
\[176\] It is true that this is also Descartes project, however, as I will demonstrate in chapter five, he differs from later philosophers in that he believed we could attain knowledge of real essences.
since Descartes. His argument in *Being and Time* is that human existence does not possess the same mode of being as other entities. He argues, with regard to human existence or ‘*Da-sein*’, that:

The “essence” of this being lies in its to be. The whatness (*essentia*) of this being must be understood in terms of its being (*existentia*) insofar as one can speak of it at all. Here the ontological task is precisely to show that when we choose the word existence for the being of this being, this term does not and cannot have the ontological meaning of the traditional expression of *existentia*. Ontologically, *existentia* means *objective presence* [*Vorhandenheit*], a kind of being which is essentially inappropriate to characterize the being which has the character of *Da-sein*.\(^{177}\)

He continues:

*The “essence” of Da-sein lies in its existence.* The characteristics to be found in this being are thus not objectively present “attributes” of an objectively present being which has such and such an “outward appearance,” but rather possible ways for it to be, and only this.\(^{178}\)

Thus, human existence is not a static ‘substance’ but consists of the projection of possible ways to be. This process by which human existence projects itself into the future forms, according to Heidegger, the foundation of both time and history. Thus, he argues that humans are not simply involved in history, but that their very way of being is characterised by its historicity (*Geschichtlichkeit*). By this he means that there is no unchanging human essence which can be examined in isolation from its historical context, rather, human existence is the very matter of historical development. The effect of this claim, if it is accepted, is to make questionable the means by which the ancient Greek conceptions of science and being had been carried over into the modern philosophical tradition. Thus, because of the special role the human subject plays in modern philosophy, Heidegger’s claim that human existence has no timeless essence is not simply a thesis about human beings, but about the nature of being itself. For if, as Heidegger argues, human beings do not have the same mode of being as other objects, but consist instead of a necessarily incomplete unification of past, present, and future, then the traditional conception of being must be revisited.

I will address Heidegger’s arguments concerning the historicity of human existence, and the subsidiary issues of authenticity and death, in the second half of this chapter.

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However, before I address those matters, I intend to deal with a difficulty in the interpretation of the distinction between theory and practice in *Being and Time*. I will argue against an interpretation that has been developed by several pragmatist philosophers, although for reasons of space I will only focus upon Hubert Dreyfus’ interpretation here. In Dreyfus’ work Heidegger’s account of our everyday, ‘practical’, interaction with objects is taken to be ‘non-mental’. Far from putting forth such an account of non-mental ‘coping’, I suggest that Heidegger’s description of our everyday life is an attempt to overcome the detached and contemplative ideals of knowledge that cover over the worldly and involved nature of human existence. Although this may seem to be a merely technical matter, it is in fact vital to correctly understanding Heidegger’s objections to the ‘subjectivism’ of modern philosophy.

Having established the inadequacies of pragmatist interpretations of *Being and Time*, I will briefly discuss the implications of this misreading for understanding Heidegger’s account of science. It has been argued by Don Ihde that in *Being and Time* Heidegger characterises science as a purely theoretical pursuit and that this is an inadequate account of the reality of modern science. He is seen as defending an outmoded conception of science as a contemplative activity whilst modern experimental science is inextricably bound up in its instruments and apparatus. This characterisation is, at its heart, another example of the misconstrual of the role of practice in Heidegger’s analysis. Although I will address Heidegger’s account of modern physical science in more detail in chapter four, it is convenient to deal with this issue here.

1. I will address the first issue of how Heidegger characterised the nature of *Da-sein* through a critical discussion of the work of Hubert Dreyfus.\(^{179}\) This exemplifies the nature of much of the recent commentary on Heidegger that has emerged from American philosophers. Mark Okrent, in his work *Heidegger’s Pragmatism* (1988) has identified Hubert Dreyfus, John Haugeland, Richard Rorty, Robert Brandom, and presumably himself, as part of this revived interest in Heidegger amongst analytic philosophers.\(^{180}\) This group of philosophers do not agree about what is important in


Heidegger’s philosophy, and each appears to see a different aspect of his thought as illuminating or correct. For this reason Okrent states that ‘what is missing in such debates is a clear, acceptable statement of just what Heidegger did say concerning metaphysics, intentionality, and being a person, together with a statement of his reasons for saying it.’ Furthermore, ‘what is needed is an interpretation comprehensible to all philosophers—including those trained in an analytic way— which shows in a straightforward though not uncontroversial manner the impact of Heidegger’s work on central questions in contemporary analytic philosophy.’ It seems somewhat optimistic to think that Heidegger’s philosophy could be made straightforward and acceptable to all philosophers, both analytic and continental. The fact that Heidegger’s thought has not been taken up in the analytic tradition is not due merely to perceived lack of clarity, rather it has its roots in fundamental differences of approach. The difficulties of Dreyfus’, Okrent’s, and others’, interpretations serve to demonstrate this.

The issue of how we are to understand the relationship between Heidegger’s categories of the ready-to-hand (zuhanden) and the present-at-hand (vorhanden) is crucial to understanding the direction of Being and Time. The matter is often seen as a fairly simple one. Our interaction with the zuhanden is understood as correlated with our practical everyday interactions, whilst the emergence of the vorhanden is associated with theoretical reflection which can be further refined into scientific investigation. Heidegger’s writings are often confusing on this matter but I believe it can be shown that this common interpretation is only adequate if we keep in mind the transcendental nature of Heidegger’s ontological investigation.

As I have argued in the previous chapter, the direction of Heidegger’s work in this period is aligned more with Dilthey than Husserl. This is true in so far as he took up Dilthey’s insights that life as it is lived must be the primary focus of philosophy and that we must not confuse the structure of life with its theoretical reconstructions. Both Dilthey and Heidegger focused upon this phenomenon of pre-theoretical life. Husserl had identified this notion as the ‘life-world’, however, he did not accord it the same priority it received in Dilthey and Heidegger’s work. Although Dilthey does not characterise his own work in this way, both he and Heidegger employ a phenomenological approach in their investigation of life. They both argue that the phenomenon of life is overlooked in standard accounts of consciousness and its

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181 Okrent, Heidegger’s Pragmatism, p4.
worldly correlates, and that it is important to recover this underlying phenomenon from its various self interpretations. Heidegger’s analysis of Da-sein is part of this effort to develop an account of the being of human existence as it shows itself, rather than how it commonly understands itself.

Despite his alignment with Dilthey’s attempt to escape the psychological abstractions that characterised both neo-Kantian and empiricist philosophy, it is important to recognise that Heidegger’s investigation proceeds along transcendental lines, although not in Kant’s sense of the term. By this I mean that in his ontological investigations he seeks to determine the form in which objects must appear to us if we are to deal with them in everyday life. Thus, in his investigation of beings that are ready-to-hand, the details of which I will come to shortly, Heidegger attempts to determine the conditions of their possibility. Provided the analogy is not taken too far, this procedure can be helpfully compared with that of Kant in the Critique of Pure Reason. Whereas Kant was attempting to determine the necessary form of objects if they are to be scientifically known, in Being and Time Heidegger attempts to spell out the form of objects as we know them in our everyday existence. Kant argues that the objects of scientific knowledge must appear within a unified system of space and time, whilst Heidegger proposes that the world in which the objects of our pre-theoretical experience must appear is constituted by a web of practical significance. These two different senses of ‘world’ are the background within which objects, whether those of explicit scientific interest or everyday practical concern, must appear.

Frank Schalow describes the relationship between the thought of Kant and Heidegger in the following passage:

Heidegger seeks an alliance with transcendental philosophy due to a common concern for transplanting metaphysics onto the soil of human finitude. He thereby characterizes Kant’s task as one of “laying the ground of metaphysics” (GA 3/1). Insofar as Kant implements a “critique of pure reason” in order to place metaphysics on the right footing, Heidegger suggests that the germ of his own inquiry into being must in some way be prefigured through this critical enterprise.182

182 Frank Schalow, ‘The Kantian Schema of Heidegger’s Late Marburg Period’, in Reading Heidegger From the Start, p310. Heidegger’s reading of Kant in the period surrounding the publication of Being and Time is a complex and controversial subject which I cannot enter into here. An interesting summary of the tension between Heidegger’s reading of Kant and what he took to be ‘the’ neo-Kantian interpretation can be found in the notes of a disputation between Heidegger and Cassirer at Davos in 1929. This discussion is included as Appendix four in Martin Heidegger, Kant and the Problem of Metaphysics, trans. Richard Taft, (Indiana
Despite this ‘alliance’, there are great differences between Kant and Heidegger. Although Heidegger adopts this notion of a Kantian ‘schematism’, it takes on an entirely new significance in his work due to the different manner in which he conceives of this ‘soil of human finitude’. Indeed, as I mentioned above, Heidegger’s account of human existence undermines the necessity and universality of scientific knowledge, which is the very thing Kant was attempting to secure by his transcendental approach.

2.

It is with the aim of clearing the ground for the inquiry into the meaning of being, that Heidegger addresses the problem of our understanding of the being of beings that we encounter in the world. He spends considerable time undermining the interpretation of innerworldly beings as objectively present things that exist within a world space. He points to Descartes as the most extreme example of this interpretation. Descartes ontologically distinguishes spirit and world into the categories of thinking thing (res cogitans) and extended thing (res extensa). It is this fundamental ontological division that largely determines our understanding of ourselves and our world. Perhaps most importantly, this distinction has led us to the understanding that man and world are separate phenomena that can be considered in isolation. The thinking thing is not a part of the extended world as it is not itself extended. The attempt to understand how these two modes of being interact has given rise to the modern problems of epistemology and intentionality. This division even gives rise to the question of how the world can have value for us. The neo-Kantian philosophy of Wilhelm Windelband and Heinrich Rickert is an example of how even the act of valuing becomes problematic if we assume such an original gulf between man and world.

With this interpretation in mind we can follow Heidegger's arguments concerning the ‘handiness’ of beings. He argues that the Cartesian account overlooks the preliminary step that must be taken if an adequate account of human being is to be gained. This step consists of not being content with ready answers, but looking at

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University Press, Bloomington, 1997), pp193-207. Heidegger argues in the opening passages that: ‘I understand by neo-Kantianism that conception of the Critique of Pure Reason which explains, with reference to natural science, the part of pure reason that leads up to the Transcendental Dialectic as theory of knowledge. For me, what matters is to show that what came to be extracted here as theory of science was nonessential for Kant. Kant did not want to give any sort of theory of natural science, but rather wanted to point out the problematic of metaphysics, which is to say, the problematic of ontology.’

183 Heidegger, BT, pp83-94.
the everyday existence of man. If this is done, Heidegger contends, we will discover that the interaction between man and world is not that between a thinking thing and physical objects. Rather, it is the mode of "taking care" that dominates everyday human existence. It is through being involved with them in order to achieve our ends that beings gain their character. We do not initially encounter beings as pure physical existences and then proceed to determine what they would be best employed as or what their significance may be. Rather, the structure of everyday existence is such that the encountering of beings takes place within a framework of taking care. Thus, Heidegger states that there "always belongs to the being of a useful thing a totality of useful things in which this useful thing can be what it is." 184 In a sense a useful thing cannot exist in isolation, it must arise in the context of every other useful thing and as such it must refer to these other things. A hammer reveals itself as a thing that is useful for driving nails. Nails are revealed in the context of being useful for house building and houses are useful for living in and so on. It is within such a context of taking care of things that beings are revealed to human existence.

This everyday context that is constituted by taking care of things, is the context in which beings reveal themselves in their handiness. It is in terms of our projects or involvements that beings reveal themselves in their specific modes of handiness. We are always already involved in the world through the various modifications of taking care, such as using, observing, undertaking, omitting, neglecting, and resting. 185 Importantly, privative modifications, such as omitting and neglecting, are also taken by Heidegger to be possibilities of taking care. This is only possible because taking care is an ontological determination of human existence, in the transcendental sense of ontological outlined above. Thus, these factual possibilities, both positive and privative, are only possible upon the basis of an involvement in the world. Our overlooking or neglecting can only be such a neglect on the basis of this original involvement in the world.

Beings are revealed within this context of taking care in various modes of handiness. It can certainly be the case that we encounter things that are not useful for our projects and such items reveal themselves as "irrelevant" or "not what we were looking for". The situation can even arise where the useful item we are searching for is stubbornly unhandy. When we come across something that actually impedes our

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184 Heidegger, *BT*, p64.
185 Heidegger, *BT*, p53.
taking care, it has the character of a broken or missing tool. Heidegger argues that in such instances the fact that beings are initially encountered in terms of their handiness is more starkly revealed. It is when an item becomes prominent due to its stubborn uselessness, that one of the reasons for the constant overlooking of the phenomenon of handiness becomes clear. The truly handy item is something that withdraws from prominence in the face of the project for which this item is handy.

3.

On the basis of this initial characterisation of handiness, Heidegger divides objects into the zuhanden, translated as the ready-to-hand, and the vorhanden, the present-at-hand or the objectively present. We can understand this distinction as based upon a difference in the mode of relating to things in the world. The ready-to-hand refers to objects as they exist for us in our everyday dealings. As such, it points to things which, in so far as they are equipment, withdraw from our thematic attention. The everyday involved mode of existence does not look at useful items, but past them towards what they are useful for. The present-at-hand is a category which arises from the ready-to-hand. It arises when an item makes itself obtrusive by either not being useful, or by not being present at all. It is on these occasions, when we are confronted with something that halts our achievement of ends, that we look at objects. We are forced to make objects thematic in order that we may establish what halted our taking care of the world and how we may overcome it.

Heidegger characterises the second category, the present-at-hand, as the ground of our ‘theoretical’ relationship with the world. We must approach this term warily as it can all too easily become interpreted simply as a refrainment from physical manipulation. We cannot understand the term ‘theoretical’ to be making any claim regarding the presence, or lack, of physical activities. Rather, just as was the case with objects that are ready-to-hand, Heidegger is describing the form of objects that are the subject of theoretical attention. Thus, although he regularly characterises the difference between these two categories as that between objects as they withdraw during our practical involvements and as they appear in our theoretical contemplation of them, this is not a matter of the presence of activity or its absence. It is instead simply a matter of seeing that objects of our everyday experience appear in their relevance for our projects, and that these structures of relevance are proper to ready-to-hand beings themselves. When we turn our explicit theoretical attention upon a being, then we are no longer immediately concerned with its relevance, but with its
objective constitution. It is in this mode that we attend to the physical characteristics of objects.

It is vital to recognise that in the movement from circumspection to the theoretical attitude, and the correlated transformation of the zuhanden into the vorhanden, a layer of interpretation is not lost. The encounter with ‘mere’ physical objects mentioned above is dependent, in the same manner as the ‘equipment’ of everyday concern, upon an interpretive ‘projection’. The theoretical encounter with objects depends upon a prior understanding of their being. For Heidegger there is no ‘fact’ that stands free of all interpretation. As he comments in a later section of Being and Time in relation to the projection that underlies our encounter with physical objects:

> This project discovers in advance something constantly present (matter) and opens the horizon for the guiding perspective on its quantitatively definable constitutive moments (motion, force, location, and time). Only “in the light of” a nature thus projected can something like a “fact” be found and be taken in as a point of departure for an experiment defined and regulated in terms of this project. The “founding” of “factual science” was possible only because the researchers understood that there are in principle no “bare facts.”

This concept of a projection of nature will be discussed in more detail in the following chapter. I have addressed it here to prevent the misunderstanding that the vorhanden emerges when it is freed from all interpretations.

The final point that must be made with regard to this division of the zuhanden and the vorhanden has to do with the apparently dramatic reversal that Heidegger has carried through here. It appears that he has reversed the standard order of priority of the practical and theoretical, and the order of the everyday and the scientific. It now appears that the object of our everyday involvements has priority over the theoretically observed object in the sense that it is more real. The theoretical account becomes merely an abstraction from this practical basis. This is, however, another misunderstanding of the point of Heidegger’s analysis of everyday human existence. As Joseph Fell has argued, the analysis of Da-sein in Being and Time does not seek to establish the priority of the ‘practical’ over the ‘theoretical’.

As Joseph Fell has argued, the analysis of Da-sein in Being and Time does not seek to establish the priority of the ‘practical’ over the ‘theoretical’. Rather it is pursued as a means of characterising the phenomenon of world. Although the vorhanden is said to emerge from the zuhanden in Being and Time this is merely a

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186 Heidegger, BT, p331.
function of the focus of the inquiry. It would presumably be possible to begin the analysis with our involvement in scientific research and demonstrate the dependence of such an existence upon being-in-the-world.

In fact, although his terms are not exactly the same, something like this occurs in Husserl’s *Crisis of the European Sciences and Transcendental Phenomenology*. Here the dependence of science upon the life-world is emphasised. For Heidegger, both our interaction with the *zuhanden* and the *vorhanden* are dependent upon being-in-the-world and the phenomenon of world should not be reduced to either category. It would be a mistake to think that he is setting up an absolute hierarchy of foundations. Depending upon whether we look at the order in which objects come to thought, or the order of relationships in nature, different elements will gain priority. Thus, such orders of priority are never absolute but always with respect to some particular outlook.

4.

On the basis of this background I will now address Dreyfus’ argument that, according to Heidegger, in our everyday dealings with the world we are not reliant upon mental representations and in fact such representations are not present until we are forced to explicitly deliberate upon an obstacle to our progress in the world. I do not think that this interpretation is tenable for several reasons. Firstly, it does not seem to take into account the transcendental nature of Heidegger’s ontological analysis. More specifically Dreyfus fails to take into account the separation of actual practical activities from the ontological determination of transcendence that makes such acting possible. Secondly, Dreyfus does not come to terms with the various attributions of primordiality that occur in *Being and Time*.

Dreyfus’ book, *Being-In-The-World, A Commentary on Heidegger’s Being and Time Division 1* (1990) is of particular importance because it forms the basis of the increased interest in Heidegger amongst American philosophers that was discussed above.¹⁸⁸ Dreyfus writes in the preface that the notes upon which the book is based had been circulating amongst his students for over 20 years. Indeed Frederick Olafson credits him with shifting the focus of American philosophers from Heidegger’s association with the Nazi movement towards a serious examination of

his philosophical works. Furthermore, Dreyfus has sought to relate his version of Heidegger to new fields of inquiry, most prominently in the field of Artificial Intelligence. It is because of the wide ranging influence of this interpretation that it is particularly important to understand its weaknesses.

Dreyfus sees Heidegger as giving an account of everyday human existence which does not fundamentally rest upon any notions of mental representations. Thus, he argues that ‘Heidegger, like the cognitivists and structuralists, seeks to minimise the role of the conscious subject in his analysis of human being.’ In support of this claim Dreyfus refers to Heidegger’s characterisation of the present-at-hand and the ready-to-hand, and the two different modes in which these objects are approached. In particular, he argues that Heidegger’s description of our relationship with ready-to-hand items demonstrates that in our everyday mode of dealing with objects, we have no mental representations of these objects. Dreyfus argues that ‘in dealing, with the available, Da-sein is transparently absorbed in equipment without experiencing its activity as caused by a “mental state.”’

Just as Dreyfus correlates the mode of circumspection in Heidegger with a state of non-mental coping, the mode of theoretical looking is correlated with the appearance of mental states. The theoretical mode, which we described above as arising from the mode of circumspection when objects themselves are made thematic, is for Dreyfus the occasion for the arrival of mental representation. He states that ‘temporary breakdown calls forth deliberate action and thus introduces “mental content,” but only on the background of non-mental coping.’ Thus, Heidegger is characterised as developing an account which, contrary to the tradition, understands theoretical knowledge to arise out of some form of non-mental practical activity.

5.

Reading the first division of Being and Time as an account of such ‘non-mental coping’ is at the very least problematic. Aside from the issue of how this account is adequate to Heidegger’s writings, there is the issue of the coherence of such a

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192 Dreyfus, Being-in-the-World, p76.
193 Dreyfus, Being-in-the-World, p76.
proposal. The notion that we are completely unaware of ourselves or the objects
with which we interact is one that is puzzling. If this were the case, how could it be
that we are capable of overcoming even the slightest difficulties that we encounter
without reverting to a mode in which we are explicitly aware of objects? Dreyfus’
argument that ‘Dasein could simply be absorbed in the world’ implies that were we
able to arrange things so that we never encountered any difficulties or obstacles in
our activities, we would never be aware of either the world or ourselves. Thus he
envisages the possibility of ‘[a] simplified culture in an earthly paradise...in which
the members’ skills mesh with the world so well that one need never do anything
deliberately or entertain explicit plans and goals.’\textsuperscript{194} Such a possibility appears to
run counter not only to our common understanding of ourselves, which in itself
would be no argument, but also to any phenomenological description of our
activities. It seems absurd to argue that we are not aware of objects or ourselves in
our practice of taking care. Even our simplest dealings with objects require us to be
aware of them. The process of making a cup of coffee is broadly the same each time,
and yet it is also subtly different each time. Perhaps my cup has been placed in a
different spot or the kettle is not plugged in. These are not major difficulties and yet
every minor aberration would seem to require, on Dreyfus' account, that I resort to
explicit theoretical deliberation. This separation of action and consciousness
provides an account in which action becomes blind and sight becomes impotent.

Apart from the difficulties of his own account, which appear to be great, it seems that
Dreyfus misses several important aspects of Heidegger’s thought. The first of these
is that he does not see that Heidegger uses the term ‘practice’ in an extremely broad
manner. In fact he employs it in such a manner that it includes what we would
normally call ‘mental’ operations. Dreyfus’ contention that mental content arises
only at the point of a breakdown in our plans and operations is evidence of the fact
that he has not conceived of the category of our ‘practical’ involvement in the world
broadly enough. Heidegger’s true focus in distinguishing between the practical and
the theoretical is the mode of seeing that is involved in each category. Furthermore,
the notion that Heidegger somehow wishes to retain the notions of subjectivity and
representation ignores his extended criticisms of such notions throughout \textit{Being and
Time} and other works from that period. In the two lecture courses \textit{History of the
Concept of Time} (1925) and \textit{The Basic Problems of Phenomenology} (1927)
Heidegger provides an extended critique of representationalist misunderstandings of

\textsuperscript{194} Dreyfus, \textit{Being-in-the-World}, p85.
intentionality. This critique continues in Being and Time and extends to the analyses of being-in-the-world and truth as discoveredness. In all these works Heidegger is critical of the neo-Kantians, Dilthey, and Husserl, for their conception of man as an isolated subject that relates to the world through acts of knowing and valuing. He sees this subjectivist schema as a persistent misunderstanding of human existence. For Heidegger, no matter how man understands himself, he can never in fact become a subject that is closed off from the world.

6.
I will illustrate the inadequacies of Dreyfus’ approach by analysing the relationship between Heidegger’s conception of science and the zuhanden and vorhanden. Heidegger describes his account of science in Being and Time as an “existential concept of science.” He distinguishes this existential concept from the “‘logical’ concept that understands science with regard to its results and defines it as a ‘context of causal relations of true, that is, valid propositions.’” This definition encompasses the attitudes of a broad range of philosophers toward science. However, it appears that Heidegger is particularly at pains to oppose the neo-Kantian approach to science exemplified by Windelband and Rickert. Their interest lay in demonstrating the a priori validity of both the natural and human sciences. An existential concept of science, on the other hand, would consist of an account of the modifications of human existence that must occur in order to make science possible. Such an inquiry must aim at uncovering what it is that changes in our interaction with objects in order that this interaction becomes scientific. It must be noted here that Heidegger is not attempting to determine the manner in which various scientific disciplines were founded, nor is he attempting to understand the problems that occupy contemporary scientists. This is rather an ontological inquiry and thereby concerns a mode of being of Da-sein. To emphasise this he states that “we are asking which of these conditions of possibility in the constitution of being of Da-sein are existentially necessary for Da-sein to be able to exist in the mode of scientific investigation?”

Heidegger is not very forthcoming in Being and Time on the matter of precisely what this existential concept of science is. However, it appears that his basic insight is that the scientific attitude involves focusing upon beings in a certain aspect. Thus, the

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195 Heidegger, BT, p327.
196 Heidegger, BT, p327.
197 Heidegger, BT, p327.
founding of a science involves defining the aspect in which beings are to be examined. Sciences are established through the thematization of a region of beings such that the being of these beings is understood, and the means of investigating such beings is established. The case of mathematical physics is cited as an example of the manner in which the establishment of a science is made possible by the opening up of a region of beings. Heidegger argues, controversially, that mathematical physics was made possible not by a closer examination of ‘facts’ but by the development of an understanding of being as something that can be quantified mathematically. The sighting of a region of beings which are ‘constantly objectively present’ and quantitatively definable as ‘motion, force, location, and time’, is the condition of the possibility of mathematical physics.

Don Ihde has argued in his work *Technics and Praxis* (1979) that the account of science in *Being and Time* is misleading as it tends to obscure the manner in which modern science is embodied in its apparatuses and instrumentation. Ihde’s point seems to be that Heidegger’s claim that the scientific attitude arises out of our interaction with present-at-hand or *vorhanden* objects, leaves us with the impression that science is a purely contemplative activity. In a comparison of *Being and Time* with Heidegger’s later writing, Ihde writes that:

> [t]he ‘science’ of *Being and Time* is essentially a metaphysical and even contemplative science. It is a science derived from what may now be seen to be the ancient Greek ideal of speculation and deduction. It is not yet the science which is necessarily *embodied* in instrumentation; nor is it the science which is in the service of technology as calculative standing-reserve of the lecture.198

Ihde argues that modern science is in fact essentially involved in praxis and is thus inseparable from the instruments and laboratories which it employs.

This argument, leaving aside for the moment the comparison with Heidegger’s later writings, rests upon the same confusion regarding the terms practice and theory that can be found in Dreyfus’ interpretation. Heidegger in fact appears to recognise the difficulty of these terms. In section 69 (b) of *Being and Time* Heidegger argues that although it would be easy to characterize the change from “‘practically’ circumspect handling and using and so on, to “theoretical” investigation’ in terms of taking care abstaining from any kind of use, this cannot be the case.199 The wary manner in

199 Heidegger, *BT*, p326.
which he employs the terms ‘practically’ and ‘theoretical’ here tells us that he is certainly aware of the misconception that may arise from their use. Heidegger argues that if we were to accept such a position then the ‘ontological possibility of “theory”’ would be due to the absence of praxis, that is, to a privation.\textsuperscript{200}

He does not, however, understand abstinence from practical use and manipulation as necessarily separate from our interaction with the ready-to-hand. He argues that ‘the staying that stops which comes about when use stops can acquire the quality of a more precise kind of circumspection, such as “inspecting,” checking what has been attained.’\textsuperscript{201} There is no correlation between the quantity of our manipulations and the sight by which they are guided. Thus, it is possible to be utterly immobile and yet remain concerned with objects as tools for the achievement of ends. As Heidegger states, ‘[t]o refrain from the use of tools is so far from “theory” that staying, “reflecting” circumspection remains completely stuck in the tools at hand taken care of.’\textsuperscript{202}

We find that the same argument holds in the case of the present-at-hand. Far from being blind to the practical aspect of modern science, as Ihde contends, Heidegger argues that ‘just as praxis has its own specific sight (“theory”), theoretical investigation is not without its own praxis.’\textsuperscript{203} Thus, he notes that ‘Reading off the measurements that result from an experiment often requires a complicated “technological” set-up’. The practice of ‘Observing with the microscope is dependent upon the production of “prepared slides”’ and ‘Archaeological excavation that precedes any interpretation of the “findings” demands the most massive manual labour.’\textsuperscript{204} We can see thereby that Heidegger was certainly aware that science is not an entirely speculative and non-practical activity.

Ihde’s characterization of science in \textit{Being and Time} is further undermined by another argument from section 69 (b). Here Heidegger proposes that it cannot be the case that our change from interaction with ready-to-hand entities to interaction with present-at-hand entities is the essence of science. This simply cannot be the case because there are instances in which science concerns objects which have the character of ready-to-handness. Heidegger provides economics as an example of a

\textsuperscript{200} Heidegger, \textit{BT}, p327.
\textsuperscript{201} Heidegger, \textit{BT}, p327. On this topic see discussion above at p109.
\textsuperscript{202} Heidegger, \textit{BT}, p327.
\textsuperscript{203} Heidegger, \textit{BT}, p328.
\textsuperscript{204} Heidegger, \textit{BT}, p328.
science that is concerned with ready-to-hand objects. He states that the ‘everyday context of useful things at hand, their historical origination and utilization, their factical role in Da-sein—all these are the objects of the science of economics.\textsuperscript{205} The fact that a present-at-hand object is in view is not synonymous with placing ourselves in a scientific attitude as we can just as well make the ready-to-hand an object of scientific investigation. It is rather the \textit{manner} in which the object is brought into view that is important.

Thus, many of the difficulties surrounding the notions of practice and theory derive from a failure to treat them as ontological categories. It is the conflict between the usual connotations of these terms and the use to which they have been put in Heidegger’s fundamental ontology that causes confusion. Thus, we usually understand these terms as exclusive of one another. We say such things as ‘putting theory into practice’ as though ‘theory’ and ‘practice’ were two different realms, one essentially mental and one essentially physical. However Heidegger’s opposition to the Cartesian duality of mental and physical realms carries over to the conception of practice and theory which is based upon it.

7.

The weakness of these accounts of Heidegger as an anti-mentalist lie in the fact that his ontological approach actually serves to undermine these very categories of theory and practice. Through his attempt to determine the being of human existence, he arrives at ontological determinations that are, in a certain sense, empty. By this I mean that they do not refer to any factical aspects of human life but to their conditions of possibility. Heidegger’s aim is to determine the most fundamental aspect of human existence and this turns out to be transcendence. The term being-in-the-world, coined by Heidegger, expresses this fundamental determination of existence as openness.

The result of the analyses contained in the first half of \textit{Being and Time} is that human existence is in its essence inseparable from its world. Heidegger argues that human existence is always outside itself in the world such that there is no question of how the relationship between man and world can occur. \textit{Da-sein} is always involved in a world and the world, conceived in this particular sense, is always disclosed through \textit{Da-sein}’s involvement. This reconception of human existence gives rise to a radical

\textsuperscript{205} Heidegger, \textit{BT}, p330.
interpretation of various basic philosophical concepts. Such ideas as truth and language are recast. Heidegger argues that we must see propositional truth as merely one mode in which man discloses beings. The conception of human existence as fundamentally disclosive and uncovering, undermines the interpretation of truth as something that is restricted to propositions. This is a matter that I will address in more detail in chapter six. The same occurs with the concept of language as Heidegger argues that in its existential sense, language is the manner in which the intelligibility of Da-sein is expressed. All specific languages are based upon this feature of human existence.\(^{206}\)

Although Heidegger is less explicit about the issue of practice and theory, it is clear that our common understanding of these categories is also undermined. The fact that theory and practice are commonly defined with reference to the division of mental and physical realms means that they cannot survive Heidegger’s examination unchanged. Indeed, it is clear that these terms are being used in a new sense when Heidegger takes ‘practice’ so broadly as to include ‘doing nothing’, and ‘theory’ as having its own form of practice.\(^{207}\) Our interaction with the zuhanden and the vorhanden is guided by its own way of disclosing objects. In our everyday interaction we see objects only in terms of their relevance for our projects and dealings, but we are also capable of attending to beings themselves. Despite the difficult language of Being and Time sometimes suggesting otherwise, this is not a question of the presence or absence of physical manipulations, rather it is a shifting of views.

The accounts given by Dreyfus and Ihde arise from the fact that they do not see this feature of Heidegger’s thought. Although there is not space here to discuss in detail Okrent’s reading of Heidegger as a pragmatist, it is possible to see that this interpretation is also flawed. Okrent’s claim that for Heidegger ‘the primary type of understanding is practical and agent-oriented (‘understanding how’) rather than theoretical or mental (‘understanding that’)’ clearly echoes the problems found in Dreyfus and Ihde. Okrent takes this misunderstanding further and argues that Heidegger is a verificationist in that he supposedly understands, following Quine that

\(^{206}\) For language see Heidegger, BT, pp150-151. For truth as aletheia see BT, pp196-211.  
\(^{207}\) Heidegger, BT, p327.
‘the meaning of a sentence turns purely on what would count as evidence for its truth’.

This is certainly a misreading of Heidegger’s comments on the nature of the statement. The origin of this problem lies once again in misunderstanding the role of practice. Okrent states that Heidegger understands that ‘propositional truth is dependent on practical truth’. This is true if we take ‘practical’ in the sense of an ontological determination of the involvement of Da-sein with its world. However, the direction of the analysis of truth is entirely missed if it is seen as trying to show that the meaning of statements consists in the possible evidence of their truth. Heidegger’s analysis rather aims at showing that the statement is only one mode of disclosure and is dependent upon the originally disclosive nature of Da-sein. To say that this amounted to support of verificationism would require that we ignore Heidegger’s repeated claims that truth is in fact aletheia or unconcealment. The manner in which we go about confirming that a statement discloses something as it is, is different in each case and should not be confused with the nature of truth itself.

Okrent’s optimistic attempt to render Heidegger’s insights into plain language acceptable to all philosophers is undermined by the fact that Heidegger is trying to escape the characterisation of humanity that is implicit in such plain language. It is not possible to straightforwardly describe the structure of theory and practice in Being and Time because the usual understanding of these terms is undermined in this very work. It is certainly true that Heidegger’s terminology is not always clear, but this should not be put down merely to a lack of care. It rather lies, at least partially, in the nature of his project.

8.

I turn now to the second part of this chapter and an examination of Heidegger’s claims that human existence is essentially temporal and historical. This notion of historicity provides the foundation for his attempt to characterise the possible unity of human existence in a manner that is distinct from the unity characteristic of substantial objects. Heidegger deals with this possible unity or ‘wholeness’ of Da-sein in his discussion of authentic (eigentlich) existence. He concludes that the unity


209 Okrent, Heidegger’s Pragmatism, p101.
Chapter Three

of human existence does not consist in the static possession of the same characteristics through time, but in the mode in which it takes up its possibilities for acting. As I will demonstrate, this concept of human identity undermines the modern project of founding necessary and universal knowledge in the human subject.

In the fifth chapter of the second division of *Being and Time*, Heidegger makes a distinction between the science of history and the nature of historical existence itself. He reserves the terms ‘historiography’ (*Historie*) for the science of history and ‘historicity’ (*Geschichtlichkeit*) for the more fundamental structure of human existence. He criticizes those philosophers, including Rickert, who address history only in the sense of historiography in the following passage:

> Even if the scientific and theoretical kind of treatment of the problem of “history” does not just aim at an “epistemological” (Simmel) clarification of historiographical comprehension, or at the logic of the concept formation of historiographical presentation (Rickert), but is rather oriented towards the “objective side,” history is accessible in this line of questioning only as the object of a science. The basic phenomenon of history, which is prior to the possibility of making something thematic by historiography and underlies it, is thus irrevocably set aside. How history can become a possible object for historiography can be gathered only from the kind of being of what is historical, from historicity and its rootedness in temporality.\(^{210}\)

As I discussed at the close of the preceding chapter, Heidegger argued that the tendency to raise the question of history, not simply as an object of scientific knowledge but as a feature of human existence itself, was alive in Dilthey’s thinking.

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\(^{210}\) Heidegger, *BT*, p344. In his study of Heidegger’s concept of history, Michael Murray writes that ‘A source of confusion permeating most discussions of history comes from the academic conflation of history with historiography, a conflation which ranges from mere carelessness to an explicit philosophical program. This confusion, implicit or explicit, we shall call historicism.’ See Michael Murray, *Modern Philosophy of History*, (Martinus Nijhoff, The Hague, 1970), p24. However, the introduction of this term, often used as a translation of the German *Historismus*, is perhaps more confusing than clarifying. This is due to the many different senses in which it is employed. As Murray notes, Karl Popper famously, and idiosyncratically, employed the term to describe a science of historical prediction in *The Poverty of Historicism*, (Routledge & Kegan Paul, London, 1984). Aside from this somewhat unorthodox use, historicism is also more commonly used to describe various aspects of the recognition of a ‘human world’ consisting of the purposeful actions of humanity alongside the realm of nature. From this stems the sense of ‘historicism’ as a specific method of understanding past events, or as the claim that all knowledge is relative due to the fact that it is contingent upon its historical development. Calvin G. Rand provides an account of the relationship between these senses in the German tradition in ‘Two Meanings of Historicism in the Writings of Dilthey, Troeltsch, and Meinecke’, *Journal of the History of Ideas*, vol. 25 (1964), pp503-518. Given these confusions I will not follow Murray’s lead here.
Yet, he claims that this tendency was only given 'unambiguous expression' in his Correspondence with Count Yorck. Heidegger writes:

At bottom Yorck is demanding a logic preceding the sciences and guiding them as did Platonic and Aristotelian logic, and this demand includes the task of developing, positively and radically, the various categorial structures of the being that is nature and the being that is history (Da-sein). Yorck finds that Dilthey’s investigations “too little emphasize the generic difference between the ontic and the historical”.211

This is the project that Heidegger takes upon himself in his investigation of the temporality and historicity of human existence. The analyses of both the temporality (Zeitlichkeit) and historicity of human existence in Being and Time are far too complex to be fully addressed here.212 Thus, I will only focus upon his claim that:

Historicity means the constitution of being of the “occurrence” of Da-sein as-such; it is the ground for the fact that something like the discipline of “world-history” is at all possible and historically belongs to world history. In its factual being Da-sein always is as and “what” it already was. Whether explicitly or not, it is its past. It is its own past not only in such a way that its past, as it were, pushes itself along “behind” it, and that it possesses what is past as a property that is still objectively present and at times has an effect on it. Da-sein “is” its past in the manner of its being which, roughly expressed, on each occasion “occurs” out of its future. In its manner of existing at any given time, and accordingly also with the understanding of being that belongs to it, Da-sein grows into a customary interpretation of itself and grows up in that interpretation. It understands itself in terms of this interpretation at first, and within a certain range constantly.213

The point Heidegger is trying to make regarding the role of the past in human existence can be clarified by returning to the separation of the human and natural worlds. As I noted in the previous chapter, the human or historical world, as it was formulated from Vico onwards, consisted of the intentional and purposeful actions of human beings. This realm was defined in opposition to the natural realm, of which we know only appearances. Heidegger’s account of historicity is essentially an account of how the past must be experienced by the existing human beings that create the human world through their actions.

His answer to this question is that the past is only historical if it is appropriated in the present. Existing humans must act within a finite historical situation which is not of

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211 Heidegger, BT, p364.
212 The concepts in question have been explored at length in various works. Of particular interest here is Han Ruin, Enigmatic Origins: Tracing the Theme of Historicity through Heidegger’s Works, (Almqvist & Wiksell International, Stockholm, 1994), and Michael Murray, Modern Philosophy of History.
its own making. The possibility of acting freely in this given situation rests upon our ability to project possibilities into the future and to see the past as not merely a bald fact, but as meaningful in light of these possibilities. Calvin Schrag summarises this well in his article on the concept of repetition (*Wiederholung*):

...repetition is a matter of *reclamation* rather than recurrence, and what is reclaimed are possibilities rather than factual historical incidents. “*Repetition is the handing over and appropriation (Überlieferung)—that is to say, a going back to the possibilities of the *Dasein* that has-been-there.*” Repetition is the handing-over and appropriation of possibilities. It is an appropriation through which the past is reclaimed as possibility. Repetition thus occasions a reopening of the past by translating that which has been into possibilities to be chosen time and again...Repetition hands over the past as a past with a *meaning or sense*. Without repetition the past would simply be a collection of isolated facts and would remain without meaning or sense. 214

This final sentence is crucial for it summarises Heidegger’s objections against those philosophers that were concerned with history only as an epistemological problem. Both Dilthey and the Southwest neo-Kantians sought to secure the objectivity of historical knowledge, the first through an appeal to *a priori* and absolutely valid values, and the second to a method of hermeneutic understanding. To be sure, Dilthey sacrificed the claim to the absolute validity of historical knowledge, yet was still greatly concerned to establish that this knowledge need not collapse into relativism. By taking seriously the claim that history examines the past actions of humans and examining what this implies about human existence itself, Heidegger undermines any claims to objective historical knowledge. As Bambach puts it, ‘...for Heidegger, we are never in a position to judge objectively about the meaning of the past because our relations to ourselves and other beings are always mediated by our existential cares and concerns.’ 215 I will take up the implications of this position for Heidegger’s own reading of the history of being, which is extremely controversial, at the end of chapter six.

9.

I come finally to Heidegger’s alternative account of human selfhood. The topic of authenticity is dealt with in greatest detail in the second half of *Being and Time*.

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214 Calvin O. Schrag, ‘Heidegger on Repetition and Historical Understanding’, *Philosophy East and West*, vol. 20 (1970), p289. The quotation in this passage is Schrag’s translation from p385 of *Sein und Zeit*. This is p352 in the Stambaugh translation and reads there ‘*Retrieve is explicit handing down*, that is, going back to the possibilities of the Da-sein that has been there.’

Brief discussions can also be found in the lecture courses *History of the Concept of Time* (1925) and *Basic Problems of Phenomenology* (1927). The lecture entitled *The Concept of Time* (1924) also contains a lengthy discussion of this issue. The point of departure of these discussions is the issue of death. Heidegger argues, in concert with his discussion of everydayness and the they-self (*Man-selbst*), that in our everyday understanding we approach death in a manner that covers over its true nature. ‘Everyday being-toward-death’, as he puts it, involves an avoidance of the true significance of death. Death is understood as a certainty but only in the sense that ‘one also dies sometime’. In fact, ‘Everydayness gets stuck in this ambiguous acknowledgement of the “certainty” of death…’ 216 The point here is that although we often deal with death in our everyday lives, we do not look directly at the nature of death. So long as we persist in this attitude, the individuating aspect of death is missed.

If death is truly confronted, then there are several points that become clear. Firstly death is certain in that it must occur eventually, but also indefinite in that it could occur at any time. Secondly, death is utterly individualising in that it cannot be taken on by another. Although I mostly live in a common understanding of death in which it appears as something that happens to everyone, it is truly only my death that awaits me, never death in general. Although we witness the death of others, the fundamental significance of death is the possibility, for each person, of no longer existing. Death, seen in this way, forces a recognition of the finitude and ‘mineness’ or ‘ownness’ of our existence.

These reflections upon death lead Heidegger to the formulation of authentic existence as *Da-sein* grasping the possibility of being itself. Death as the mark of the finitude and individuality of *Da-sein* provides the basis upon which authentic anticipation is possible. That is, it becomes possible upon the basis of this correct conception of death to grasp in advance *Da-sein* as a possible whole. As a being that is still becoming, *Da-sein* can never be a completed whole, for this completion amounts to the end of human existence.

For Heidegger, the issues of wholeness, death, and authenticity are all closely related. The wholeness of each *Da-sein* can never become actual for that *Da-sein*. However, it is possible to anticipate, that is prepare in advance, for this wholeness.

216 Heidegger, *BT*, p236.
This can only be done in an authentic manner if what is anticipated is correctly understood. Death is in each case the death of a particular person and as such is the guarantee of the individuality of the existence to which it brings an end. Existing authentically amounts to bringing Da-sein from lostness in the they-self, back to the self through anticipation of death as my own death. It is possible, upon this recognition of selfhood, to make the self the basis of our projects and resolutions.

As Richard Schacht has pointed out, Heidegger’s formulation of authenticity involves an alienation, or entfremdung, of the self from itself.\textsuperscript{217} Given this characterisation of everydayness in terms of lostness and distraction, it would be easy to see Heidegger as taking authentic existence as the essence of Da-sein from which it falls away. Although these terms seem to express a marked preference for authenticity over inauthenticity, we must keep in mind that Heidegger also explicitly rejects the idea that these ontological categories carry any moral or normative weight. Authenticity and inauthenticity are simply two possible modes in which Da-sein can exist.

10. Authenticity becomes central to the issue of practice in Being and Time because it is through practice, understood ontologically, that Da-sein can take up the possibility of living authentically. Heidegger persistently characterises the possibility of authentic life as something that must be grasped or wrested from the tendency of Da-sein towards everydayness and inauthenticity. The self-grounded and self-directed nature of authentic life is something that must be won. We are not simply a self, in Heidegger’s sense, without working to making it so. The projection of possibilities and the making of choices in the awareness of the ownership and finitude of one’s existence, is the medium of authenticity. By this I mean that, in Heidegger’s early works, authenticity relies upon our choosing and carrying out, even though his ontological approach prevents the recommendation of particular courses of action.

The later Heidegger becomes increasingly uncomfortable with this formulation. By the time of writing the Letter on Humanism (1947) he has begun describing man as the ‘shepherd of Being’ in a clear attempt to break away from the earlier formulations in which human existence wins its authenticity through an ordering and calculation of itself and beings. At the very beginning of this Letter on Humanism

Chapter Three

Heidegger states that ‘We are still far from pondering the essence of action decisively enough.’\textsuperscript{218} This appears to refer as much to other philosophers as to his own formulation of existence in \textit{Being and Time}. For throughout this letter, Heidegger is concerned that we overcome the conception of thinking as merely a process of calculating. His intent seems to be to again reopen the problem of our worldliness and to assert the difference between calculation, seen as an order of means and ends, and the more primordial thinking, understood as letting being come to presence.

The issue of precisely what prompted this reversal of metaphors cannot be fully dealt with here. However, it is perhaps the sort of erroneous readings of \textit{Being and Time} that I have outlined, that drove Heidegger to this reversal of metaphors. Although it seems that a careful reading of \textit{Being and Time} shows that it does not describe man as essentially practical, in the usual sense of the term, it has been and still is read in that way. As there seems to be no radical alteration in the description of human transcendence in Heidegger’s later work, it is possible that he was attempting to rid his thinking of these misleading connotations by changing the emphasis of his discussion in order to demonstrate the inadequacy of restricting thought and being to one determination.

\textbf{11.} 

In this discussion of \textit{Being and Time} I have only touched the surface of Heidegger’s analysis of human existence. The issues I have discussed, namely the distinction of theory and practice, his account of science, the concept of historicity, and the possibility of authentic existence, each have a vast field of scholarship devoted to them which I cannot possibly address here. However, my aim was not to provide a full account of the structure and plausibility of Heidegger’s arguments. Rather, I have tried to establish a quite specific point, that Heidegger’s early critique of the philosophical concept of human subjectivity addresses the tension between the finite and historical nature of human existence and the concept of scientific knowledge as universal and necessary. He came down decisively against the notion that humanity can attain the divine outlook upon being implied by the ideals of theoretical knowledge. This is because human existence is essentially involved in the world and essentially self-interested. Thus, the foundation of human knowledge is not an

absolutely detached ‘I’ which observes the world from without, but a self which only is through its involvement with the world, and a world which is revealed only in this concerned engagement. For Heidegger, the unity of human existence stems from an active unification of past, present, and future, rather than from an underlying substance which remains the same throughout the continuous transformation of our accidental characteristics.

Thus, the central innovation of *Being and Time*, is not to be found in its myriad neologisms and ontological categories, but in the *standpoint* from which Heidegger writes. He explicitly attempts to unite the subjective and objective elements of historical knowledge that had previously been held apart in both philosophical and historical research. By this I mean that historiographic research had conceived of the historical realm as the realm of human *action* and had increasingly shown the historical relativity of this *action*. Yet these determinations had not been taken personally by philosophers and historians themselves. Although Dilthey and Yorck came close, Heidegger contends that the modern philosophical tradition did not confront the consequences of these determinations for its own claims to objective, necessary, and universal knowledge. In his discussion of the historicity of human existence Heidegger attempted to do just this. From within this new, historical, standpoint Heidegger develops an account of the difference between ancient and modern science and it is to that matter that I turn in the next chapter.
Chapter 4
The Difference Between Ancient and Modern Science

Now that I have provided an interpretation of *Being and Time* and the philosophical context from which it developed, I will carry out in the next three chapters a closer examination of Heidegger’s account of the essence of modern technology. This account rests upon the claim that the being of beings is conceived of in a distinctly new way in the modern era. Heidegger argues that what counts as a being in the modern age is what can be securely represented by the human subject. However, I will defer a direct discussion of this argument until chapters five and six. For the moment I intend to continue my discussion of the foundations of scientific knowledge by addressing Heidegger’s characterisation of the difference between ancient and modern science. Due to Heidegger’s claim that physics and metaphysics are dependent on one another, this discussion of the nature of science will provide an introduction to his more direct discussions of the essence of modern technology.

The extent to which Heidegger’s thinking was occupied by the nature and significance of science is often not fully recognised by interpreters of his work. It is certainly true that he did not delve into analyses of complex and technical experiments, nor concern himself greatly with models of inductive and deductive logic. Yet, as I have tried to demonstrate in the preceding three chapters, consideration of the concept of science and its relationship to human existence and philosophy played a central role in the formulation of *Being and Time*. Furthermore, as I outlined in the introduction, his account of the distinctive nature of modern science plays a central role in his critique of the essence of modern technology. Thus, although Heidegger does not fit our modern picture of a ‘philosopher of science’, Trish Glazebrook is right to claim that:
...what are taken to be Heidegger's many and significant contributions to philosophy—that is, his overcoming of metaphysics, his rereading of the ancients, his critique of technology and representational thinking, his vision and revision of language, truth and thinking—have at their core an inquiry into science that drove his thinking for sixty years.219

The various approaches Heidegger takes towards science are unified by his claim that science relies upon an initial 'projection' of its domain of objects. This analysis of science is, as I will demonstrate shortly, an extension of Heidegger's general reflections on the nature of understanding in Being and Time. This is not to say that Heidegger's attitude towards science and metaphysics did not change over the course of his career. Indeed, there is a clear contrast between his early characterisation of his own endeavours as both scientific and metaphysical, and his later writings in which he characterises metaphysics as a mode of thinking which 'forgets' or 'covers' the question of being. Thus, there are two senses in which Heidegger employs the term 'metaphysics'. The first, and earlier sense, is simply as a name for philosophical thinking regarding being itself, rather than scientific inquiries into particular regions of being. The second, and later sense, is as a particular mode of thinking about being, or more precisely, an assumed doctrine about the nature of being. Whilst his analysis of the nature and significance of science changes along with the hardening of his critique of metaphysics, he remains committed to this fundamental schema of projection.

Heidegger's discussions of the nature and significance of science are scattered throughout his work, from his very early neo-Kantian considerations of the concept of time in the study of history, through Being and Time, and throughout his later

219 Trish Glazebrook, Heidegger's Philosophy of Science, (Fordham University Press, New York, 2000), p13. Both in this book and in several other articles Glazebrook has detailed how the theme of science runs through Heidegger's career and the various phases of this critique. See Glazebrook, 'Heidegger and Scientific Realism', Continental Philosophy Review, vol. 34 (2001), pp361-401; 'The role of the Beitrage in Heidegger's critique of science', Philosophy Today, vol. 45 (2001), pp24-32; 'Heidegger on the experiment', Philosophy Today, vol. 42 (1998), pp250-261. Glazebrook argues against the view put forward by William J. Richardson that 'On the longest day he lived, Heidegger could never be called a philosopher of science.' Richardson thinks that Heidegger's ontological approach is of no use to scientists because of the 'poverty of Heidegger's analyses of ontic truth as such.' Furthermore, he writes that 'A conception of ontic truth that would be of genuine service to this type of science [contemporary physical science] would have to go much further than Heidegger has gone in explaining the minutiae of the research technique.' For these quotes see p511 and p535 of William J. Richardson, 'Heidegger's Critique of Science', New Scholasticism, vol. 42 (1968), pp511-536. Whilst Richardson provides an otherwise quite useful account of the connection between Heidegger's account of science and the essence of technology, he assumes a very narrow definition of 'philosophy of science'.

efforts to understand the relationship between philosophy, science and technology. It is thereby possible to draw upon almost any period of Heidegger’s work in order to illuminate the nature of his interest in science. However, I will largely restrict my discussion to the 1935-36 lecture published under the name *Die Frage Nach dem Ding*, and translated as *What is a Thing?* In this lecture Heidegger provides a detailed account of the difference between ancient and modern science and the importance of metaphysics in this change. I will therefore focus closely upon this lecture in this discussion and draw upon other writings where necessary.

1.

At the beginning of *Die Frage Nach dem Ding* Heidegger establishes the difference between philosophical questioning and scientific questioning. He states that science always gains its starting points from ‘a direct transition and entrance to them starting out from everyday representations, beliefs, and thinking.’ We should not take this to mean that the basic concepts of scientific thought are immediately apparent to us in our everyday lives, for clearly it takes some education and training to come to see matters as a scientist does. Rather, the issue is that science is able to assume its starting point and proceed with its investigations from these assumptions. Once the fundamental concepts of a science have been defined, then ‘the plane of questioning will not be abandoned again when the questions become more difficult and complex.’

Science, in contrast to philosophy, is able to continue its investigations without returning to these basic assumptions that define the domain of the science in question. Heidegger constantly reiterated the idea that each science, insofar as it is involves the disclosure of a particular region of being, is founded when the nature of this region of being is established and the manner of investigation is also settled. The nature of the region of being determines the limits of how it can be investigated. We can turn to *Being and Time* for an example of this idea. Heidegger states there that:

> The scientific project of the beings somehow always already encountered lets their kind of being be explicitly understood in such a way that the possible ways of purely discovering innerworldly beings thus become evident. The articulation of the

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220 Martin Heidegger, *What is a Thing?*, trans. W.B. Barton, Jr. and Vera Deutsch, (Henry Regnery Company: Chicago: 1967). The section of this lecture that is of particular interest here has also been reprinted under the title ‘Modern Science, Metaphysics, and Mathematics’ in Heidegger, *Basic Writings*, pp267-306.

221 Heidegger, *What is a Thing?*, pp1-2.
understanding of being, the definition of the subject-matter defined by that understanding, and the prefiguration of the concepts suitable to these beings, all belong to the totality of this projecting that we call thematization.\textsuperscript{222}

The founding of a science is understood here as a process of \textit{explicitly} defining a region of beings and the appropriate methods and concepts for investigating this region. Heidegger's interest in science is in fact centered upon this idea that it constitutes a distinctive manner of revealing, and relating to, being.

2.

Heidegger's attention in \textit{Die Frage nach dem Ding} is focused upon Kant's account of the nature of a thing and with the role that his critical philosophy plays in this understanding. Within this broader problem Heidegger addresses the issue of how we should understand the difference between ancient and modern science.\textsuperscript{223} His strategy in this discussion is to focus on the fundamental assumptions upon which each mode of science is founded. He employs a familiar etymological strategy to bring these founding assumptions to the fore. An exposition of the meaning of mathematics and the mathematical for the ancient Greeks serves to set up the problem of how science springs from these founding conceptions of nature. I will follow Heidegger's etymology here in order to demonstrate the scope of his investigation.

Initially Heidegger recounts some of the common explanations of the difference between ancient and modern science. It is said that 'modern science starts from the facts while the medieval started from general speculative propositions and concepts.'\textsuperscript{224} However, this seems inadequate as it is undeniable that facts and observation played no less a role in ancient and medieval science than concepts do in modern science. As will be seen later, both ancient and modern science employed facts and concepts. The more fundamental issue is the \textit{manner} in which they were employed. The statement above takes no account of the subtlety of the division between these two modes of science.

Heidegger makes the same point regarding the notions that modern science is distinctive due to its use of the experiment, and that its use of measurement and calculation is unique. In both cases it is possible to point out that ancient and

\textsuperscript{222} Heidegger, \textit{BT}, p332.
\textsuperscript{223} Heidegger, \textit{What is a Thing?}, pp66-107.
\textsuperscript{224} Heidegger, \textit{What is a Thing?}, p66.
medieval sciences employed observation and reckoning of nature. It is merely that they did not do so with the same intent as modern scientists. Heidegger is certainly correct in seeking a more subtle account that takes in the metaphysical framework within which science is pursued. In all three cases, it is not possible to distinguish ancient and modern science solely on the basis of the presence or absence of these features. Rather we must look at the ends which motivate these practices, and thereby the different emphases they receive.

Such crude accounts are obviously inadequate, however, they do capture a feature common to more sophisticated examinations of the history of science. This feature is the assumption that ancient and modern science form a unified tradition in which the modern variation has been vastly more successful than the ancient. The greater success of modern science is a product of its greater emphasis upon ‘facts’. The modern experimental method is seen as an expression of this greater attention to ‘facts’.

Yet, Heidegger contends, on closer inspection it appears that such an account is unsatisfactory for the reason that it ignores the fact that ancient science was no less oriented towards the facts than modern science, and that modern science is no less involved with the use of concepts. Such a superficial account is attractive because it allows us to maintain the notion of a unified history of science in which ancient inquiry is represented as the fumbling and naïve beginnings of modern science. In fact the matter appears to be much more complicated than this. For although it is possible to examine the history of science and identify ‘early’ traces of modern scientific practice, such enterprises tend towards anachronism and must overlook the possibility that the aims of science have fundamentally changed. The methods of science are not a sure guide to the difference or unity of science due to the fact that we must know to what ends these methods are employed.

Heidegger’s aim in this discussion is to demonstrate that a fundamental understanding of nature provides the unifying principle for experimentation, measurement, observation of facts and use of concepts. The issue of how this understanding is related to experience and philosophy will become important later. At this stage it is sufficient to establish its existence and its forms in ancient and modern experience.

The issue of mathematics now becomes interesting as Heidegger proposes that the fundamental feature of modern science, understood as what ‘rules and determines the
basic movement of science itself, is its mathematical character. But this is not to be understood in the sense that modern science employs the science of mathematics in its experiments and measurements. In reflecting upon what the mathematical is, Heidegger turns to the ancient Greek origins of the word and announces that ‘Mathēsis means learning: mathēmata, what is learnable.’225 The learning in question is of a very particular type. It is the learning of what a thing is, a learning that must occur in advance of the encounter with the thing if we are to see it as the thing it is. Heidegger uses the example of our encounter with a rifle. Whilst it is possible to learn many things about the correct operation of a rifle, we must first come to know what a rifle is. Thus the most original learning is taking cognizance of things ‘as what we already know them to be in advance, the body as the bodily, the plant-like of the plant, the animal-like of the animal, the thingness of the thing’ 226 The mathēmata are thereby things considered in the light of what we already know them to be, and numbers are only a special, although very prominent, case of this. For example, we gain no knowledge of ‘three’ from various collections of three things, rather we must know what three is in advance in order to identify such groups of three.

It is now possible to see the direction of Heidegger’s inquiry into the mathematical nature of modern science. It is certainly true that modern science employs mathematics, understood as the science of quantities and figures, much more comprehensively than was the case in ancient and medieval science. However, Heidegger is now asking about the mathematical character of modern science in the sense of this term that was developed by his etymological excursion. Thus, he poses the problem of understanding what modern science knows about things in advance, such that the science of mathematics is able to play such a prominent role in its investigations.

3.
Heidegger repeatedly employs the term ‘project’ (Entwurf) in his discussions of science. His use of this term is best understood in the light of his comments on understanding (verstehen) in Being and Time. Heidegger argues in Being and Time, as well as in several other works from that period, that understanding is essentially grounded in its ‘fore-structure’. This ‘fore-structure’ is also referred to as the

225 Heidegger, What is a Thing?, p71.
226 Heidegger, What is a Thing?, p73.
'project of understanding'. Initially we must note that Heidegger uses the term 'understanding' in a technical manner. Whilst we would ordinarily reserve the term to describe someone that has grasped a particular problem or knows how to do something, Heidegger employs it in a peculiar way. Understanding is used in Being and Time to denote the way in which we disclose the world. As will be clear from the discussion in the previous chapter, the term 'world' here refers not to a physical expanse but to a totality of significant references. Thus, it is never the case that we encounter something objectively present which we later come to interpret as this or that. Our world is always already invested with relevance and value. It is our stance towards these always already relevant objects that is characterized as understanding. We can see that Heidegger uses 'understanding' to denote our disclosing stance towards the world rather than any mental faculty or the result of any inquiry. It is for this reason that 'interpretation', taken as the 'development of possibilities projected in understanding,' is 'existentially based in understanding, and not the other way around.'227 'Interpretation' is the name Heidegger gives to the 'as' structure of understanding. In so far as we always see the objects of our world as relevant, we always see something as something. Thus, our world is always interpreted and this interpretation is the condition of its possibility.228

We see thereby that the role given to understanding necessarily involves a preempting or anticipation of the objects which it founds. If our disclosing of objects is an understanding disclosing then there can be no 'original' or uninterpreted object which can form the basis of subsequent investigations. The appearance of the object occurs only within a context and gains its character from this context. It is this anticipatory character of the understanding that Heidegger describes as its 'fore-structure'. This points us to the three structural moments of interpretation. Heidegger names these three moments the Vorhabe, Vorsicht, and Vorgriff. These terms have been rendered respectively as fore-having, fore-sight, and fore-conception, by Macquarrie and Robinson and by Joan Stambaugh in her more recent translation.229 Theodore Kisiel, in his translation of the lecture course History of The Concept of Time, renders these same terms in more standard English

227 Heidegger, BT, p139.
as prepossession, pre-view, and preconception.\footnote{230} Heidegger takes these three moments as constitutive for interpretation and thereby understanding. I will attempt to characterize them in turn.

Heidegger states that ‘Things at hand are always already understood in terms of a totality of relevance.’ These things at hand are not always the explicit theme of an interpretation, however, as we saw above, they are nevertheless always interpreted in the sense that they always appear in a certain relevance. Heidegger argues that even if the thing at hand ‘has undergone such an interpretation, it recedes again into an undifferentiated understanding. This is the very mode in which it is the essential foundation of everyday, circumspect interpretation.\footnote{231} We can understand fore-having as referring to the manner in which objects are always already present in our ‘undifferentiated understanding’. We must already have the objects in a certain manner if we are to interpret them further. They must already be present in a world constituted by significance if their nature is to be brought out more precisely.

Heidegger states in the History of the Concept of Time that ‘That about which the discourse is from the start is always already discovered in some sense, anticipated as this or that for a primary understanding.’\footnote{232} Before interpretation, understood as ‘the way of enacting the understanding’, takes a further step, it must already have as its basis an understanding of that which it is about.

Heidegger goes on to argue that the ‘interpretation is grounded in a foresight (Vorsicht) that “approaches” what has been taken in fore-having with a definite interpretation in view.’\footnote{233} This seems to point to the fact that the interpretation must be guided by a prior sighting of the object. As we saw above, interpretation always finds its basis in an understanding of what it is about. If this is to be the case, then this basis is always already seen as something. Thus, we find that the interpretive structure, taking something as something, is to be found prior to each interpretation as its basis. Heidegger describes this foresight or pre-view as ‘That toward which what is placed in prepossession is thus sighted, that toward which it is regarded, with respect to which it comes into sight’.\footnote{234} The thing at hand taken up in prepossession

\footnotetext{230}{Heidegger, HCT.}
\footnotetext{231}{Heidegger, BT, p140.}
\footnotetext{232}{Heidegger, HCT, p299.}
\footnotetext{233}{Heidegger, BT, p141.}
\footnotetext{234}{Heidegger, HCT, p299.}
or fore-having is not simply a thing. It is already interpreted and taken in a certain view in so far as it forms part of the structure of references of the ready-to-hand.

Finally, I come to the notion of a fore-conception or preconception (Vorgriff). Heidegger directs us here to the conceptual scheme that we bring to the interpretation based upon our fore-having and fore-sight. He argues that we take the object that is to be interpreted up into a conceptual framework which can either be drawn from that object or be forced upon it. As the pre-view and the prepossession ‘indicate in advance which of the possible correlations of meaning (should and can) be brought out in the thematic field’, the ‘conceptuality which corresponds to this particular interpretation and this particular theme is thus prefigured.’ The important point that Heidegger is trying to make is that even our most inexplicit and undeveloped understandings are characterized by this fore-structure. In our everyday handling and using, things at hand are always already understood in terms of their relevance and usefulness. Thus, we always already have objects in our inexplicit everyday understanding. We can further interpret these objects and this is undertaken in accordance with a pre-view of the object. Finally, we can produce an interpretation of the object, the conceptuality of which is determined in advance and can be either appropriate or inappropriate.

The use of ‘project’ in various phrases, such as the ‘mathematical project’ or the ‘project of thingness’, can be interpreted in light of this analysis of the fore-structure of understanding. In both his early analysis of understanding in Being and Time and the later problem of the mathematical project that underpins nature, Heidegger is attempting to emphasise the fact that we must go beyond experience if it is to appear in a meaningful light for us. The details of the existential analysis of understanding can be translated to the broader problem of how nature appears in a certain light for scientific investigation. By investigating the mathematical project, Heidegger is investigating that groundplan (grundriss), or domain (spielraum), within which our experience of nature takes place.

4.

Heidegger illustrates this modern mathematical understanding of things by demonstrating the contrast between the Aristotelian account of nature and that of modern science. This approach is particularly effective as it allows us to consider the

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235 Heidegger, HCT, pp299-300.
recent emergence of what appears to us now to be unquestionably the case. As Alexandre Koyré has put the matter:

"We are so well acquainted with, or rather so well accustomed to, the concepts and principles which form the basis of modern science, that it is nearly impossible for us to appreciate rightly either the obstacles that had to be overcome for their establishment, or the difficulties they imply and encompass."

The radical nature of modern mathematical science becomes clear to us through an historical examination of how fundamentally it departs from the assumptions of Aristotelian natural science. Such a study is not without its difficulties. In particular it is vital that the writings of the ancient Greeks and the medieval philosophers be interpreted in terms of their own concepts. The anachronistic imposition of concepts from modern quantitative physics upon Aristotle's essentially qualitative physics not only makes his work seem utterly misguided, but also makes it impossible to correctly understand the provenance of our own scientific assumptions.

I mention this problem of anachronism before I approach the matter of how ancient and modern science differ, in order to establish that this is not a question of evaluating the correctness of either approach. Neither myself, nor Heidegger in his essay, approach this issue with the idea of establishing which science is superior, or whether approximations and glimpses of modern science can be found in Aristotle's writings. The issue of the internal coherence of a science with regard to its founding conception of nature is not something that will be dealt with here. This is not to suggest that Aristotle had developed a completely satisfactory and coherent physics. There were certainly difficulties and points of tension in his system. A prime example of which is Aristotle's explanation of thrown objects. Furthermore, there

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237 For an attempt at reading Aristotle's *Physics* in his own terms see Helen S. Lang, *The Order of Nature in Aristotle's Physics*, (Cambridge University Press, Cambridge, 1998). In particular see her discussion of the problem of Aristotle's explanation of the manner in which objects move through mediums of different density.

238 This was a particular problem for Aristotle for he had asserted that everything that is moved must be moved by a mover. The difficulty here is that there are many examples in which a body continues to move long after it was in contact with its original motor. Aristotle's answer that the medium through which the body moves pushes that body along is obviously unsatisfactory as the medium must then be both a motor and provide resistance to that same movement. Furthermore we must ask what is it that moves the medium. This difficulty with Aristotle's account led to the development of impetus physics. See Alexandre Koyré, 'Galileo and Plato', in *Metaphysics and Measurement*. Also see Aristotle, *Physics*, trans. Hippocrates G. Apostle, (Indiana University Press, Bloomington and London, 1969), books H and Θ.
is no doubt that such difficulties can lead to the questioning of the adequacy of a founding projection of nature.

The existence of such problems does not, however, render the entire physics absurd. Koyré expresses much the same sentiment. He states that:

> Aristotelian physics is false, of course; and utterly obsolete. Nevertheless, it is a "physics", that is, a highly though non-mathematically elaborated science. It is not a childish phantasy, nor a brute and verbal restatement of common sense, but a theory, that is, a doctrine which, starting of course with the data of common sense, subjects them to an extremely coherent and systematic treatment.239

It is senseless to criticise the scientific concepts of one age because they do not embody the concepts of another age. That ancient and modern science have utterly different aims will become clear in the course of this discussion. The notion that recent science represents an improvement of ancient efforts is seriously misleading. Although both ages seek knowledge of nature, the structure of nature and thereby the appropriate methods of investigation, as well as what counts as a scientific explanation, are understood differently in both. Indeed, the term 'nature' is at the very centre of this debate. If we take note of the fact that our understanding of 'nature' is distinctively modern, then the incommensurability of ancient and modern science becomes clear. Modern natural science is not an improvement upon Greek natural science because the modern understanding of nature is utterly foreign to that which underpins the investigations of the ancients. That Aristotle was simply wrong in some matters does not preclude us from seriously examining the assumptions that underpinned his scientific writings.

5.

In attempting to demonstrate the contrast between ancient and modern science, Heidegger chooses several aspects of Aristotle's physics and contrasts them with Newton's work. In particular he focuses upon the doctrines of motion that stand at the foundations of these two physics. I shall follow his account and supplement it where it appears to skip over other relevant points. In following Heidegger's account I will adopt his use of the terms 'ancient' and 'modern' science. No claim to completeness should be understood by the use of these terms. Aristotle's natural science is not the sole 'ancient' science and this discussion of the birth of modern science must of necessity avoid many of the developments that made the break with

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239 Koyré, 'Galileo and Plato', pp22-23.
a predominantly Aristotelian medieval worldview possible. This analysis should be taken merely as an examination of the metaphysical doctrines that founded two extensive traditions of Western thought. It can obviously make no claim to historical completeness given the wealth of intellectual developments that can be included under two such broad headings.

Beginning with Aristotle, we see that he conceives of motion, or *metabolē*, in a very broad sense, such that it includes all alterations of a thing. Indeed, he divides motion into the alteration of substance, quantity, quality, and place.\(^{240}\) Heidegger addresses only the issue of change in place as this is the object of most of Aristotle’s discussions in the *Physics*. It also corresponds most closely with the focus of Newtonian physics. For modern readers, the most striking aspect of the local motion of bodies in Aristotelian physics is the relationship between the place of a body and its nature. The motion of a body is determined both by its place and its nature. Different elements, by virtue of their different natures, will behave differently in accordance with their place. Aristotle employs four elements in his physics, earth, water, air, and fire. (A fifth element, aether, is discussed in his account of the heavens in *De Caelo*, however this will not be dealt with here.) Heidegger states that, according to Aristotle: ‘The purely earthly body moves downward, the purely fiery body—as every blazing flame demonstrates—moves upward. Why? Because the earthly has its place below, the fiery, above. Each body has its place according to its kind, and it strives toward that place.’\(^{241}\) For Aristotle, the nature of an element dictated its natural movement and its natural place.

Two related ideas are implicit in this account of the nature of the elements. Firstly, the idea of natural motion leads us to the idea of *unnatural* or *violent* motion. If we take the example of earth naturally moving downwards, it is clear that this does not always occur as earth may be suspended in the air or even thrown upwards. Thus, it is certainly possible for motions that are against nature to occur. We must understand however, that Aristotle’s aim in his discussion of physics is to study things as they exist according to nature. Thus it is only natural things such as plants, animals, and the elements, that are under consideration. These things are natural because they contain a source of motion within themselves. In the case of things that are produced by art and not nature, the source of motion must come from outside the

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\(^{240}\) Aristotle, *Physics*, Γ, 1, 200b30-35.

\(^{241}\) Heidegger, *What is a Thing?*, p83.
Chapter Four

artefact. The craftsman imposes form onto matter. In natural things, the matter yearns after its proper form and moves towards this if it is not hindered. As Lang argues,

> No imposition of form is ever required for natural generation and growth because natural things possess an intrinsic principle of being moved and being at rest. This principle is matter aimed at and presupposing form, i.e., nature in the primary sense: in natural things, form and matter go together “by nature.”

Lang’s mention of rest as well as motion refers to Aristotle’s notion that the fulfilment of an object’s nature results in it coming to rest. Thus, with regard to the elements, once they have moved to their proper place they rest there unless disturbed by violent motion. The natural local motion of the elements is a product of the striving of matter to attain its appropriate form.

6.

A further point, mentioned by Heidegger, is that Aristotle understands the spaces in which bodies move to be both limited and heterogeneous. This must be so if the movements of the elements are to be understood. If the elements are always to move to their place, these places and the directions of movement must be absolute. The directions, up, down, left, right, forward, and backward, are absolute for Aristotle. The earth forms the centre, the point at which the element earth collects. Thus, down is always towards this centre, and up is away from it. Each element moves according to this absolute orientation of space, the heavy down and the light up, and so on. It is because of this that places are not interchangeable in Aristotelian physics. The behaviour of an element depends upon the relationship between the nature of the element and its position in this absolute framework. An object rests in its natural place and moves towards this place if it is somewhere else. This explanation of motion in terms of place and nature, leads Aristotle to define place as the ‘primary motionless boundary of that which contains’. This odd definition is reached because he must be able to account for the absolute places that his understanding of motion demands. Thus, the cosmos was seen by Aristotle as a finite sphere. Its motionless boundary provided the absolute orientation of place against which all motion could be measured.

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242 see Aristotle, *Physics*, books A, B, Γ.
Aristotle’s account of such fundamental concepts as motion, place, and nature is entirely different from that outlined in Newtonian physics. For Aristotle, place, motion and the elements are addressed in terms of qualities and essences. The movement of a body is never simply a matter of distance covered, it is more importantly a matter of alteration in the quality of the body. The natural movement of a body is a change in its essence from potential to actual.

Before I go on to the second part of this contrast by examining Newton’s basic position, I will discuss the implications Aristotle’s conception of nature has on the procedure of scientific inquiry. This is an issue that Heidegger does not himself address in the lecture that I have been following, however, it is important in that it further clarifies the nature of ancient science.

7.

The character of explanation in Aristotelian and scholastic science is determined by the conception of natural things as a combination of matter and form. In particular, it is the idea that form wholly determines what a thing is, that enables Aristotle and his medieval followers to define the objects of nature, as if natural science was akin to geometry. As M. B. Foster put the matter in his discussion of ancient and modern science: ‘All the peculiarities of Greek natural science are derived from the assumption that the essence of a natural object is definable, as the essence of a geometrical object is.” In the study of geometry, the evidence of the senses may play only a propaedeutic role. Although it is possible to use illustrations and physical objects in the development of a definition, geometrical objects are not to be found in the sensible realm, rather only within the intelligible realm. The same holds in the case of Greek natural science. Although Aristotle asserts that ‘it should be the concern of physics…to know both natures’, that is the matter and form of an object, it must be understood that matter is subordinate to form. Thus he also argues that: ‘Indeed, the form is a nature to a higher degree than the matter: for each thing receives a name when it exists in actuality rather than when it exists potentially.” It is the form, whether actualised or merely potential that determines the thing. Although matter is required for the instantiation of the form, it provides no basis for scientific knowledge as it is only the form that determines what the thing is.

246 Aristotle, Physics, B, 2, 194b10-15.
247 Aristotle, Physics, B, I, 193b5-10.
As the form of an object is intelligible whilst the matter is sensible, the empirical aspect of Aristotelian and scholastic science is minimal. Indeed, the analogy between geometry and Aristotelian natural science can be pressed further for in both cases empirical evidence can serve only as an illustration. It can serve merely to illustrate something that is in fact only intelligible. Thus, the course of explanation in such a science is not focused upon observation. Rather it is focused upon determining the form of the objects involved in a particular case of motion. Once this has been achieved we can separate forced and natural action, explain natural action in terms of the nature of the body (as explained earlier in the case of the elements moving towards their natural place as the actualisation of their forms), and state the definition of the forms involved. The observed motion of the thing serves only as an illustration of the essences involved. 248 Although I will return to this issue shortly, it is important to recognise at this stage that the analogy between the methods of geometry and Aristotelian physics, does not carry over to the objects of these two sciences. For Aristotle, the objects of these two sciences are of distinct orders.

8.
I turn now to Heidegger’s reading of Aristotle on physis or nature. Heidegger argues that the distinctive character of natural objects is concealed if they are conceived as objects which produce themselves, that is, through an analogy with artificial objects, or objects that are by technē. In the modern age, according to Heidegger, this results in a situation where our knowledge of nature has become indistinguishable from what Aristotle would have called technē, that is productive knowledge which has its end in the thing produced. By this Heidegger means that modern nature is represented in advance ‘as a calculable coherence of forces.’ 249 Heidegger discusses the nature of physis at various times throughout his career for he saw it as integral to his account of metaphysics. In An Introduction to Metaphysics, a lecture course from 1935, Heidegger argues that physis as it was originally understood by the ancient Greeks named ‘the process of a-rising, of emerging from the hidden, whereby the hidden is first made to stand.’ 250 This, he claims, amounts to an experience of the coming to presence of beings, an experience that was later covered over through the development of metaphysical thought.

248 For a discussion of this mode of explanation see chapter 8 of Campbell, Truth and Historicity.
249 Heidegger, QCT, p21.
Heidegger’s most sustained attempt to articulate how *physis* was thought of by the ancient Greeks, can be found in his work from 1939 entitled *On the Essence and Concept of Φύσις in Aristotle’s Physics* B, 1. As Trish Glazebrook has argued, this reading of Aristotle is focused on demonstrating that an echo of the pre-Socratic experience of *physis* survives in Aristotle, even as his account leads to the later view that *physis* and *tecnē* can be understood by analogy with one another.

The essential difference between these two categories of beings lies, according to Aristotle, in the different relationship that they have with their *archē*. The term 'archē' is difficult to render simply in English. Hardie and Gaye translate *archē* as 'principle of motion' whilst Heidegger explains this more fully as both the 'originating ordering' and the 'ordering origin'. Going further, Aristotle says that those things that are by nature are distinguished by the fact that they possess their principle of motion within themselves. Those beings that are by *tecnē* or ‘art’, do not possess their principle of motion within themselves. Rather, they depend upon the prior envisaging of their form by the craftsman. Thus, Aristotle contrasts natural things such as plants, animals, and the basic elements with artefacts such as beds and coats. Natural items hold within themselves the principle of their own genesis so that they come into being of their own accord. Artefacts, by contrast, do not come about of their own accord but are reliant upon *tecnē*.

Aristotle rejects the notion that we can separate the moments of potentiality and actuality when we examine natural objects, as the very beingness or *ousia* of a natural or *physei* being consists in its movement or *kinēsis*. This idea is expressed in the very name *physis* which, as Heidegger recognised, refers to the ‘genesis of growing things’. The very beingness of a natural being involves motion and this motion is not simply change of place, but rather change towards the achievement of an end. It is not the case that there is a process of movement, and then a natural being appears at the end of this process. Thus, in the case of natural beings, the being that holds the potentiality (*dynamis*) or the potency to change is also that which is actualised in this change. The being of natural beings is the very process of actualisation. This is well described by Leclerc when he writes that ‘a physical being

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does not exist as simply actual, but as in-actualisation – as is clear from the many passages in Aristotle in which the noun *energeia* retains the force of the verb *energeo*, to be in action or activity’.255

Following from this, Aristotle claims that in its primary sense ‘nature is the shape or form which is specified in the definition of the thing.’256 That is to say, he identifies the beingness of natural things with their *morphê* or form rather than their *hylê* or matter. For Aristotle the concept of *hylê* is entirely relative to the form in question, and is devoid of any determinations in its own right.257 Thus, *hylê* is simply that which is formed as opposed to the form itself and as such it is always relative to whatever a particular thing is. The fact that *hylê* is considered to be unknowable in itself, as its determinateness comes entirely from whichever form is in question, holds interesting consequences for the nature of Aristotelian and scholastic science. In particular it means that the objects of physical science are rational and that the explanation of motion stems from a correct identification of the form involved, rather than the precise measurement of the motion itself. It is the *morphê* which is the source of motion in natural beings. Thus we come to Aristotle’s definition of nature in the *Metaphysics*:

> From what has been said, then, it is plain that nature in the primary and strict sense is the substance (*ousia*) of things which have in themselves, as such, a source of movement: for the matter is called the nature because it is qualified to receive this, and processes of becoming and growing are called nature because they are movements proceeding from this. And nature in this sense is the source of the movement of natural objects, being present in them somehow, either potentially or actually.258

Thus, although Aristotle conceives of both natural and artificial beings in terms of *morphê* and *hylê*, his conception of nature is very different from that of artefacts. Heidegger brings out in his reading of Aristotle the thought that *physis* names a process in which beings come into being and maintain themselves in being. Both *technê* and *physis* are generative causes (although this word should not be taken in the modern sense of cause) in that they bring into being and determine the nature of

257 Leclerc, *The Nature of Physical Existence*, p115. Leclerc gives a description of the origin of this term. *Hylê* meant ‘wood’ or ‘forest’ and derivatively ‘timber’ used in making something. Aristotle took this later meaning and generalised it to mean simply ‘that out of which’ any particular thing is made.
beings. However, they are different because in the case of *physis*, the *archê* and *telos* are *physis* itself. The *archê* of natural beings, as Heidegger puts it, "is not like the starting point of a push, which pushes the thing away and leaves it to itself. Rather, something determined by *physis*, not only stays with itself in its movedness but precisely goes back into itself even as it unfolds in accordance with the movedness."²⁵⁹ This is not so with something that is by *techne*, as the *archê* of this being is the conception of its form by the craftsman, not the form itself. Furthermore, the end of productive knowledge is the object and not the knowledge itself.

However, Heidegger also argues that Aristotle’s restriction of nature to one realm of beings alongside that of artificial beings encourages the analogy between them. Thus, he claims that what was distinctive about nature for Aristotle, namely its ability to bring *itself* forth, is quickly lost such that nature eventually comes to be either what *produces* itself or what is *produced* by a divine creator. The very merit of Aristotle’s account, however, was that nature was something entirely different from production. Thus, the questioning of nature changed, according to Heidegger, from a question about being itself, in the sense that it was an attempt to understand the manner in which natural beings emerge, into a question about the relationship of a certain realm of beings to their ground.

Thus, although Aristotle distinguishes between natural and artificial objects in various ways, when it comes to the most fundamental determination of the being of natural beings, he falls back upon an analogy with production. Indeed, as I discussed earlier, Aristotelian science differs from modern science because it assumes that it is possible to *define* the form of natural objects. Yet, as Foster insightfully argued,

> For an object to be definable, two conditions must be satisfied: (i) its form must be intelligible, and (ii) its form must be its real essence. Both conditions are satisfied by the products of a *Techne*, and the possibility of an Aristotelian science of nature depends upon the assumption that both conditions are fulfilled by natural objects.²⁶⁰

Thus, the conception of beings as artefacts can be traced to the beginnings of Western philosophy. The sense of this creative act changes in different eras yet the underlying analogy remains. Thus, the work of the ancient Greek ‘Demiurge’ was simply to bring together forms and matter which were themselves thought to exist

eternally. By contrast, the creatures of the Christian God were considered to exist only through this act of creation. Heidegger’s critique of technology demonstrates that this way of thinking about beings carried on unnoticed in modern philosophy. I will hold off discussing the details of this account until the next chapter.

Heidegger’s later account of metaphysics as comprised of a theological and an ontological element stems from his examination of Aristotle’s conception of nature. The ontological element focuses upon identifying the kind of being which is common to all specific kinds of beings and of which they are thereby composed. The theological element focuses on the specific being that is the highest and which provides the ground for all other beings. This twofold approach to giving the ground of beings is expressed in two of the most fundamental terms of metaphysical inquiry, ‘essence’ and ‘existence’. The essence of beings names the ‘whatness’ of beings whilst the existence of beings names their ‘thatness’. Heidegger claims that this distinction, which was already implicit in Plato’s doctrine of the ideas, was first fully developed in the writings of Aristotle. Thus, the emergence of metaphysics in this form coincides with the fall into an understanding of nature as an artefact. This tendency was greatly exacerbated by the synthesis of Greek metaphysics and Christian doctrines in which the distinction between the creator (God) and his creatures becomes the most fundamental ontological determination.

9. The brief account of Aristotle’s position given above, provides the first element of our contrast between ancient and modern science. The second will be Newton’s laws of motion as they are described in his *Principia: The Mathematical Principles of Natural Philosophy*. These laws are the foundation of Newtonian physics and embody the fully developed ‘modern’ conception of nature. As such they are

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262 The term ‘modern science’ is used here in contrast to ‘ancient and medieval science’. It refers to the new science that developed around the seventeenth century. This of course leaves out of consideration the twentieth century revolution in physics and its development of relativity and quantum field theory. In terms of these developments the science of the seventeenth century is itself now ‘classical’.
useful for attempting to demonstrate how fundamentally different the assumptions of modern physical science are from their ancient Greek counterparts. Heidegger focuses on Newton's first law of motion as this is all that is required to demonstrate the distinct elements of the modern conception of nature.  

This first law of motion states that: 'Every body perseveres in its state of being at rest or of moving uniformly straight forward, except insofar as it is compelled to change its state by forces impressed.' From this law we can see that underlying Newton's axiom is a radically different conception of nature in which distinctions of place, direction and body are conceived anew. Firstly, Newton's law applies to all bodies. This already assumes the possibility of applying a single law of motion to all bodies. The distinction between the four elements that existed in Aristotle's account is effaced by the universal application of this law. Furthermore, following the work of Galileo, the distinction between terrestrial and celestial bodies has been abandoned.

The notion of distinctive places is also groundless, as the law of motion holds regardless of the location of the object. It is true that Newton refers to both relative and absolute space in the *Scholium* that follows his definition of terms in the *Principia*. However, absolute space itself is assumed to be characterised by the laws of Euclidean geometry and is thereby homogenous and infinite. Relative motion refers to the movement of objects in respect to some other object. Newton provides the example of a sailor moving upon a ship. It is possible to measure the motion of the sailor relative to the ship. However, the ship is also moving relative to the surface of the Earth and the Earth itself is rotating and moving relative to other planets. Some part of a system of objects must be assumed to be stationary for the purposes of determining the motion of the other objects. It is impossible to determine whether the entire system is also moving without reference to a larger system, at which point the problem recurs. Newton states that 'containing bodies are to those inside them as the outer part of the whole to the inner part or as the shell to the kernel. And when the shell moves, the kernel also, without being changed in position from the vicinity of the shell, moves as a part of the whole.' The situation

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263 Heidegger's brief discussion of Newton can be found in *What is a Thing?*, pp85-88.
is such that although Newton assumes absolute space as the basis of absolute motion, all our measurements of motion can only be relative.\textsuperscript{266}

The exception to this situation is circular motion in which the quantity of such motion can be measured by the centrifugal force that is exerted. This allows measurement of motion without reference to other bodies, which may themselves be moving. However, the absolute direction of such motion remains indeterminate, as Newton’s conception of space allows no qualitative distinctions. Circular motion allows the possibility of determining that a body is in fact moving absolutely, but not any determination of absolute location or direction as the concept of space itself rules out such determinations. The confusing use of the terms absolute and relative motion should not lead us to confuse Newton’s position with that of Aristotle.\textsuperscript{267}

Although Newton retains the notion of absolute space, it cannot be equated with Aristotle’s account of place for the following reasons. First, Newton’s space is infinite as opposed to Aristotle’s cosmos which is bounded by the heavens. Second, although Newton describes this space as immovable, it does not provide any basis for the absolute orientation that is found in Aristotle’s notion of place. Absolute space is an immovable framework within which bodies move. However, it is homogenous and cannot of itself provide any basis for direction. Up and down are only ever relative for Newton and they do not imply any difference in the quality of space.

These differences can be elaborated further. The first law of motion contains no limit regarding the body’s continuous motion or rest. This infinite continuance of motion stands in direct contradiction to Aristotle’s conception of a bounded universe. If we exclude the circular motion of the heavens, in Aristotelian science a body could never continue in motion indefinitely. Should its movement be unhindered, it will naturally find its place in the cosmos. For earth this is down, for fire it is up, and for air and water it is in between. Once a body has achieved this movement its form has become fully actual and it rests in its proper place. Such a relationship is impossible in Newton’s scheme as the body’s movement bears no relationship to its place, rather it is a function of force. Impressed force is defined by Newton as ‘the action exerted on a body to change its state either of resting or of moving uniformly straight

\textsuperscript{266} For a far more involved discussion of the notion of absolute space see parts one and two of Stephen Toulmin, ‘Criticism in the History of Science: Newton on Absolute Space, Time, and Motion’, The Philosophical Review, vol. 68 (1959), pp1-29, and pp203-227.

\textsuperscript{267} see Koyrè’s discussion of absolute space in From the Closed World to the Infinite Universe, (The Johns Hopkins Press, Baltimore and London, 1968), pp155-189.
forward. The motions of natural bodies are no longer the result of an inner principle of development, rather they are imposed by outside forces which must overcome the inertia of bodies, that is their tendency to preserve their current state of motion or rest.

In these manifold respects, the assumptions upon which Newton builds his physics differ profoundly from those of Aristotle. A dramatic transformation in outlook occurred in the adoption of modern science, from the nature of the thing to the manner in which it is related to its surroundings, to the very nature of these surroundings. As was shown in the case of Aristotelian science, the manner in which nature is conceived shapes scientific method. In that case, the intelligibility of the forms of nature and the subsidiary importance of matter allowed a method that did not rely heavily upon experimentation and observation.

The reliance of modern science upon experimentation is also based upon its conception of nature and the manner in which we can come to know it. The relationship between a mathematized nature and the experimental character of modern science will be addressed below. Before taking up that issue, however, I will examine Heidegger’s suggestion that there are several key aspects to the modern understanding of nature that render modern mathematical science possible. The first of these is the mathematization of nature, the second is the establishment of a peculiar understanding of subjectivity. Only the issue of mathematics and nature will be addressed in this chapter.

10.

In discussing Heidegger’s account of the mathematical element of modern science it is important to keep his peculiar understanding of that term in mind. Apart from our familiar notion of mathematics, we should also see in the term ‘the application of a determination of the thing which is not experientially derived from the thing and yet lies at the base of every determination of the things, making them possible and making room for them.’ To state the problem again, here we are seeking the origin of the determination of thinghood that is peculiar to modern science and which allows the application of mathematics in the narrower sense to the study of nature.

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269 Heidegger, *What is a Thing?*, p89.
Heidegger argues that the assumptions which underlie Newton’s physics are essentially the understanding of ‘thinghood’ that underlie the modern conception of nature (at least in classical modern physics). Thus, elements that I outlined above in developing the contrast between Newton and Aristotle can be repeated as the modern conception of nature. Essentially, the natures and forms that ruled in Aristotle’s science are replaced by bodies that have no ‘hidden’ motive power. Bodies are judged only by their behaviour, that is their movement in space and time. The forces that produce movement are taken to exist only in so far as they produce a measurable effect on bodies. From what has been said already with regard to Newtonian mechanics, it is possible to say that it concentrates on how things show themselves within this measurable framework of space and time. Thus, rather than attempting to understand why objects move by determining their essence, it is the movement itself that is important in modern science.

Aside from the details of this modern projection of nature, the most striking aspect of Heidegger’s argument in *What is a Thing?*, is his insistence that the mathematical projections that found the sciences under discussion are not derived from experience. He provides only very brief evidence for this proposition in the essay. He refers to Galileo’s famous experiment in which he attempted to prove that bodies of different weight would reach the ground at the same time if they were dropped from the same height. Galileo wished to demonstrate that if all obstacles were removed, then the motion of a body would change uniformly if a uniform force was applied. As Heidegger tells it, the two bodies did not in fact arrive at exactly the same time, however, they were close enough for Galileo to conclude that, were it not for the resistance of the air, they would have done so. The point here is that Galileo’s conclusion was in fact contrary to the performance of the bodies in his experiment. Indeed those who opposed his work were able to confirm for themselves that Galileo was mistaken in maintaining bodies of different weight fall at the same speed if not interrupted.270

Not only Galileo, but Newton as well, were reliant upon assumptions that could never be derived from experience. This is not a question of the limits of induction.

270 Glazebrook notes that there is some doubt as to whether Galileo ever actually performed this iconic experiment himself. This issue does not, however, affect Heidegger’s point which is a general point about the role of experience in modern science. See Glazebrook, *Heidegger’s Philosophy of Science*, pp73-74. Interestingly, Heidegger employs an account of Galileo’s experiment in order to contrast ancient and modern science in one of his very earliest writings. See Heidegger, ‘The Concept of Time in the Science of History’, pp52-56.
The difficulty here is not that of how we are to form general rules from specific instances, no matter how numerous they may be. Rather, the axioms which they established with regard to the motion of bodies can never be found in the natural system they define. Specifically, it is never possible to find a body that is entirely left to itself so that we may determine whether its motion remains uniform or not. In reality bodies are constantly under the influence of various forces and their motion is never entirely uniform. Newton’s laws prescribe a framework for examining the motion of bodies. However, the movements described in these laws are never found in reality. Galileo’s experiment was controversial because it is not possible to prove experimentally a law regarding a body that is entirely left to its own devices. Such a body can never be found and although it is certainly possible to explain the discrepancy between the motion of such an ideal body and the observed motion through an appeal to intervening forces, one must already assume that the law of motion is valid in order to do so.

In pointing out that experience alone cannot establish the axioms of science, Heidegger is not attempting to undermine the authority of modern science. That these axioms are not derived from experience does not mean that the findings that flow from them are not valid. What is undermined by this argument is the positivist appraisal of science in which the criterion of empirical knowledge is that it must be wholly derived from experience, which is itself understood as atoms of sense data. Such a notion is untenable, and I have mentioned its inadequacy in chapters 1 and 2. The difficulty that positivists and empiricists have in justifying the assumption that nature is regular, and that the use of induction is thereby valid, is but one example of the problems that arise from such an attempt to exclude all knowledge that cannot be drawn from experience. Heidegger’s characterisation of positivism as a degenerate form of science and a mere collecting of facts, stems from the idea that positivism is divorced from the vital ground of its own research. Thus, he comments that ‘The experimenting urge to the facts is a necessary consequence of the preceding mathematical skipping (Überspringen) of all facts. But where this skipping ceases or becomes weak, mere facts as such are collected, and positivism arises.’ The word Überspringen can be more literally rendered as ‘jumping over’ and points to the manner in which understanding depends upon an interpretative leap beyond the objects of experience. Much the same idea is expressed in the term ‘Project’ (Entwurf) discussed earlier. Science depends upon the projection of nature and its

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271 Heidegger, *What is a Thing?*, p93.
various realms and the rejection of this framework reduces science to mere elaboration of an assumed structure, rather than an active questioning of both object and the ready understanding in which they appear.

11.

It is possible to see the modern preoccupation with the legitimacy of knowledge even in the earliest stages of the development of the modern world view. If we glance briefly at the position of Francis Bacon, we will see that already in his thought, the legitimacy of scientific knowledge is bound up with its correct derivation from experience. Bacon sets out his vision for a new scientific method in his *Novum Organum*, or *New Organon*, of 1620. He self-consciously wishes to develop a scientific method that is distinct from that of Aristotle. His most interesting comment, for this inquiry, is that he intends to develop his science upon the basis of an 'interpretation' of nature, rather than an 'anticipation' of nature. The charge of illegitimately anticipating nature is obviously directed at the methods of Aristotelian and scholastic science. He states that Aristotle '...made his natural philosophy a mere slave to his logic, and so rendered it virtually useless and disputatious.'

Bacon states that 'For the sake of instruction I have grown used to calling human reasoning which we currently apply to nature *Anticipations of Nature* (because it is an impetuous and premature proceeding), whereas that reasoning elicited from things by proper means I call *Interpretation of Nature*.' This can serve as a preliminary guide to the issues that have dominated modern philosophy of science. The distinction between anticipations and interpretations of nature already points to the issue of how legitimate science can be distinguished from what is only apparently science. This is referred to as the problem of demarcation.

Bacon also provides us with one of the most prominent answers to the problem of demarcation. Science can be distinguished from mere opinions by the method it employs. Scientific method ensures us that our science is not mere fancy by correctly directing us towards the matters in question. In Bacon’s case, this method consisted of a form of induction. He states:

...*Anticipations* are far better at sustaining assent than *Interpretations* because as they are gathered from a few facts, and those of the most everyday kind, they at once impress the intellect and fill fantasy. *Interpretations* on the other hand, gathered

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272 Bacon, *Novum Organum*, p89.
273 Bacon, *Novum Organum*, p75.
from facts extremely various, and widely dispersed, are incapable of striking the intellect suddenly, so that they cannot but sound harsh and discordant to current opinion and almost like the mysteries of faith. 274

In Bacon's writings it is possible to see the major outlines of the subsequent development of much philosophy of science. On the one hand, legitimate knowledge is increasingly identified with the careful observation of nature. On the other hand, knowledge that cannot be gained from experience remains vital in order to legitimize this account of knowledge and nature. This amounts to one of the central tensions of modern philosophy.

12.
If we examine more recent accounts of the nature of science, we find that Heidegger is certainly not alone in his estimation that it could not be pure experience, or greater attention to it, that brought about the change from ancient to modern science. Through the course of the twentieth century, there emerged several interesting approaches to the philosophy of science that emphasise the extra empirical considerations that influence the progression of our understanding of nature and the structure of natural science. I will briefly examine some of these approaches in order to demonstrate that Heidegger's position is certainly not unique, although his focus may differ from that of other philosophers of science.

From the second half of the nineteenth and well into the twentieth century, philosophy of science was dominated by the idea of producing a 'logic' of science. Thus, philosophers focused on various aspects of the logical structure of scientific findings. I have already discussed the neo-Kantian strand of this philosophy of science. In response to the positivist attempt to found science on experience alone, Windelband and later Rickert attempted to demonstrate that scientific methods constituted their own objects from the raw material of experience. Thus, the difficulty of the positivist position was apparently overcome because in the natural sciences, the objects of study were constituted as instances of general laws. The difficulty of the neo-Kantian position is the matter of how we are to understand the 'values' according to which the objects of the sciences are produced.

The positivist conception of science remained current during this period alongside the neo-Kantian stream of thought. Insofar as the positivists remained of the view that all legitimate scientific knowledge must ultimately be drawn from experience

274 Bacon, Novum Organum, p75.
alone, the issue of how we can justifiably generalize from particular instances of experience to universal rules remained a central problem. It is this issue above all others that appears to divide positivist philosophers of science. Thus, in the early part of the 20th Century Bertrand Russell maintained the view that we are justified in making inductive inferences through an appeal to the principle of induction. This principle asserts that the more we observe an instance of some sort to be associated with a different instance, the greater the probability that they will be associated in the future.

However, Russell himself acknowledges that ‘...we must either accept the inductive principle on the ground of its intrinsic evidence, or forgo all justification of our expectations about the future.’ This is so because the problem Russell addresses himself to is whether or not we are justified in believing that nature is regular, not whether it is in fact regular. He states: 'The problem we have to discuss is whether there is any reason for believing in what is called “the uniformity of nature.”'

Ultimately, the notion that nature is uniform, which Russell assumes underpins both our daily life and our science, is an assumption that cannot be justified by experience. He is reduced to justifying our belief in this maxim by the claim that it becomes more probable, the more often we observe an instance of regularity. Unfortunately, even this claim to an increase in probability appears to assume that nature is uniform.

Russell’s positivist approach, which was strongly supported by the Vienna Circle, came under attack by Karl Popper in his work of 1934, *The Logic of Scientific Discovery.* Popper accepted the fact that the uniformity of nature could not be established from experience and proceeded to reverse the accepted account of scientific method. He proposed that the general laws of science could only ever be falsified by experience, rather than verified. We are able to maintain scientific theories until such time as they are contradicted by experience, at which point they must be rejected. This overcomes the objection that we cannot confirm the uniformity of nature through an appeal to experience. However, it leads to another objection, namely that it is impossible to test such an hypothesis. For in Popper’s account the testability of hypotheses is vital to the functioning of science. The more a hypothesis rules out, he claims, the easier it is to test against our experience. In the

277 Popper, *The Logic Of Scientific Discovery.*
case of the conjecture that nature is uniform, it is difficult to see any particular experience that this rules out. Presumably Popper must dismiss this statement as unscientific due to the fact that no experience would contradict it, and yet the very possibility of natural science seems to depend upon it.

There exist other streams of thought regarding the justification of general scientific laws. Perhaps the most prominent that I have not so far discussed is that of “conventionalism”. The originators of this view appear to be Poincaré and Duhem. In this view the basic laws of particular sciences are held to be conventions. This is held to be the case because these laws appear to be neither a priori true, nor the product of any experimental findings. The classical example of such a law based neither on experiment nor on a priori truths are Newton’s laws of motion. We can take as an example the law that a body that is under the influence of no forces will uniformly move in a straight line. This does not appear to be correct a priori because it had remained unrecognised, and in fact implicitly contradicted by Aristotelian physics for thousands of years. Furthermore the law cannot be based wholly upon experiment and experience for we have no experience of a body which is under the influence of no forces.

13.

All these streams of positivist philosophy are modifications of the attempt to develop a justification for the non-empirical element of scientific knowledge. The conventionalist position appears to come closest to recognising the import of this issue regarding anticipations and interpretations of nature. We cannot opt for the Kantian escape into an a priori account due to the historical permutations of these a priori findings. Nor is the positivist route acceptable due to the impossibility of deriving the founding conception of nature within nature itself. The increasing interest in the history of scientific discovery that developed in the twentieth century, including such researchers as Thomas S. Kuhn, Alexandre Koyré, M.B Foster, and E. A. Burtt, has further emphasised the fact that extra-scientific factors are vital in the development of science. In Kuhn’s case, this focuses upon the non-rational

278 See discussion in Donald Gillies, Philosophy of Science in the Twentieth Century, (Blackwell, Oxford, 1993), especially part 1.
structures that influence the work of research communities, whilst Koyré, Foster, and Burtt, have illustrated the dependence of scientific development upon metaphysical considerations.

The research undertaken by these thinkers has lead to the conclusion that, as Kuhn puts it, the more careful study historians devote to 'Aristotelian dynamics, phlogistic chemistry, or caloric thermodynamics, the more certain they feel that those once current views of nature were, as a whole, neither less scientific nor more the product of human idiosyncrasy than those current today.'\textsuperscript{280} The work of these researchers has rendered the view that scientific knowledge progresses through steady accumulation difficult to maintain. Only if we see all scientific enterprise as striving towards our present situation can such a view seem plausible. However, even the discussion of Aristotle's understanding of the cosmos demonstrates that such a view overlooks the true nature of previous scientific endeavour.

Furthermore, these thinkers have pointed to the fact that progression towards the present state of science is not merely a matter of conducting more experiments or the introduction of more sensitive equipment and techniques. The truly revolutionary moments in science are simultaneously revolutions in our projection of nature. It is for this reason that Galileo's vision of nature as mathematical is of such moment. Burtt and Koyré in particular have emphasised the importance of this new (or at least revived) view of nature. M. B. Foster has traced the manner in which the Christian doctrine of creation played a decisive role in the establishment of modern science. As a matter of historical fact, such metaphysical considerations have shaped the nature of science.

\textsuperscript{280} Kuhn, \textit{The Structure of Scientific Revolutions}, p2. I don't mean to suggest that these thinkers all agree with one another concerning the nature and significance of the scientific revolution that took place in the seventeenth century. I take Kuhn's comment to be representative of the thinkers listed in note 277 only in the following senses. First, they take Aristotelian and medieval physics to be a legitimate form of science. Second, they think that a fuller understanding of this Aristotelian physics will help us to understand the nature of modern science. Koyré repeatedly points out that although Aristotelian physics turned out to be wrong in crucial areas, for example in its account of thrown objects, it was nevertheless a form of physics. See his comments at p5 and p28 of \textit{Metaphysics and Measurement}, and p4 of \textit{Galileo Studies}. This insistence on a broad understanding of what counts as 'science' is also implicit in the works of Burtt and Foster listed in note 277.
Heidegger's point is that this must necessarily be the case. We must anticipate experience in order that it may become a fact. The examination of the Aristotelian science serves not only to illustrate the alien understanding of nature that it is built upon, but also to undermine any straightforward appeal to the 'facts' that is encountered in modern science and philosophy. The facts can only come forward as facts, upon the background of an understanding of nature, and even more generally, an understanding of the being of beings.

14.
At this point it must be said that Heidegger is not clear enough in his demarcation of the various senses of mathematics and the mathematical. He outlines mathematics understood in the narrow everyday sense of science of numbers, the mathematical project as he has described it, and the objects that can be known in this mathematical learning, the mathēmata. However, there is a further issue that he does not clarify, that of the actual 'mathematization' of nature. By this I mean the identification of the mathematical aspects of natural beings with their essential constitution. Although this is perhaps implied by his examination of the contrast between Newton and Aristotle, he does not address it in detail in the works under examination. It is, however, one of the central features of modern science. Heidegger's oversight is perhaps a function of his thought that this 'mathematization' of nature is dependent upon the central issue of subjectivity and certainty, and is thereby a secondary issue. I will attempt to redress this situation.

Although Heidegger does not seem to have noticed the issue, there is another sense in which mathematics is informative about the nature of science. This is the manner in which mathematics came to be pervasive in modern science. The manner in which the order of nature came to be seen as mathematical in the works of Copernicus, Kepler, Galileo, Descartes, and Newton, is telling. If we examine this story in some detail it appears that mathematics came to be important not through purely scientific reasons, but through philosophical and religious convictions. This further bolsters the contention of Heidegger, and other philosophers, that science rests upon a projection of its domain of objects. Mathematics became increasingly important in astronomy prior to Galileo. However, I will focus upon his work as he is himself aware of the radical step that is involved in the use of mathematics in a physics that is no longer bound up with the distinction between terrestrial and heavenly realms.
15.

Galileo's achievements must be seen as both philosophical and scientific. The significance of his achievement lies in the fact that his scientific discoveries carried with them metaphysical determinations of the essence of nature. That his mode of thought amounted to a rejection of the Aristotelian tradition was not lost on Galileo himself. Heidegger argues that:

The greatness and superiority of natural science during the sixteenth and seventeenth centuries rests in the fact that all the scientists were philosophers. They understood that there are no mere facts, but that a fact is only what it is in the light of the fundamental conception, and always depends upon how far that conception reaches.\(^{281}\)

Metaphysical determinations and science are inextricably linked and this must not be overlooked. The incoherence of positivism stems from this attempt to deny any role to a founding conception.

The boldest aspect of Galileo's thought is his belief that mathematics could be used in the study of physics. He famously stated in his work *The Assayer* that:

> Philosophy is written in this grandest of all books which forever lies open before our eyes (I mean the universe), but which cannot be understood if one does not first learn to understand the language and interpret the characters in which it is written. It is written in mathematical language, and the characters are triangles, circles, and other geometrical figures, without which it is humanly impossible to understand a single word...\(^{282}\)

Although this assertion seems uncontroversial to modern ears, it was not at all obvious at the time of writing. In fact the application of geometry in the study of nature was a highly controversial matter for it was not apparent, to an Aristotelian, how this could be achieved, or even why it should be attempted.

For Aristotle, the application of mathematics, or more specifically geometry, to the study of nature was illegitimate for several fundamental reasons. Aristotle, with some legitimacy, held that the natural world is not amenable to the application of mathematics due to the fact that it is a world of change and qualities. The world as we discover it through the senses is constituted of colours, textures, sounds. Leaving aside the issue of the heavens, we can say it is in a constant process of generation and

\(^{281}\) Heidegger, *What is a Thing?*, p67.

decay. All these characteristics are utterly foreign to the timeless realm of numbers and geometrical figures. It is for precisely this reason that the triangles, squares, and circles that we encounter in the reality can only ever be approximations or hints of the nature of ideal geometrical figures. There is an obvious division between the qualitative and changing realm of sensuous reality and the ideal realm of number and geometrical form.

Furthermore, the concept of movement, the very foundation of physics both ancient and modern, was a qualitative one for Aristotle. It seems obvious to us that we can examine a body purely in terms of the distance and speed with which it moves. However, it must be observed that for Aristotle, motion could not be achieved without an alteration in the quality of the body involved. Motion is analysed in terms of the part it plays in the actualisation of the essence of a body. Thus, a body is never indifferent to motion as this motion either helps or hinders the achievement of the body’s essential nature. Motion is in fact only one of the many qualitative changes that a body can undergo. It is worth recalling that change in location is only one aspect of bodily change as it was conceived by Aristotle. As mentioned above, he conceived of metabolē as including changes of quantity, quality, substance and place. Motion understood primarily as a change in quality was not something that could be accounted for by mathematics.

Aristotle recognised that the objects of both mathematics and physics possess lines, points, surfaces and curves. However, the physicist investigates these matters in so far as they exist in physical objects whilst the mathematician has no regard to the actual existence of his objects. Thus, the objects of the mathematician are removed from motion, understood in Aristotle’s broad conception of the term. Mathematical objects are lines, points, curves, and so on, considered as they are in themselves. The distinction between the realm of motion, that is the physical realm, and that of mathematical objects was clear for Aristotle. To mix the two, and apply mathematics in the realm of physics, it would be necessary to overlook the very aspects of physical reality that, for Aristotle, rendered it real, its sensuous qualities.

283 It is important to note that the separation of mathematical objects from motion is, for Aristotle, a separation ‘in thought’. Insofar as natural objects possess such attributes as figure, line and number, these mathematical objects are subject to motion. However, as Aristotle states, ‘Now the mathematician, too, is concerned with these, but not insofar as each is a limit of a physical body; nor does he investigate attributes qua existing in such bodies. That is why he separates them, for in thought they are separable from motion; and it makes no difference, nor does any falsity occur in separating them [in thought].’ See Aristotle, Physics, 193b30-35.
The implications of Galileo's position are quite profound. In essence, he was forced to distinguish between primary and secondary qualities of bodies. That is to say, Aristotle was not wrong in his assertion that sensuous reality is not amenable to mathematical treatment. This determination was not abandoned by Galileo. Rather, he was forced to argue that real objects are not in fact the objects that appear to us through our senses. These original sensations must be analysed and dissolved into the real, mathematical objects that underlie them. Although the new science of the seventeenth century claimed to base itself in experience rather than the groundless speculation that characterised scholasticism, in this respect it turned completely against experience. As mathematical relationships do not immediately present themselves to us in sensation, we must resolve this data into its 'essential', mathematical elements. Galileo's solution to Aristotle's objection to the application of mathematics to nature, was to assume that the rational order of nature was not immediately apparent. In his study, The Metaphysical Foundations of Modern Science, Edwin Arthur Burtt describes the consequences of Galileo's arguments:

The Copernican astronomy and the achievements of the two new sciences must break us of the natural assumption that sensed objects are the real or mathematical objects. They betray certain qualities, which handled by mathematical rules, lead us to the knowledge of the true object, and these are real or primary qualities, such as number, figure, magnitude, position, and motion, which cannot by any exertion of our powers be separated from bodies—qualities which also can be wholly expressed mathematically. The reality of the universe is geometrical; the only ultimate characteristics of nature are those in terms of which certain mathematical knowledge becomes possible.²⁸⁴

This is the manner in which nature, understood to be essentially mathematical, becomes divorced into primary and secondary qualities. It has been argued by both Burtt and Koyré, that Galileo's position amounts to a revival of Platonism. That Galileo understood himself as defending Plato's position against Aristotle is made quite apparent through the structure of his dialogue as well as specific comments he makes, such as his allusions to the Platonic doctrine of recollection.²⁸⁵ Koyré explains that, according to the philosophical opinion of the time: 'If you claim for mathematics a superior status, if more than that you attribute to it a real value and a commanding position in physics, you are a Platonist.' On the other hand, if you believe that 'physics needs no other basis than experience and must be built directly

on perception, that mathematics has to content itself with the secondary and subsidiary role of a mere auxiliary, you are an Aristotelian.²⁸⁶

Given the metaphysical significance of his thought, the scant attention Heidegger pays to the substance of Galileo's position is unfortunate. Furthermore, close attention to Galileo's achievement reveals a further aspect of 'mathematics' that is of interest. Heidegger uses the term 'mathematical' to refer to the science of mathematics as well as to a founding conception of nature. However, he overlooks the metaphysical struggle that was undertaken to arrive at the modern view of nature as itself calculable, that is governed by numbers, lines, forms, and motion. Although he notes that mathematics comes to play an extremely important role in modern science, and that this can be so only upon the basis of a modern conception of nature, he does not explain the relationship between these two points. Modern science employs mathematics so extensively because reality appears as fundamentally calculable in our modern understanding. A division between sensations and reality was required in order to maintain that the reality of nature was 'mathematical', in the sense of being amenable to the application of mathematical science. The fully developed physics of Aristotle and Newton are fundamentally determined by their understanding of the relationship between mathematics and reality. Although it reinforces his position, as does much modern philosophy and history of science, Heidegger does not bring this relationship to the fore.

16.

This brief account of Heidegger's interpretation of modern science gives us a sketch of why he characterises the modern age as the age of technology. The central point in his discussion of modern science is that it is based upon a configuration of man and nature in which man conceives of nature in advance as a 'mathematically calculable coherence of forces.' Heidegger writes in *The Age of The World Picture*:

'To be sure it was Aristotle who first understood what *empeiria (experientia)* means: the observation of things themselves, their qualities and modifications under changing conditions, and consequently the knowledge of the way in which things as a rule behave.'²⁸⁷ The situation with modern science is quite different in that 'Experiment begins with the laying down of a law as a basis. To set up an experiment means to conceive [vorstellen] the conditions under which a specific

²⁸⁶ Koyré, 'Galileo and Plato', pp36-37.
²⁸⁷ Martin Heidegger 'The Age of the World Picture', in QCT, p121
series of motions can be made susceptible of being followed in its necessary progression, i.e., of being controlled in advance by calculation.\textsuperscript{288} Within modern science, it is the conception of what nature must be, in advance, which guides the setting up of the experiment.

Here we come to the point where it is possible to see why Heidegger calls the modern age the age of technology. As he argues in \textit{The Question Concerning Technology}, the proliferation of technological items has its source in a fundamental reconception of nature and our relationship with it. This turn about is clearly to be seen in the difference between ancient and modern science. Whereas Aristotle looked at natural objects and attempted to describe their behaviour, Galileo, Newton, and modern physical science in general, \textit{first} conceive of nature as a mathematically describable system and then set about, through the process of experimentation, determining how nature reports itself on this basis. Thus, as Heidegger argues, ‘If physics takes shape explicitly, then, as something mathematical, this means that, in an especially pronounced way, through it and for it something is stipulated in advance as what is already-known. That stipulating has to do with nothing less than the plan or projection of that which must henceforth, for the knowing of nature that is sought after, \textit{be} nature: the self contained system of motion of units of mass related spatiotemporally.’\textsuperscript{289} The form of knowledge that is found in modern science is equivalent to that form of knowledge that Aristotle termed \textit{techne}, that is productive knowledge. The nature that concerns modern physics is not derived from simple observation but is conceived in advance and then produced through experimentation. This is the reason for Heidegger’s label for the modern age. Yet, there is still much to be said about the significance Heidegger attaches to this modern metaphysical situation. Indeed, some of the most heated criticisms of Heidegger arise not so much from the technical details of his critique of modernity but from the significance which he attributes to this account. In the next chapter I will address the details of his interpretation of the modern philosophical tradition with particular emphasis upon Descartes and Kant. Following that, chapter six will be devoted to a more direct discussion of Heidegger’s essay \textit{The Question Concerning Technology}.

\textsuperscript{288} Heidegger, ‘The Age of the World Picture’, p121.
\textsuperscript{289} Heidegger, ‘The Age of the World Picture’, p119.
Chapter 5
Heidegger on Descartes and Subjectivity

In the previous chapter I explored Heidegger's argument that the form of knowledge that is characteristic of modern science is equivalent to what Aristotle identified as technē. I have argued that this analogy is apt insofar as modern science does not draw its understanding of nature from pure experience, instead it relies upon an initial projection of nature as a unified system of calculable forces. Just as the craftsman must conceive in advance the form of the object he wishes to create, modern man first conceives of nature as a law-governed system of interacting forces and then sets about determining through experimentation which of these laws nature actually follows. It is within this a priori framework that experience gains its significance. Thus, although we may go to great lengths to determine how natural objects behave under tightly controlled conditions, we do not decide which laws nature follows in its own self-production. Nevertheless, the initial determination of nature as a lawful system derives not from 'pure' experience; rather it first allows the objects of nature to appear as the product of a law governed system.

As I have argued previously Heidegger's argument that modern science necessarily contains an a priori element is implied by his account of understanding and interpretation. Yet this consideration rules out the possibility that it is simply this a priori element that distinguishes ancient from modern science. For although the categories which modern science employs to describe nature are profoundly different from those of Aristotelian science, if we accept Heidegger's account of understanding, they are the same in the sense that they provide a framework of intelligibility within which nature can first appear as nature. The fact that Aristotle's understanding of physis differs from our modern concept of nature does not alter this similarity. Heidegger's discussion of the differences between ancient and modern science aims to demonstrate that science necessarily relies upon metaphysical
determinations of what is. However, this does not provide him with the grounds for the truly fundamental distinction between these two modes of science that he is seeking to establish.

Heidegger’s direct analysis of the categories of the sciences demonstrates that all science must have a metaphysical determination of its objects, and that the determination of what constitutes a natural being was transformed at the beginning of the modern age. However, it is to his critique of modern subjectivity that we must turn to find the foundation of the claim that modern science approaches its objects in a fundamentally new way. For Heidegger, the transformation of man into the ‘subject’ is the very essence of modernity because it marks the beginning of a new relationship between man and being. The new sciences, in so far as they are founded on a metaphysical determination of a region of beings, are symptoms of this more fundamental upheaval in man’s conception of being. Science, seen as the embodiment of our understanding of particular regions of being, implicitly depends on a metaphysical determination of being itself. Heidegger argues that the modern determination of being is novel because man takes it upon himself to establish what can count as a being based upon reason’s examination of itself. In modernity, reason becomes divorced from being such that man, in so far as he is rational, must first provide a framework in which being can be understood. This is fundamentally different from the ancient Greek and Medieval situation. For Plato, the world is the result of the Demiurge bringing together form and matter, whilst the Christian understanding of God as the absolute creator meant that he produced both form and matter according to a plan of his own. Despite this significant difference regarding the creation of form and matter, both ancient Greek and medieval philosophers understood the natural world to be rationally ordered. In both these periods the intelligible forms were already ‘in’ natural things. In contrast to both these positions, in the modern age reason is restricted to humanity, and the being of nature is a matter to be determined through the self examination of this reason.

As the philosophy of Descartes provides the focus of Heidegger’s deliberations on the foundations of the modern age, I will spend some time establishing what his interpretation involves. Much of it contains a subtle reading of the significance of Descartes’ principle ‘Cogito, ergo sum’. The purpose of this initial exposition is, however, to demonstrate the ontological significance of Descartes’ philosophy. Descartes is often seen as carrying through a shift from a fundamentally ontological mode of philosophy to a mode that must initially secure for itself the possibility of
knowledge, that is epistemology. Heidegger attempts to show that this can only take place within a prior understanding of being. As a means of demonstrating the strengths and weaknesses of Heidegger's account of Descartes, I will initially provide a somewhat unorthodox interpretation of the Cartesian project as fundamentally directed towards a new grounding of scientia. This interpretation of Descartes demonstrates that he retained an essentially medieval understanding of being and knowledge. He does not, as Heidegger would have it, understand the certainty of the subject as the ground of being. Rather, Descartes argues that through the establishment of necessary knowledge about his own nature and the nature of God, it is possible to demonstrate that our subjectively necessary knowledge coincides with the objective order of being. Although this calls into question the accuracy of Heidegger's interpretation of the development of modern philosophy, I will argue that his account remains insightful as it manages to capture the situation that results from the failure of the Cartesian project.

1. Although the popular image of Descartes portrays him as a sceptic, we must be careful with this term. The truly distinctive element in his thought was not his doubt regarding the foundations and legitimacy of what pretended to knowledge in his time; indeed he lived in a period of great unrest with regard to the fundamental conceptions of man, world, and God. I have attempted to show in previous chapters the extent to which Galileo's new conception of science challenged some of the most fundamental tenets of ancient and medieval physics. Other examples of discontent with traditional knowledge, both in its specific doctrines and in its claim to authority, can be found in the writings of Bacon and Montaigne. The truly distinctive aspect of Descartes philosophical work lies in the manner in which he turns this uneasiness with regard to the foundations of traditional knowledge into a method of securing...

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290 This reading of Descartes has been developed in much greater detail than I can go into here by Richard Campbell in chapter 9 of his *Truth and Historicity*. Certain elements of this interpretation have also been supported by Robert Stoothoff, see his 'Descartes' Dilemma', in *The Philosophical Quarterly*, vol. 39 (1989), pp.294-307.

291 It is crucial to note that this coincidence of subjective and objective orders does not come about because the objective order of being is nothing but what the subject can know with necessity. As I will argue, this is the mistake that Heidegger makes in his interpretation of Descartes' ontology. For Descartes, the objective order of being stems from God. We can be assured that knowledge of our clear and distinct ideas is also knowledge of this objective order because God exists, he is our creator and he is not a deceiver.

knowledge. Thus, as Alexandre Koyré has pointed out, it is important to distinguish between two modes of doubt when discussing Descartes’ work. Descartes begins from a position in which the truth of all that had previously been taken to be indubitable was being questioned. The scepticism of Montaigne provides a fine example of this as he emphasises the propensity of man to accept as true and right what is ultimately the product of incomplete deliberations, mere resemblances, contingent traditions, and prejudices.

Thus, there is a preliminary sense of doubt which notes the diversity of opinions in the world and the frailty of our faculties and is unable to find a means of establishing certainty for itself. It is the genius of Descartes to have actively taken up this doubt and employed it as a means of establishing a ground for scientia. It is important, therefore, not to interpret Descartes as a sceptic, as one who doubts the possibility of attaining any truths. His doubt is rather a method of overcoming this original scepticism by determining what is true, evident, and necessary. Heidegger has a similar point in mind when he argues that ‘Descartes does not doubt because he is a sceptic; rather, he must become a doubter because he posits the mathematical as the absolute ground and seeks for all knowledge a foundation that will be in accord with it.’ That is to say, although he accepts that it is difficult to discern, Descartes does not lack faith that necessary knowledge can be found. He only doubts in order to attain an unshakeable foundation for necessary knowledge.

The relationship between knowledge and doubt becomes clearer if we take careful note of Descartes’ use of the epistemological terms, scientia and cognitio. Both these terms are commonly translated as ‘knowledge’, however, this effaces the crucial difference between them. In fact, scientia is employed by Descartes to name a very restricted sort of cognitio. ‘Knowledge’ in this restricted sense is only used to characterise cognition of necessary truths. This understanding of ‘scientific’ knowledge as necessary knowledge stems from the Aristotelian and medieval

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294 Although all of his essays are written with a sceptical tone regarding the abilities of man to attain the truth, see in particular Montaigne’s first and twenty first essays, ‘Of Custom, and that we should not Easily Change a Law Received’, and ‘Of Experience’.

295 Heidegger, What is a Thing?, p103.
tradition of scientific explanation. Within that tradition, as I have shown in previous chapters, the behaviour of a natural entity is necessarily determined by its form. Scientific explanation was achieved by determining the necessary elements in any particular event. It is the purely intelligible forms which provide the ground upon which such necessary knowledge is built, as we are able to give a definition of them that is universally true. Although entities do not always act in accordance with their form, this is the result of the contingent fact that they exist alongside other entities which may impose a forced or unnatural action upon them. This tradition, of which Descartes remained a part, understands ‘scientific’ knowledge, in its strictest sense, as the recognition of the necessary and unchanging aspects of existents.

If we take into account Descartes’ interest in the new mathematical sciences, the widespread uncertainty about the scope of scientia, and his ambition to establish a new foundation for such necessary knowledge, then the import of his method of doubt becomes clear. He is working with the simple idea that what may possibly be false cannot be necessary and thereby cannot provide the foundation of scientia. Certainty plays only a negative role in this project because Descartes actually employs uncertainty as a criterion of contingent knowledge. It is true that he eventually comes to equate subjective certainty with truth, however, this is an assumption that he feels justified in making only after he has proved the existence of God. Thus, Descartes is not interested in truth as such but in providing a necessary ground for scientific knowledge by establishing the existence of God. Descartes’ understanding of truth is difficult for modern readers to understand as it relies upon a distinctly pre-modern equation of truth and reality. Yet this was not considered to be a problem by Descartes himself and it is a mistake to interpret his method of doubt as an attempt to overcome scepticism as to whether nominal essences resemble real essences. His project is to establish, through the method of doubt, what is in fact necessary rather than what we commonly take to be necessary. Descartes retains the Aristotelian and medieval understanding of scientific knowledge as knowledge of the necessary. However, he departs from that tradition in terms of what he takes to be necessary. He seeks to establish a mathematical science rather than a science which is dependent on substantial forms. I will return to Descartes’ understanding of truth shortly.

That Descartes thought his method of doubt was a means of re-establishing a ground for scientia, is well illustrated by Hobbes’ objection to Descartes’ first meditation that ‘this very matter of the uncertainty of sensible things has been discussed by
Chapter Five

Plato and other ancient philosophers; and it is a common observation how hard it is to tell waking life from dreams. So I am sorry that so excellent an author of new speculations should publish this old stuff.’ Descartes replies that in rehearsing these doubts he aimed ‘partly to accustom the reader’s mind to consider intelligible objects and distinguish them from corporeal things…partly, to reply to them in the subsequent meditations; and partly, also, to show how solid are the truths I set forth later on, since they cannot be sapped by such metaphysical doubts.’

This passage demonstrates that Descartes understands necessary knowledge and doubt to be incompatible. On this basis he can identify knowledge which is dubitable with mere cognitio. Although scepticism was very common in the 17th century, and indeed has a philosophical history stretching back to the ancient Greeks, Descartes’ employment of doubt as a tool for the securing of necessary knowledge remains original.

Descartes begins his Discourse on the Method of Rightly Conducting One’s Reason and Seeking the Truth in the Sciences with an account of the confusion that he was left in after completing his studies. He writes that the diversity of opinions that he found in his studies led him to abandon ‘the study of letters all together’ and resolve to ‘study no other science than that which I could find within myself or else in the great book of the world.’ However, he declares that after a period of travelling he found that there was no basis for science to be found in the behaviour of men for he noticed in this field ‘almost as much diversity as I had done earlier among the opinions of philosophers.’ Having thus gained experience of the great diversity of opinion in both the sciences and in the traditions and practices of various peoples, Descartes resolved to study only himself in order that he may correctly choose which paths he should follow. In this enterprise he states that he was much more successful than he would have been had he ‘never left either my country or my books.’

As he cannot turn to the wisdom of philosophers or that of tradition, since there appears to be great diversity and disagreement in both these areas, Descartes proposes to subject all his ideas to a review. That is, he means to test them all as to whether they can be doubted or not. We can see from this approach that he is

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299 Descartes, ‘Discourse on the Method’, p34.
operating with a very limited idea of what can be called knowledge. If immunity to doubt is our criterion of knowledge then knowledge is restricted to what we can see is *necessarily* true.\(^{300}\) If it is possible to gain a ground which cannot be doubted, then proceeding methodically from this ground our store of knowledge can be increased. Descartes’ method for conducting this examination is expressed in four rules which are as follows. First, ‘never to accept anything as true that I did not know to be evidently so’. Second, ‘to divide each of the difficulties that I was examining into as many parts as might be possible and necessary in order to solve it.’ Third, ‘to conduct my thoughts in an orderly way, beginning with the simplest objects and the easiest to know, in order to climb gradually, as by degrees, as far as the knowledge of the most complex’. Fourth, ‘everywhere to make such complete enumerations and such general reviews that I would be sure to have omitted nothing.’\(^{301}\)

This procedure is explicitly derived from that of mathematical and geometrical proofs, the great merit of which is that one can advance from the known to the unknown without sacrificing necessity at any stage. Thus, Descartes separates the essence of mathematical thinking from its specific application to numbers and figures, and conceives of this thinking as the strict determination of relationships and orders between objects regardless of their specific nature. He writes in his *Rules for the Direction of the Mind* that:

> ...as I considered the matter carefully it gradually came to light that all those matters only were referred to Mathematics in which order and measurement are investigated, and that it makes no difference whether it be in numbers, figures, stars, sounds, or other objects, that the question of measurement arises. I saw consequently that there must be some general science to explain that element as a whole which gives rise to problems about order and measurement, restricted as these are to no special subject matter. This I perceived was called ‘Universal Mathematics,’...\(^{302}\)

Each new step in his method must be founded upon what is already known. The trustworthiness of long chains of reasoning, in which we are otherwise likely to go astray either through relying upon an unexamined premise or by failing to assure the relationship between what is already known and a new conjecture, can be secured by this approach if it is first possible to find a necessary foundation from which to

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\(^{300}\) See chapter 9 of Campbell, *Truth and Historicity*, for a discussion of Descartes’ careful use of *scientia* to name a very restricted form of *cognitio*, that is knowledge of necessary truths.

\(^{301}\) Descartes, ‘Discourse on Method’, p41.

begin. This indubitable beginning is required because Descartes aspires to a universal mathematics which would encompass all that can be known. As he can rely upon no knowledge that has not been arrived at by the method he is proposing, he must search for an absolute beginning that does not itself rest upon any other considerations.

2.
I turn now to Descartes' *Meditations* as it is here that he develops his classical argument that there is one principle that survives the most radical doubt and that if we reason carefully from this principle then we can develop a sound foundation for scientia. The means by which this principle is determined is once again the method of doubt. In this instance, however, Descartes doubts not only the opinions he has obtained from tradition, the philosophers, and the scientists, but also all the evidence of his senses. He writes that 'Whatever I have up to now accepted as most true I have acquired either from the senses or through the senses. But from time to time I have found that the senses deceive, and it is prudent never to trust completely those who have deceived us even once.'

Descartes now goes a crucial step further and employs his method of doubt in a more radical manner than is evident in his previous works. He extends his method to mathematics and geometry, to those regions of knowledge which are subjectively necessary. He contrives to doubt that which appears utterly necessary by posing a question with regard to God:

> How do I know that he has not brought it about that there is no earth, no sky, no extended thing, no shape, no size, no place, while at the same time ensuring that all these things appear to me to exist just as they do now? What is more, since I sometimes believe that others go astray in cases where they think they have the most perfect knowledge, may I not similarly go wrong every time I add two and three or count the sides of a square, or in some simpler matter, if that is imaginable?

Descartes goes on to argue that rather than God causing such deception, as this would be inconsistent with His perfection, we can imagine that a 'malicious demon' could systematically mislead us. Every time we add two and three we get five, and we always come to the same answer when we count the sides of a square, thus the

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truths of mathematics and geometry seem utterly necessary to us. Despite this subjective necessity, it is conceivable that my constitution is such that I am systematically wrong in my conclusions, even about those mathematical truths which seem to hold with complete necessity. Although these judgements are subjectively necessary, they may bear no relationship to reality and therefore not hold objectively. Thus, for all Descartes knows at this stage of his meditations, he may have a nature such that he constantly goes wrong. He takes this conclusion to hold even if we suppose that we are not created by God but are merely the products of various chains of events. For in that case we are the products of chance and are even more likely to go astray. 305

Having suspended his judgement regarding the reality of all things, Descartes makes the observation that whether or not our ideas correspond with reality beyond our minds, does not affect the fact that we do in fact have these ideas. We come now to his famous claim that every time I think, I must also exist. The basis of this claim lies in the fact that regardless of whether the contents of all my thoughts are fantasies, it is nevertheless the case that I must exist in order to be so deceived. 306 On this point I can never be wrong, for no matter how often I take other beings to exist when they do not, or as not being when they are, or as being other than they are, my own being is assured in this conceiving.

Although it does not appear in this form in his Meditations, Descartes’ earlier formulation of his findings in the phrase ‘Cogito ergo sum’, or ‘I think, therefore I am’, can give the impression that he is presenting an inference. 307 That is, because of the presence of the term “ergo”, or “therefore”, it may appear that Descartes is inferring existence from thought. Thus, it might be thought that he is presenting an argument along these lines, ‘Insofar as I think, I am. I think, therefore I am.’ This is not the case, however, as such an argument merely restates, in its major premise, the vital point of Descartes discussion. 308

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305 This is a somewhat controversial interpretation of Descartes’ intentions in this passage. For a more detailed interpretation of this argument as a dilemma which depends on Descartes’ assumed ignorance at that stage of the meditations, see Robert Stoothoff, ‘Descartes’ Dilemma’, in The Philosophical Quarterly, vol.39 (1989), pp294-307. Also see Chapter 9 of Richard Campbell’s Truth and Historicity.

306 See Descartes 2nd meditation for this discussion.

307 For this formulation see Descartes, ‘Discourse on the Method’, p53.

308 Descartes explicitly makes this point in his second set of replies. There he writes ‘And when we become aware that we are thinking things, this is a primary notion which is not derived by means of any syllogism. When someone says ‘I am thinking, therefore I am, or I exist’, he does not deduce existence from thought by means of a syllogism, but recognizes it as
eliminates everything in his idea of himself of which he cannot be certain. Thus, he argues that he cannot take himself to be a body, or a rational animal, for these definitions presuppose knowledge that was proven to be uncertain by the method of doubt. Yet even if we leave all of this out of consideration, Descartes sees that he cannot be nothing, he must be at least a thinking thing. He argues that 'this proposition, *I am, I exist*, is necessarily true whenever it is put forward by me or conceived in my mind.'\(^{309}\) In coming to a clear and distinct idea of himself, Descartes also assures himself of his reality. As I will demonstrate later, this relationship between clear and distinct ideas and reality, lies at the heart of Descartes' concept of truth.

3.

Descartes' epistemological claims are bound up with his understanding of substance in a way that is potentially confusing. For this reason I will provide an account of his essentially medieval conception of substance before I return to his attempt to provide an unshakeable basis for *scientia*. Descartes provides two definitions of substance which may initially appear to be contradictory.\(^{310}\) In his *Principles of Philosophy*, he writes that 'We can mean by *substance* nothing other than a thing existing in such a manner that it has need of no other thing in order to exist. There can indeed be only one substance conceived as needing absolutely no other thing in order to exist; namely God.'\(^{311}\) If we employ this definition strictly then only God can be a true substance. However, Descartes also uses this definition to refer to the creatures of God, provided that they rely for their existence only upon God and not another creature. There are, for Descartes, two substances that have this characteristic. He argues that 'corporeal substance and mind...can be brought under this common concept: things that need only the co-operation of God in order to exist.'\(^{312}\)

However, Descartes also speaks of substance as that which is the *bearer* of qualities and attributes. Therefore substance can also be considered as the subject of various predicates. The question now is whether these two accounts of substance can be reconciled with one another. In fact they are quite closely connected and, as something self-evident by a simple intuition of the mind.' See 'Objections and Replies', in *The Philosophical Writings of Descartes*, vol. II. p100.

\(^{309}\) Descartes, 'Meditations on First Philosophy', p17.

\(^{310}\) R. S. Woolhouse provides a good discussion of Descartes' position on substance which I have in part relied upon here. See chapter 2 of his *Descartes, Spinoza, Leibniz: The concept of Substance in Seventeenth-Century Metaphysics*, (Routledge, London and New York, 1993).

\(^{311}\) Descartes, 'Principles of Philosophy', in *Philosophical Writings*, p192.

\(^{312}\) Descartes, 'Principles of Philosophy', p192.
Woolhouse has argued, we need only see that the common theme in the two accounts is one of degrees of dependence. Thus, in the first account we see that God is in the strictest sense a substance as he depends only upon himself in order to be. However, aside from God there are created substances which depend only upon the co-operation of God for their being. In the second account we see that it is possible to distinguish two orders of created beings, those which were already identified as needing only the co-operation of God, and those which need both the co-operation of God and another created substance. This final category refers to the attributes of created substances.

Woolhouse points out that Descartes does not take the relationship of dependence to be the same between God and created substance, and created substance and its accidents. The accidents of created substance are not created by that substance, but rather logically rely upon such substance. This is different from the causal relationship that exists between God and both created substance and its accidents. The accidents depend upon substance in the sense that they imply the substance on which they depend. An example of this would be that all the variations of colour are dependent upon shape for it is not possible to have something that is coloured that does not also have a shape. It is possible to understand the concept of a shape independently of any colour, however, the reverse is not true. The point here is that although substances always have accidents, there is an order of necessity to these accidents. If we follow this order, it should be possible to determine which attributes a substance must necessarily possess. Descartes contends that there are in fact two substances whose necessary characteristics are, respectively, to be extended and to be thinking. Here we come to the concepts of res extensa and res cogitans. All the attributes of the mind are dependent upon a thinking substance, and all the attributes of bodies are dependent upon an extended substance.

That Descartes understands substance in this way is clear from his discussion of the piece of wax in his second Meditation. There he describes the many attributes of a piece of wax: ‘...it has not yet quite lost the taste of the honey; it retains some of the scent of the flowers from which it was gathered; its colour, shape and size are plain to see; it is hard, cold and can be handled without difficulty; if you rap it with your knuckle it makes a sound.’ All these matters seem to be required for our

313 Woolhouse, *Descartes, Spinoza, Leibniz*, p16.
314 See Woolhouse, *Descartes, Spinoza, Leibniz*, p17.
knowledge of a body, and yet if the wax were to be placed in front of a fire, all these
attributes are transformed. Nonetheless, it is still the case that the wax itself persists
throughout these alterations. Thus, we may distinguish between a substance and its
accidents. He writes of the wax after it has been melted, 'But does the same wax
remain? It must be admitted that it does; no one denies it, no one thinks otherwise.
So what was it in the wax that I understood with such distinctness? Evidently none
of the features which I arrived at by means of the senses; for whatever came under
taste, smell, sight, touch or hearing has now altered – yet the wax remains.'316

The fact that we are able to separate the infinitely variable accidents of an object
from the substance which remains throughout all such variations, leads Descartes to
dismiss the senses as a source of scientia about external bodies. Although objects
always have some attributes, the nature of these attributes is variable. Given that
Descartes is seeking necessary knowledge, he cannot rely upon the accidental
attributes of extended substance that we gain from the senses. Attributes like colour,
hardness, warmth, smell, and sound can provide no basis for scientific knowledge as
they may alter without a change in the substance which underlies them.

Significantly, the two substances Descartes arrives at, res extensa and res cogitans,
are bound together by the mathematical. As we have seen from the wax example,
Descartes excludes all the qualitative attributes from extended substance itself and
attributes them to the action of this substance upon the senses of man. In essence,
Descartes' conception of the physical is a purely quantitative one. As Leclerc
describes the matter, 'All of what Aristotle had designated as the qualitative, as
distinct from the quantitative, attributes of the physical existent were, in the new
doctrine, wholly extruded from the physical and were ascribed entirely to mind, as
subjective appearances to mind of the exclusively quantitative physical.'317 The
difficulties that were encountered in the attempt to develop a mathematical physical
science from within an Aristotelian framework, have already been discussed in the
preceding chapter on Galileo and I will not repeat them here. However, it is
important to note that Descartes' hope of developing a physical science based
entirely on the ideas of extended substance and its motion contained some deep
contradictions.

316 Descartes, 'Meditations on First Philosophy', p20.
Chapter Five

Not only is the physical, as *res extensa*, essentially the actually existing mathematical, but the mathematical is also present in the *res cogitans*. Although these two substances are distinct, they are related in an important way. Again, Leclerc clearly brings this out when he argues that ‘...for Descartes the science of pure mathematics is the knowledge of the essence of the physical, knowledge as such consisting in the intellectual possession of the forms constituting the very essence or being of the physical.’\(^{318}\) However, for Descartes, we do not gain our mathematical ideas by sifting the quantitative from the qualitative elements of our experience; rather they are given to us directly by God and we possess them as innate ideas. Thus, our thinking, insofar as it is to give us *scientia*, involves methodically developing the implications of the clear and distinct ideas that we have received from God. Descartes introduces ‘clarity’ and ‘distinctness’ as criteria for determining which ideas can give us certainty, that is, can be the basis of necessary knowledge. He writes in his *Discourse on Method*:

> And having noticed that there is nothing at all in this, *I think, therefore I am*, which assures me that I am speaking the truth, except that I see very clearly that in order to think one must exist, I judged that I could take it to be a general rule that the things we conceive very clearly and very distinctly are all true, but that there is nevertheless some difficulty in being able to recognize for certain which are the things we see distinctly.\(^{319}\)

Once we have come to a clear and distinct conception of a substance, that is we do not confuse it with other substances or accidents, then we can take it that we have grasped its essence. In the example above, Descartes argues that ‘I am thinking, therefore I exist’ must be true because once we clearly conceive of a thinking substance we must recognise its reality. Provided that we proceed methodically, we can then derive further knowledge from these clearly and distinctly conceived premises. Thus, not only is the physical essentially mathematical for Descartes, thought too must proceed according to mathematical methods if it is to attain truth.

4.

I return now to Descartes’ attempt to establish *scientia* on the basis of the certain principle that when I think, I exist. Descartes dismisses the evidence of his senses and introduces, through the discussion of the malicious demon, the doubt that he may have a nature such that he goes systematically wrong in matters that are obvious and


\(^{319}\) Descartes, ‘Discourse on the Method’, p54.
seemingly necessary. Yet he remains confident that knowledge of reality is possible. Such a position seems untenable; for how can Descartes be sure that his ideas can be relied upon to give him any knowledge of reality? I have shown that he takes certainty, clarity, and distinctness, to be criteria of ideas which give us *scientia*. Indeed, a passage from his first meditation demonstrates that Descartes understands clear and distinct ideas as providing us with knowledge of reality. He notes that Painters are able to produce images of mythical scenes, of ‘Sirens and Satyrs’ from elements which are themselves indubitably real. Thus, through combining elements from reality such as heads, hands, arms and so on, in ways that we do not find in reality they are able to build up an image that has no basis in reality. However, no matter how confused we are with regard to which creatures in a painting can be found in reality, it remains the case that a painting is made up of a mixture of real and distinct colours. Descartes claims this is also true of ‘...corporeal nature in general, and its extension; the shape of extended things; the quantity, or size and number of these things; the place in which they may exist, the time through which they may endure, and so on.’ These aspects are the primary qualities of which we can be most certain. On this basis Descartes claims that the sciences of arithmetic and geometry are more certain than those of physics, astronomy, and medicine, because they concern themselves only with these underlying forms, not with the composite and secondary matters that arise from them. These sciences do not consider whether the forms exist beyond the mind, they merely study their natures. However, physics must concern itself with the real objects of nature and therefore the question of whether our ideas can be considered a reliable guide to reality.

As I have already mentioned, Descartes considered knowledge of mathematics and geometry to be knowledge of the essence of the physical realm. The question now is with what right does he assert the objective validity of scientific knowledge given that his criteria for determining which of our ideas are true are merely criteria of subjective certainty. How is it that Descartes does not come to the conclusion that Locke put forward in his *An Essay Concerning Human Understanding*, namely that we can only have knowledge of nominal essences? It seems that Descartes himself was certainly aware of this problem, indeed his postulation of a malicious demon in the *Meditations* is designed to state this objection in its most extreme form. Descartes replies to this ‘metaphysical doubt’ by appealing to the existence of God in his third meditation. However, I will argue that this reply presupposes an

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understanding of truth as equivalent to the *reality* of an idea. This account of truth underpins Descartes’ thinking and fundamentally differentiates him from Locke and his successors.

It may seem from the structure of his metaphysical doubt that Descartes is operating with a conception of truth as the correspondence of an idea and the external reality it purports to represent. However, Descartes’ resolution of this doubt demonstrates that his conception of truth is rather different. He argues that ‘...as soon as the opportunity arises I must examine whether there is a God, and if there is, whether he can be a deceiver. For if I do not know this, it seems that I can never be quite certain about anything else.’\(^{321}\) In order to determine whether God exists, Descartes examines a particular class of his thoughts. He examines his ‘ideas’ which, strictly speaking, are only those thoughts which are the ‘images of things’ and are therefore the bearers of truth and falsity. With this restriction, he rules out of consideration other elements that may accompany our ideas, such as volitions, emotions, and judgements. Furthermore, as he is intending to establish the existence of God he examines only those ideas which he takes to resemble things which exist outside of himself. Although he has long thought that many things do in fact exist outside himself, Descartes argues that he has not come to this conclusion through sound reasoning but merely through blind impulse. His lack of secure knowledge about his own nature makes it impossible for him to tell whether his convictions about external objects are not merely the result of a faculty, internal to himself, of which he is not aware.\(^{322}\)

Descartes’ attempt to prove the existence of God rests upon two very controversial claims. His first point is that although there is no inequality between his ideas so long as we consider them merely as the accidents of a thinking substance, they do contain different levels of ‘objective reality’ according to the different objects they represent. Descartes is not using the term ‘reality’ in the modern sense, rather it refers to the ‘essence’ or ‘whatness’ of a thing. The ‘reality’ of something, in this sense, remains the same whether it exists or is a mere possibility. Heidegger makes a note of this in his discussion of Kant’s claim that being is not a real predicate. There he writes that ‘Descartes here, too, takes realitas in the sense mentioned above—the sense of realness or res-ness, German Sachheit—equivalent to the scholastic

\(^{321}\) Descartes, ‘Meditations on First Philosophy’, p25.

\(^{322}\) Descartes, ‘Meditations on First Philosophy’, p27.
quidditas [whatness, somethingness].\textsuperscript{323} I will return to Heidegger’s reading of Kant’s thesis about being as it is important for his account of subjectivity.

Returning to Descartes’ argument with this concept of reality in mind, we can understand his argument that ‘Undoubtedly, the ideas which represent substances to me amount to something more and, so to speak, contain within themselves more objective reality than the ideas which merely represent modes or accidents.’\textsuperscript{324} By this he means that the essence of an attribute is logically dependent upon a substance. Descartes relied heavily upon the assumption that there is an evident hierarchy of beings leading from the most to the least perfect, a position that stems from the medieval equation of being with being created by God. We can trace this hierarchy in Descartes’ concept of substance. As God is dependent only on himself for his being, he is the only true substance. His creatures are substances only if we discount their dependence on God, and the accidents of these created substances stand even further removed from true substantiality.

In the passage quoted above, however, Descartes is speaking not of substances themselves, but of ideas and their ‘objective reality’. This is a puzzling term, however, something of its meaning remains in the expression ‘object of thought’ which is used to refer not directly to a person, for example, but to that person insofar as we think about them. Thus, the very same person exists both in themselves and as an object of my thought. Descartes explains this in more detail in his reply to the first set of objections to the \textit{Meditations}. Taking the sun as an example, he writes:

\begin{quote}
By this I mean that the idea of the sun itself existing in the intellect – not of course formally existing, as it does in the heavens, but objectively existing, i.e. in the way in which objects normally are in the intellect. Now this mode of being is of course much less perfect than that possessed by things which exist outside the intellect; but, as I did explain, it is not therefore simply nothing.\textsuperscript{325}
\end{quote}

Although our ideas do not have the same level of perfection as external objects do, presumably because they are merely the modes or accidents of thinking substance whereas external beings are parts of extended substance, they are nevertheless \textit{something}. Furthermore, Descartes is arguing that it is the \textit{same} thing that exists both as an idea and as an external reality.

\textsuperscript{324} Descartes, ‘Meditations on First Philosophy’, p28.
\textsuperscript{325} Descartes, ‘Objections and Replies’, p75.
Chapter Five

The second controversial claim that Descartes makes in his proof of God's existence is as follows:

Now it is manifest by the natural light that there must be at least as much <reality> in the efficient and total cause as in the effect of that cause. For where, I ask, could the effect get its reality from, if not from the cause? And how could the cause give it to the effect unless it possessed it? It follows from this that something cannot arise from nothing, and also that what is more perfect – that is, contains in itself more reality – cannot arise from what is less perfect. 326

This is a further determination of the hierarchical picture of beings that I outlined above. Now Descartes is claiming not only that there is a hierarchy of perfection or reality, but also that this hierarchy is causally structured. A higher state of perfection cannot arise from a lower state, rather all perfection, being, and truth, stem from God. There is not space here to explain the origins of this view, however, I note in passing that it is a form of neo-Platonism. 327

On the basis of these two claims, along with the presence within him of the idea of a perfect God, Descartes argues that we can conclude that God exists. He argues that although his many other ideas could be the products of his own nature, his idea of an infinite and perfect God must have been caused by such a God. The idea of such a God contains the highest possible 'objective reality', certainly far greater than that contained in my idea of myself as a finite creature. Therefore only God himself could have produced such an idea, neither Descartes himself nor any intermediate being between man and God could have caused an idea with such a degree of objective reality.

With this result, Descartes is in a position to assert that his clear and distinct ideas give him knowledge of external objects. He summarises his argument at the end of the third meditation:

I recognise that it would be impossible for me to exist with the kind of nature I have – that is, having within me the idea of God – were it not the case that God really existed. By 'God' I mean the very being the idea of whom is within me, that is, the possessor of all the perfections which I cannot grasp, but can somehow reach in my thought, who is subject to no defects whatsoever. It is clear enough from this that he

326 Descartes, 'Meditations on First Philosophy', p28.
cannot be a deceiver, since it is manifest by the natural light that all fraud and deception depend upon some defect.\footnote{Descartes, ‘Meditations on First Philosophy’, p35.}

On the basis of his demonstrating that God exists and that man gains his nature from God, Descartes claims that the truth of his clear and distinct ideas is assured. Given the perfection of God, it is not possible that he should be the source of deception or falsehood. Therefore man’s nature cannot be such that he systematically goes wrong when he perceives necessary truths, nor can his innate ideas, which he also receives from God, fail to be true. Thus, at the conclusion of the third meditation Descartes believes that he has demonstrated his clear and distinct ideas give him knowledge of reality, that is they are true. This is precisely what was required to support his understanding of mathematics and geometrical knowledge as knowledge of the essence of extended substance. The proof of God’s existence differentiates Descartes from atheist mathematicians and geometers. Whilst he concedes that an atheist may be ‘clearly aware that the three angles of a triangle are equal to two right angles’, this ‘awareness (cognitio) of his is not true knowledge (scientia), since no act of awareness (cognitio) that can be rendered doubtful seems fit to be called knowledge (scientia).’\footnote{I have inserted the terms scientia and cognitio in this passage to emphasise the point made by the translators in a footnote on the difference between awareness and knowledge. Descartes, ‘Objections and Replies’, p101.}

Significantly, Descartes does not lay claim to scientia at the conclusion of his third meditation. He only makes this claim after he has provided another proof of God’s existence in the fifth meditation. The fact that Descartes provides two proofs of the existence of God, along with the fact that he does not claim to have established scientia until after the second proof, provides strong evidence that he employed these proofs for two distinct purposes.\footnote{See the final paragraph of the fifth meditation for this claim to scientia in ‘Meditations on First Philosophy’, p49.} Descartes’ first proof of God’s existence depends ultimately on his argument that the proposition ‘I exist” is necessarily true whenever I entertain it. On this basis he ascends, through a discussion of the objective reality of his ideas, to the claim that God exists and that as He cannot be a deceiver, we can take as true those ideas which we clearly and distinctly perceive. Yet the conclusions of this proof can only be contingently true as they rest upon the contingent existence of Descartes and his idea of God. If Descartes is to establish that his clear and
distinct ideas give him *scientia*, he must establish that these ideas are *necessarily* true.

This appears to be the purpose of the second proof of God’s existence. This proof turns on the claim that the essence of God includes His existence. Although we can distinguish between the essence and the existence of every other being, Descartes argues that ‘it is just as much of a contradiction to think of God (that is, a supremely perfect being) lacking existence (that is, lacking a perfection), as it is to think of a mountain without a valley.’ Working with this idea of God, and with the earlier claim that what he clearly and distinctly conceives is true, Descartes claims that God *necessarily* exists. Given that God necessarily exists, that everything depends upon Him, and that He is not a deceiver, Descartes is able to claim not only that his clear and distinct ideas are true, but that they are *necessarily* true. It is only after this second proof that Descartes lays claim to perfect knowledge, or *scientia*.

5.

As I mentioned above, this argument is easily misunderstood if we read Descartes as holding a correspondence theory of truth. His concern is not whether he can be certain that his ideas correspond with external objects, rather he aims to demonstrate the *reality* of our clear and distinct ideas. That Descartes equates reality and truth is clear from the manner in which he uses these terms interchangeably. In his second set of replies he writes:

Now everything real which is in us must have been bestowed on us by God (this was proved when his existence was proved); moreover, we have a real faculty for recognizing the truth and distinguishing it from falsehood, as is clear merely from the fact that we have within us ideas of truth and falsehood. Hence this faculty must tend towards the truth, at least when we use it correctly (that is, by assenting only to what we clearly and distinctly perceive, for no other correct method of employing this faculty can be imagined).

We need only determine which of our ideas are real, that is contain objective reality, in order to be assured of their truth. Moreover, as God is not a deceiver, he must have made us such that we have a faculty for recognising the truth. This thought is the foundation of Descartes’ claim that once he conceives of himself as a thinking substance he cannot but see that he exists. He says that the movement from his clear and distinct idea of himself as a thinking thing to the knowledge of his existence, is

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331 Descartes, ‘Meditations on First Philosophy’, p46.
332 Descartes, ‘Objections and Replies’, p103.
not a deduction but a 'simple intuition of the mind'.\textsuperscript{333} Indeed, as we have this real faculty for distinguishing the truth and our ideas are the real products of God, Descartes’ problem is to explain how we so frequently fall into error. Given that we are created by God, there can be no inherent imperfection in our faculty of understanding, rather error arises when our will over reaches our understanding such that we assent to things that we do not clearly understand. In this way the will and the understanding, which are not faulty in themselves, give rise to error. Descartes’ method of doubt essentially aims at the elimination of this source of error by refusing his assent to everything that he does not clearly and distinctly perceive. If this is achieved, then he will arrive at the truth in accordance with his God-given constitution.

This interpretation of Descartes’ understanding of truth completes my examination of his project in the \textit{Meditations}. There are a great many issues that I do not have space to discuss adequately here. Of particular relevance to the interpretation that I have been putting forward are the alleged circularity of Descartes’ proof of God’s existence in the third meditation and his apparent return to this issue in the fifth meditation. However, I have explored enough of Descartes’ project to establish that his concepts of truth, substance, and \textit{scientia}, remain closer to medieval philosophy than they do to modern philosophy. Naturally this division of modern and medieval philosophy depends upon the criteria that one employs. Thus, if we consider Descartes’ understanding of nature as a single unified system, of ideas as mental realities, and of subjectivity as the foundation of certainty, he seems distinctly modern. Despite the complexities of Descartes’ philosophy, Heidegger argues that he marks the beginning of the modern age. I turn now to an examination of his interpretation.

6.

Heidegger’s own interpretation of Descartes is so entangled in his understanding of the modern age as determined by the essence of technology that it is impossible to separate the two. The picture of Descartes that is developed in his \textit{Nietzsche} lectures, and \textit{The Age of the World Picture}, is entirely focused on demonstrating that a new understanding of subjectivity emerges in his thought. This is used in turn to place Descartes at the centre of a contrast between the conceptions of subjectivity that reign over the ancient Greek thinking of Protagoras, and the modern thinking of

\begin{footnotesize}
\textsuperscript{333} Descartes, ‘Objections and Replies’, p100.
\end{footnotesize}
Nietzsche. Descartes, according to this schema, is the first to give voice to the essential element of the modern age because he thinks through the ontological implications of man’s new self-assertiveness. This new position represents, for Heidegger, both a break with the ancient Greek understanding of man’s relationship with beings, and the first elements in a movement that culminates in Nietzsche’s metaphysics of the will to power. He gives a summary of this framework in his *Nietzsche* lecture series. He writes there:

At the beginning of modern philosophy stands Descartes' statement: *Ego cogito, ergo sum,* “I think, therefore I am.” All consciousness of things and of beings as a whole is referred back to the self-consciousness of the human subject as the unshakeable ground of all certainty. The reality of the real is representedness through and for the representing subject. Nietzsche’s doctrine, which makes everything that is, and as it is, into the “property and product of man,” merely carries out the final development of Descartes’ doctrine, according to which truth is grounded on the self-certainty of the human subject.³³⁴

This passage indicates that Heidegger misreads Descartes’ position on truth as it is only *certain truth,* that is *scientia,* that is grounded on self-certainty. According to Heidegger, the ultimate significance of Descartes is that he gives voice to a new conception of truth in which the beingness of beings, that is the sense in which a being is a being, is a matter to be determined by man himself. This reading of Descartes is fraught with difficulties for it is clear that Descartes does not himself explicitly support anything like the view that Heidegger attributes to him. However, this apparent contradiction is not an oversight by Heidegger for he is fully aware that Descartes does not understand himself in this way. Heidegger’s interpretation of the principle ‘*cogito, ergo sum*’ is not primarily aimed at clarifying Descartes’ own understanding of it, but rather at showing that this principle expresses the essential elements of modern man’s new position with regard to everything else that exists. Thus, although Descartes’ principle does have an ontological element, it is not explicitly intended as a new formulation of the way beings as a whole *are.*³³⁵

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³³⁵ It is certainly true that Descartes provides a new account of what there is with his argument that there are only two sorts of things, namely thinking things and extended things. It is also undeniable that this distinction has had a profound influence on subsequent philosophy. However, Descartes does not think that these realities gain their character or existence by virtue of being represented. On these questions he remains firmly of the view that to be is to be a creature of God. The distinction between God and his creatures remains the most fundamental ontological determination in Descartes’ philosophy, not the division of created beings into *res cogitans* and *res extensa.*
However, Heidegger thinks it does express such a new formulation and interprets it accordingly. Whilst this means that we must be careful in distinguishing Heidegger’s account of Descartes from Descartes’ own position, it also means that we can find in this interpretation a clear account of what Heidegger takes to be the essence of the modern age.

Heidegger argues that when we translate ‘cogitare’ as ‘thinking’, we have not truly understood anything about the meaning of this term. It is certainly true that Descartes’ term is not quite equivalent with our term ‘thinking’, as ‘cogitare’ is meant to denote a broader range of phenomena than we would normally include under ‘thinking’. The res cogitans, or thinking substance, underlies all mental phenomena and therefore all mental phenomena are the attributes of res cogitans. Thus, Descartes’ concept of cogitare is broad enough to include all mental acts, the essence of which he thinks is a certain presence to the self. Descartes writes in his Principles of Philosophy:

By the term conscious experience (cogitationis) I understand everything that takes place within ourselves so that we are aware of it (nobis consciis), in so far as it is an object of our awareness (conscentia). And so not only acts of the understanding, will, and imagination, but even sensations, are here to be taken as experience (cogitare). Suppose I say I see (or I am walking) therefore I exist. If I take this to refer to vision (or walking) as a corporeal action, the conclusion is not absolutely certain; for, as often happens during sleep, I may think I am seeing though I do not open my eyes... But if I take it to refer to the actual sensation or awareness (conscientiae) of seeing (or walking), then it is quite certain; for in that case it has regard to the mind, and it is the mind alone that has a sense or experience (cogitatio) of itself seeing (or walking).336

I quote this passage at length because it clearly shows Descartes’ understanding of mental activity as defined by presence to the self. As it is an action of my body, I can doubt whether or not I am actually seeing, or merely dreaming I am seeing. I cannot however doubt that I have the experience of seeing, because what is in question here is not whether the experience corresponds with a physical reality, but simply the presentation of the experience to the self.337

John Cottingham has argued, correctly I think, that the common interpretation (see the comments on this topic by Koyré and by Anscombe and Geach in Descartes’ Principles of Philosophy). 336

337 The notion that the experience of seeing and the thing that is seen are separate realities can be found in William of Ockham’s Tractatus de Successivis.
Philosophical Writings) of Descartes’ use of ‘cogitatio’ can be misleading. It is certainly true that he uses the term to include will, sensation, and imagination. However, this should not be taken to mean that ‘cogitatio’ does not have an ‘intellectualistic’ meaning. By this, Cottingham means that although Descartes includes elements which we would not class as ‘thoughts’ in his definition of cogitatio, he does so only in the sense that they can be the object of the mind’s reflection on itself. Thus, willing, imagining, and sensing, are cogitationes, and can be employed in the formula ‘cogito, ergo sum’, only in so far as ‘they include a reflective cognitive act—the mind’s intellectual awareness of itself which Descartes terms conscientia.’

Descartes does not extend res cogitans to include res volens, or res sentiens, rather it is only the mind in so far as it is present to itself that is secured by the method of doubt. Heidegger makes the same point through his warning that we must be careful when we translate ‘cogitare’ as ‘thinking’.

Heidegger employs the term ‘representation’ or ‘Vorstellung’ to name Descartes’ concept of experience. This translation is certainly not without significance as it allows Heidegger to emphasise what he sees as the hidden reality of modern knowledge, namely the grasping of objects in such a way that they are placed before the subject and calculated. As David Carr notes, ‘In using the language of Vorstellung Heidegger is already forging the link between modern metaphysics, science, and technology. The term Vorstellung is central to Kant’s first Critique, but is used there in a way that makes it more or less equivalent to the Latin, French, and English term idea (idée) used by his modern predecessors. Perhaps on this basis, Heidegger permits himself to read the German term back into Descartes…’

The connection Carr makes with Kant’s language is interesting because Heidegger also spends a great deal of time determining precisely what Kant meant by his argument that ‘being is not a real predicate’. This matter is closely related to the above discussion of Descartes because it addresses the fundamental element of Descartes ontological proof of God’s existence in the fifth meditation. However, Kant’s argument is difficult to understand as he appears to maintain both that ‘exists’ is not a real predicate and that existential judgements are synthetic, that is they add something to our concept of an object. The resolution of this problem is to be found

in Kant’s understanding of the term ‘real’. As is the case with Descartes, Kant holds that the reality of a thing, a *res*, is its *quidditas*, or whatness. A *real* predicate is, therefore, a predicate which tells us something about the *definition* of a thing, not about its existence. This understanding of a reality underpins Kant’s claim that ‘...the actual contains nothing more than the merely possible. A hundred actual dollars do not contain the least bit more than a hundred possible ones.’\(^{340}\) This example is meant to illustrate that, provided I have an adequate concept of a thing, the existence of this thing will make no difference to this concept. Whether the dollars are actual or possible tells us nothing about the *reality* of ‘one hundred dollars’.

Yet it is obvious that an existing dollar is different from a possible dollar and that we know more about the dollars in question if we are told that they exist. The key to understanding Kant’s position is to see that real predicates are not the only type of predicate. Rather there are also *relational* predicates of which ‘exists’ is an example. Thus, for Kant, when we say that something exists, we are not adding a determination to the concept of the thing, rather we are saying that the thing holds a position in our experience. Kant writes in his *Critique of Pure Reason*:

> Now if I think of a being as the highest reality (without defect), the question still remains whether it exists or not. For although nothing at all is missing in my concept of the possible real content of a thing in general, something is still missing in the relation to my entire state of thinking, namely that the cognition of this object should also be possible *a posteriori*. And here the cause of the predominant difficulty shows itself. If the issue were an object of sense, then I could not confuse the existence of the thing with the mere concept of the thing. For through its concept, the object would be thought only as in agreement with the universal conditions of a possible empirical cognition in general, but through its existence it would be thought as contained in the context of the entirety of experience; thus through connection with the content of the entire experience the concept of the object is not in the least increased, but our thinking receives more through it, namely a possible perception.\(^{341}\)

That something exists tells us nothing about the ‘whatness’ of that thing, rather it tells us something about its relationship to our experience. Existential predicates are thereby both synthetic and not real.\(^{342}\) Kant’s argument, if we accept it,

\(^{340}\) Kant, *Critique of Pure Reason*, A599/B627.


fundamentally undermines Descartes’ ontological argument for the existence of God. For the very core of the ontological argument is that existence can be part of the concept of a thing, in this case God. This dispute between Descartes and Kant brings out very clearly the difference in their fundamental orientations toward being. Descartes maintains the view that all reality, and therefore being, flows from God and the most fundamental ontological distinction for him is therefore that between God, the absolute creator, and his creations; whereas Kant argues that existence is distinct from reality and is a matter of the object having a location in the field of experience. Thus, the fundamental ontological ground for Kant is the representing self.

By undermining the ontological proof that Descartes’ provides in his fifth meditation, Kant also removes the key stone of his claim to scientia. Prior to his introduction of the ontological argument, Descartes is only in a position to claim that his knowledge is true, not that it is necessarily so. It is only at the end of the fifth meditation, having provided an argument for God’s necessary existence, that he is able to lay claim to scientia. Once he knows not just that God exists, but that He exists necessarily, Descartes can claim that his knowledge of reality is also necessary. Thus, in attacking the logic of the ontological argument, Kant undermined the means by which Descartes tried to establish that truth and being are anchored with absolute necessity by an eternal God. It is the failure of this strategy for founding scientia that throws us back upon mere certainty. Descartes saw very clearly the difficulties of establishing a firm foundation for scientia, yet he, unlike later philosophers, thought that it could be done.

There are two aspects of representation that Heidegger emphasises. The first is that every representation involves ‘placing’ or ‘presenting’ the thing to be known before the subject. He argues that ‘Cogitare is the presenting to oneself of what is representable.’ It is this very fact that allows Descartes to argue from the existence of a representation to the being of the one to whom it is a representation. Thus, it is possible to say of Descartes, as Heidegger does, that ‘every ego cogito is a cogito me cogitare; every “I represent something” simultaneously represents a “myself”, me, the one representing…” This does not mean that I somehow represent myself alongside whatever it is I am perceiving. Rather, the very structure

of experience, understood as representation, means that whatever is experienced is referred back to the one representing. The manner in which the self is simultaneously co-represented is not that it becomes a part of the object of experience, but rather it is always the subject of the representing. Therefore, he states that: 'the representing person is involved with and in every representation—not subsequently, but in advance, in that he, the one who is placing before, brings what is represented before himself.'

The second element in Heidegger’s account of representation is his claim that representation is always deliberative in the sense that it is ‘a representing that examines and checks: cogitare is dubitare.’ He recognised that Descartes’ use of doubt was not sceptical in the usual sense, but rather oriented towards the securing of what is indubitable. He argues: ‘thinking, which is essentially deliberating, accepts nothing as secured and certain—that is, as true—which is not proven before thinking itself to be the sort of thing that has the character of the doubtless…’. This argument correctly characterises Descartes’ philosophical method and is legitimate insofar as we take cogitare to be restricted to the thinking that is involved in the pursuit of scientia. Yet Heidegger does not recognise this restriction. His claim that cogitare is essentially dubitare seems mistakenly to interpret as experience what remained for Descartes a philosophical method. As I argued above, Descartes’ definition of cogitationis includes all that we are aware of as taking place within us, only in the sense that the mind encounters such activities when it reflects upon itself. Whilst Heidegger correctly picks out the form Descartes believes our thinking should take if it is to attain certain knowledge, this is a very restricted sense of cogitare. Descartes restricts his thinking by the introduction of a method because he sees the essential possibility of falling into error. It is this error that must be avoided if we are to attain scientia. Heidegger, wrongly I think, asserts that thinking, for Descartes is always deliberative. This mistake stems from Heidegger’s attempt to find implicit in Descartes’ writings the entire trajectory of modern philosophy. Whilst his influence on modern philosophy is certainly profound, the ontological foundation of modernity that Heidegger seeks in Descartes’ writings, is not to be found there. Heidegger is aware of Descartes ontological position. However, he declares this to

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be inconsistent with the ‘true’ direction of his thought, a move that tells us more about Heidegger’s view of modernity and history than it does about Descartes.

7.
Heidegger’s reading of the principle ‘cogito, ergo sum’ is tied to his claim that a new understanding of being can be found in Descartes philosophy. He writes: ‘The principle speaks of a connection between cogito and sum. It says that I am as the one representing, that not only is my Being essentially determined through such representing, but that my representing, as definitive repraesentatio, decides about the being present of everything that is represented; that is to say, about the presence of what is meant in it; that is, about its Being as a being.’

The basis for this claim rests on Heidegger’s interpretation of the principle as implying that it is man’s being that underlies and gives the measure to everything else that exists.

Heidegger’s use of the term “subject” requires some explanation. He is not using it to refer to the distinction that we commonly make between the “subjective” and “objective”. This use of subjective, and subjectivity, refers us to what is peculiar to each individual, or what is valid only for a particular person. Thus, it is common to distinguish between judgements that we take to be objective, that is true of the object itself, and opinions that are merely subjective, that is the products of each person’s own idiosyncrasies and tastes. Heidegger writes that the ‘I’ that Descartes refers to in his formula ‘Cogito, ergo sum’, is ‘in its meaning, nothing “subjective” at all, in the sense of an incidental quality of just this particular human being.’

The sense of ‘subject’ that Heidegger wants to emphasise can be seen from the contrast that he draws between the modern and the medieval uses of the term. He argues that prior to Descartes (and still in Descartes’ writings), ‘subject’ or ‘subiectum’ could be used to denote anything that existed independently. Heidegger writes, ‘everything present-at-hand for itself was a “subject”; but now the “I” becomes the special subject, that with regard to which all the remaining things first determine themselves as such.’

The point Heidegger is trying to make here is that, from a medieval perspective, every being could be said to be a subject insofar as it possessed its own foundation. ‘Subject’ in this sense is equivalent to Descartes’ use of ‘substance’. In a corresponding change of meaning, the notion of an ‘object’, or

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349 Heidegger, *What is a Thing?*, p105.
350 Heidegger, *What is a Thing?*, P105.
‘objectum’, prior to the modern age meant an object of thought, but now has come to mean what truly exists. Heidegger writes, ‘I imagine a golden mountain. This thus represented—an objectum in the language of the Middle Ages—is, according to the usage of language today, merely something “subjective”; for “a golden mountain” does not exist “objectively” in the meaning of the changed linguistic use.’

Heidegger is here equating the older use of ‘subject’ with that of ‘substance’, that is of a being that exists independently. This is significant because Heidegger is trying to show that as ‘subject’ changes its meaning, so does ‘substance’. He thinks that as the way of being of all beings changes, so does the grounding that determines the existence of these beings. It is for this reason that he thinks the true direction of Descartes’ thinking was held back by his adherence to a medieval understanding of substance which complements his medieval understanding of science. He gives us a summary of Descartes’ understanding of substance:

*Substantia* is the conventional and predominant name for *hypokeimenon, subjectum* in a metaphysical sense. *Substantia infinita* is God, *summum ens, creator*. The realm of *substantia finita* is *ens creatum*. Descartes divides the latter into *res cogitantes* and *res extensae*. Thus all being is seen from the point of view of *creator* and *creatum*, and the new delineation of man through the *cogito sum* is, as it were, simply sketched into the old framework.

The medieval understanding of what is derives from the identification of God as the highest being and the conception of this highest being as the creator. Everything that exists is thereby a creature. Indeed, Descartes remains entirely a part of the tradition in this respect. So much so that his proof of the existence of God depends upon this conception, which in turn allows him to claim certain knowledge of the physical world.

Thus, Heidegger interprets Descartes’ principle ‘*cogito, ergo sum*’ as the foundation of a new *ontological* order, something which it is not, and cannot be, for Descartes himself. The centre of this new metaphysics is the fact that ‘Beingness now means the representedness of the representing subject.’

Heidegger is quick to point out that this does not mean that being has become simply enveloped in thought and is thereby something ‘subjective’. The actuality of beings is not called into question.

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351 Heidegger, *What is a thing?*, p105. Also see appendix 9 of ‘The Age of the World Picture’ for this observation.
here, rather the point is that whatever is a being, gains this being through its representation to the subject. A consequence of Heidegger’s reading of cogitare as essentially dubitare, is that all representing is simultaneously a deliberating and reckoning in order to sort what is certain and secure from what is not. The being of a being is, therefore, not merely its representation, but a representation that has been made certain. The pre-eminence of man arises from the structure of this reckoning representation, for if we understand man as the representing being, then he is always already counted upon in every act of representation. If the being of beings consists in representation, then man is, as Heidegger puts it, ‘the distinctive ground underlying every representing of beings and their truth, on which every representing and its represented is based and must be based if it is to have status and stability.’

On this basis, Heidegger thinks that truth also changes such that it is now simply certainty. Once again he attributes this position to Descartes. It is true that by the end of the Meditations Descartes comes to identify what is certain with what is true. However, this equation of the indubitable with the true is a consequence of his proof of God’s necessary existence. Only on this basis can he treat his clear and distinct ideas, about which he was always subjectively certain, as necessarily real and true. Certainty is only a criterion of truth because it coincides with necessary being, not because it is identical with truth itself. Despite this fact, Heidegger maintains that, beginning with Descartes’ thought, a being is what the subject can be certain of in its representation, and truth is this certitude itself. If truth is this certitude then ‘method’ becomes not merely an order in which we do things, as it is in a recipe book, but a procedure of assuring ourselves in advance of the certitude of our dealings with beings. For Heidegger ‘”Method” is now the name for the securing, conquering proceeding against beings, in order to capture them as objects for the subject.’

8.
In opposition to my reading of Descartes ontology one might argue that although Descartes certainly goes on to say a great deal about beings that seems to place God at the foundation of his ontology, this only occurs after his discovery of his own self certainty. As the recognition that he is at least a thinking thing is the first truth Descartes arrives at in the Meditations, it may seem that, despite his subsequent references to God, subjectivity really does lie at the foundation of his philosophy.

355 Heidegger, Nietzsche, vol. IV, p120.
There is some merit in this observation as the *cogito* argument is undeniably the first point of Descartes' attempt to provide a foundation for *scientia*. However, to rest with this initial conclusion would be to seriously misunderstand Descartes' position in the *Meditations*.

If we look more closely at Descartes' arguments we discover that there are in fact two orders that we can trace through the *Meditations*. The first of these orders is the order of discovery. Following this order, the *Meditations* moves from the self-certainty of the subject to God, and from God to mathematical essences and finally to bodies themselves. If this were the only order to be found in the *Meditations* then we would be justified in taking the subject as the ultimate foundation of Descartes' ontology. However, this order of discovery is not the only order, there is also the order of beings themselves. In this second order, as I have shown, God is the highest point.

The existence of these two orders would not create a problem if it was the case that one order could be reduced to the other. But this does not seem to be possible in the *Meditations*. As Paul Ricoeur has argued:

> The *Cogito* would be truly absolute in all respects if one could show that there is only a single order, that in which it is actually first and which the other order sends back to the second level, derived from the first. Now, it does seem that the third *Meditation* reverses the order by placing the certainty of the *Cogito* in a subordinate position in relation to divine veracity, which is first according to the "truth of the thing".

As I have demonstrated above, Descartes' proof of God's existence in the third meditation revolves around the notion of objective being. In switching from an investigation of the fact that he has ideas, to an investigation of his capacity to produce those ideas, Descartes identifies the idea of God as an idea that he could not produce himself. From this he believes he has gained a proof of God's existence along with the subsequent benefits this holds with regard to securing scientific knowledge.

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However, Descartes' recognition of an idea within himself which he could not have produced of his own accord, also has the consequence of reshaping the concept of subjectivity with which he began. He now knows himself to be an imperfect and finite being that depends upon God for its existence. As he argues towards the end of the third meditation:

And certainly it is not surprising that God, when he created me, should have implanted this idea in me, to be as it were an artist's mark impressed on his work. This mark need not be anything distinct from the work itself. From the mere fact of my creation by God, it is highly worthy of belief that I am somehow made to his image and likeness, and that I perceive this likeness, which comprises the idea of God, by the same faculty that enables me to perceive myself. That is to say: when I turn my mind's eye on myself, I understand, not only that I am an incomplete being dependent upon another... but also, at the same time, that he on whom I depend comprises all these greater things... 357

As a result of these reflections the subject is transformed from a thinking thing into a dependent and finite being that exists within an independent ontological order. In order to progress beyond the fleeting certainty of his own existence, Descartes is compelled to concede the fundamental ontological position to God. Thus, it seems that, as Descartes has formulated the matter, either the cogito is a foundation on which we cannot found anything more, or the subject's cognition of its own imperfection is the crucial point, in which case the self-certainty of the subject is not a first foundation.

Whilst this dilemma may have led later thinkers to place the subject at the foundation of their ontological systems, Descartes tried to hold these two competing orders together. The tension in this position is well described by Ricoeur:

The stark choice that subsequent history will uncover continues to be in Descartes a comfortable one: it is presented as the interweaving of two competitive orders, that of subjective reasons and that of the objective truth of the thing. Descartes thought he could pass smoothly from one to the other, by substituting in the examination of the ideas contained in thought the point of view of their representative value in place of their merely belonging to the Cogito, and by assigning to this representative value an equivocal existential status: 'objective being'. With objective being we are still in the Cogito and already outside the Cogito. We are still in the Cogito to the extent that the degrees of perfection of the objective reality of each idea possess evidence of the same nature as the Cogito itself, due to the fact that objective reality is that of

357 Descartes, Meditations, pp90-91.
ideas and that ideas cannot be separated from my nature. We are, nonetheless, outside the Cogito to the extent that the hierarchy of the degrees of perfection is measured by the highest among these, the idea of infinity, which, to be sure, is in me as an idea but is not produced by me — as it has more perfection than I do, I who doubt.\footnote{Ricoeur, ‘The Crisis of the Cogito’, p64.}

Once we realise that the recognition of God’s existence transforms the concept of subjectivity with which Descartes began his escape from universal doubt, it is no longer possible to argue that this original subjectivity is the absolute foundation of his ontology. In fact, the subject must recognise that it is not the ground of all beings if it is to attain scientia. Through the mechanism of ‘objective being’, Descartes holds together the two orders I have mentioned above, namely the order of discovery and the order of reality itself. Although subsequent philosophers, for the most part, found this position to be untenable, this should not lead us to overlook the complexity of Descartes’ own position.

9.
This leads us to the final point of Heidegger’s interpretation, or appropriation, of Descartes’ principle. Heidegger puts the matter in this way:

Because man essentially has become the subiectum, and beingness has become equivalent to representedness, and truth equivalent to certitude, man now has disposal over the whole of beings as such in an essential way, for he provides the measure of beingness of every individual being. The essential decision about what can be established as a being now rests with man as subiectum.\footnote{Heidegger, Nietzsche, vol. IV, p121.}

Modern man, whose being is defined by self-consciousness, stands beyond every other being, the existence of which depends entirely upon being brought before this self-consciousness in such a way that it can be known with certainty. Man is no longer one being among others, albeit a special being by virtue of his possession of language, or reason, or his relationship with God. Rather he is identified as that being which gives all measure to beings on the basis of what he can be certain of in his representing. Importantly, this picture of man denies the element that is crucial to Descartes’ argument, his relationship with God.

This reading of modern subjectivity provides the basis of Heidegger’s claim that ancient and modern science differ in an essential way. If we understand physical
science as the knowledge of natural beings, then the fundamental distinction Heidegger attempts to bring out, is that ancient science draws its categories from an understanding of being as self-emerging while modern science first determines what is in being on the basis of the projection of nature that the subject develops within itself. In the modern age, it is thought that dictates what a being is on the basis of what it determines to be indubitable. However, this seems to be a more apt description of Locke's position than of Descartes'. Without any recourse to innate ideas, Locke is unable to bridge the gap between subjective and objective certainty. Thus, he is left with nominal essences and must build scientific knowledge from this subjective foundation. Descartes, however, maintains that his ideas, provided they are clear and distinct, yield knowledge of real essences. His subjective certainty coincides with the real order of being. This order is founded not upon subjectivity, but by God's creative activity.

Heidegger's essay *The Age of the World Picture*, or *Die Zeit des Weltbildes*, makes this very point. There he argues that we are mistaken if we think that each age had its own world view, if we take this to mean that as 'subjects' they took up the task of determining the nature of the world from the basis of their own subjectivity. This, claims Heidegger, is a modern phenomenon, indeed it is the very definition of modernity for him. He writes: 'The fundamental event of the modern age is the conquest of the world as picture. The world "picture" [*Bild*] now means the structured image [*Gebild*] that is the creature of man's producing which represents and sets before.'³⁶⁰ Heidegger elaborates this in another way in *The Question Concerning Technology*. There he coins the term 'Gestell' or 'Enframing' to name the peculiar manner in which beings are revealed in the modern age. Although the term is different the point remains the same, namely that the determination of what can count as a being rests with man and that the world is therefore a framework, or picture, that man determines for himself.

Heidegger's controversial claim that the essence of modern technology preceded the development of modern science is based on this reading of modernity as the transformation of man into the ground of beings. Normally we consider the reverse to be the case as particular technological devices depend upon the application of scientific laws. Heidegger does not deny this obvious relationship between science and technology. His point is that modern science, along with the technologies that

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rest upon it, is already 'technological' in a deeper sense, namely in the sense that beings in general are dependent on a prior conception of their being by man. In this sense the entire world is a product, and man's knowledge of it equivalent to ancient technē. Thus, 'Because the essence of modern technology lies in Enframing, modern technology must employ exact physical science. Through its so doing, the deceptive illusion arises that modern technology is applied physical science.'

10.

From this discussion of Heidegger's interpretation of Descartes, we see that his conception of the essence of modernity is man's involvement in the division of subject and object that results from the equation of being with being represented. The new conception of nature that underpins modern science and technology is only one aspect of representation. The other aspect is the definition of man as the absolute subject. The vital element in Heidegger's account of modernity is his grasp of the fact that the great successes of modern science are founded as much in a new conception of man as they are in a new conception of nature.

If, as I have argued above, Heidegger's account of technology is an elaboration of his reading of subjectivity in the modern age, then his 1954 essay The Question Concerning Technology must be read very carefully. It is true that we can gain some understanding of his critique from this essay. However if it is read in isolation, it can be fundamentally misleading in that its structure suggests that Heidegger's account of the essence of technology rests on a phenomenological description of modern and ancient technologies. Certainly Heidegger does use descriptions of ancient Greek production, and he contrasts them with modern technologies. Examples of this procedure include his juxtaposition of a primitive sawmill in the Black Forest with a hydroelectric plant on the Rhine, a weather vane with a radar station, and the work of a peasant in the fields with modern mechanized agriculture. It is my contention that the force of these illustrations is only apparent on the basis of Heidegger's reading of modern metaphysics, a reading which is not clearly spelt out in that essay.

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361 As I noted in the previous chapter, this determination of the world as a product is not restricted to the modern age. I argued there that the ancient Greeks saw the world as the product of a demiurge, whilst Christians saw it as the creation of God. In the modern period the world is conceived as a product of man himself. The act of creation is determined by different conditions in each of these cases and these conditions determine the nature of scientific knowledge in each period.

362 Heidegger, QCT, p23.

363 Heidegger, QCT, p5 and p15.
I raise this point because some commentators have taken Heidegger’s illustrations in *The Question Concerning Technology* to be phenomenological descriptions. They have therefore attempted to illustrate with more precision how, from a phenomenological perspective, modern technology differs from earlier technologies. Typically this approach focuses on the scale and complexity of modern technological systems, and the extent to which they shape modern life. This is an interesting problem in itself and Heidegger’s examples do seem to hint at such an approach to understanding technology. Nevertheless, I do not think that this is what Heidegger himself intended. The fact that his examples are so brief and partial indicates that far from attempting to rise from a thorough description of the phenomena to a metaphysical interpretation, as was his procedure in *Being and Time*; his method in this later essay is exactly the reverse. He is now simply providing quick sketches in order to illustrate a metaphysical point that he has already made elsewhere.

However, if this reading of *The Question Concerning Technology* is correct and Heidegger is deriving the character of modern life from his metaphysical reflections, then the legitimacy of Heidegger’s reading of the modern age becomes a serious problem. As I have shown with regard to Descartes, Heidegger’s account of subjectivity does not correspond in any straightforward way with the actual expressions of past philosophers. Far from attempting to establish a new philosophical era in which subjectivity forms the ground of all ontological determinations, Descartes sought a ground for *scientia* and remained entirely within a medieval conception of both science and substance in order to carry out this project. It is true that Descartes marks the beginning of a new way of thinking about subjectivity, however this was not a fundamental ontological principle for him. Subjectivity only rises to such prominence if we can no longer maintain that what we know with subjective certainty is reality itself. It is Locke who gives expression to this sundering of reality into what we take to be real, and what is real in itself. Whereas Descartes maintained that his ideas were true because they were the real products of God, later philosophers could no longer maintain such a unity of ideas and reality.

Heidegger openly attempts to interpret the history of philosophy with the history of being as his guideline. Thus, he seeks not what was actually thought, but what was not thought, namely the understanding of being that lies unexpressed in metaphysical thought. This approach seems ultimately untenable, for the guideline that it assumes for the determination of all reality, that is the history of being, must simply be
assumed. The problem is not that Heidegger attempts to understand historical reality in terms of the history of being, but that he does not let the reality that is exposed by this approach speak for itself. Rather, he forces the phenomena to conform to a pre-existing schema in which the modern age is the exhaustion of the possibilities of metaphysics. This is clearly seen in his reading of subjectivity. It is certainly true that man’s relationship with the world changes fundamentally at the beginning of modernity. Yet Heidegger reduces this incredibly complex event to the ‘essential’ fact that in modernity, being becomes identified with being represented. The objection that this is simply not true for most of the modern philosophical tradition is discounted because Heidegger seems to have abandoned the vital reciprocity between the guideline of interpretation and what is given for interpretation. He no longer allows the possibility that the historical phenomena do not fit his history of being. I will discuss this objection and the extent to which it undermines Heidegger’s account of the essence of modern technology in my concluding chapter.
Chapter 6
Interpreting The Question Concerning Technology

In the preceding two chapters I have discussed the details of Heidegger’s critique of technology insofar as this is taken as an account of the nature of Western metaphysics. I argued that, despite the fact that his interpretation of Descartes was mistaken, Heidegger managed to uncover an essential characteristic of metaphysical thinking. This characteristic is the tendency to take production as the most fundamental horizon for the understanding of being. In the ancient Greek, medieval and modern periods, beings have been thought of as products. The changing characteristics of this act of production determined the nature of scientific methods by which beings could be known. Heidegger saw that this conception of beings as products played a crucial role in the establishment of the two most fundamental ontological categories, namely ‘essence’ and ‘existence’. Furthermore, he saw that these two categories, along with the concept of production, played a crucial role in the development of modern philosophy and science.

The only essay that Heidegger entirely devoted to the topic of technology was The Question Concerning Technology (1954). For this reason much of the commentary on his critique of technology focuses upon this work. However, I have postponed a close discussion of this essay until now because I believe he develops this conception of the essence of technology much more clearly in other places. Thus, I have turned to his discussions of Descartes in his Nietzsche lectures delivered in the 1940s, his essay The Age of the World Picture derived from a 1938 lecture, his 1935-36 lecture series on Kant published as What is a Thing? and his essay on Aristotle’s conception of physis (1939). All these sources provide a far clearer account of the analysis of metaphysics that lies at the heart of Heidegger’s account of technology.
However, I will examine *The Question Concerning Technology* in more detail in this chapter because it shows how Heidegger ties his critique of metaphysics to an assessment of modern life in general. By this I mean that he attempts to explain specific elements of modern social, political and economic conditions by referring to the ‘essence’ of the modern age. Moreover, he attempts to explain what is ‘wrong’ with the modern age by tracing these phenomena back to our neglect of the question of being. Heidegger himself saw his investigations of the history of metaphysics not simply as a matter of academic research, but as a matter of how we understand our own existence. This understanding of metaphysics stems from his insight into the historicity of human existence. Thus, despite the apparently abstract and theoretical nature of metaphysical reflection, it nevertheless provides the categories by which humans understand their actions and possibilities.

However, Heidegger’s position becomes difficult to maintain because he thinks that metaphysical determinations of the nature of beings entail certain types of social, political and economic structures. There are several problems with this position which I will outline during the course of this chapter. First, although the conception of beings as products has had a profound influence upon the structure of science, it is not clear how this metaphysical determination may have influenced other elements of human existence. Second, Heidegger’s lack of clarity regarding the extent to which the understanding of being determines the rest of human life, leads him to posit a ‘history of being’ (*Seinsgeschichte*) which founds the more mundane events of human history with which we are familiar. Once again, the problem with this position is the sense in which this ‘founding’ of history by a ‘history of being’ is understood. Furthermore, it is difficult to see how Heidegger can determine the nature of this history of being without relying upon an accurate historiography.

These difficulties are by no means confined to *The Question Concerning Technology*. Indeed, they are to be found in many of the earlier works that I have previously relied upon in my exposition of Heidegger’s critique of technology. I address these problems through a discussion of this essay in particular because it is their presence there that disguises the perceptive analysis of metaphysics that is part of Heidegger’s critique of technology. I will demonstrate the difficulties of this essay by first following Heidegger’s comments on the ‘essence’ of the modern age. Next, I will argue that this concept of ‘essence’ must be understood in the light of his account of truth. Having addressed these two issues I will return to a fuller discussion of the problems that I have outlined above, namely the reduction of the
richness of modern life to an understanding of being and the lack of interaction between the history of being and historiography.

1.
The most obvious aspect of Heidegger’s account in *The Question Concerning Technology* is that he does not address our ordinary understanding of technology. He calls our everyday understanding of technology the ‘instrumental definition’ of technology. On this account, ‘the manufacture and utilization of equipment, tools and machines, the manufactured and used things themselves, and the needs and ends that they serve, all belong to what technology is. The whole complex of these contrivances is technology.’ The essence of this definition, as Heidegger sees it, is that technology, in all of its various facets, remains an instrument of man and is put to the service of those ends that man decides upon. In this description, technology remains entirely at man’s disposal.

Heidegger’s account of this instrumental definition is extremely broad. It includes artefacts, tools, their means of production, and the ends to which one puts all these elements. Stephen J. Kline has pointed out that our use of the term ‘technology’ is itself ambiguous. He suggests that there are four identifiable concepts that are named by ‘technology’. These four concepts are man-made objects or artefacts, the elements of the system that produces these artefacts, the knowledge or technique that guides this system of production, and finally the system within which artefacts are used in order to achieve certain goals. It is clear from Heidegger’s description that he intends to include all these concepts within the instrumental definition.

Although all these senses of ‘technology’ are recognized in English, there remains an incongruence between this term and the German ‘Technik’. This leads to some difficulty in the seemingly straightforward translation of ‘Technik’ as ‘technology’, as occurs in William Lovitt’s translation of *Die Frage nach der Technik* as *The Question Concerning Technology*. As Samuel Weber has argued in his discussion of Heidegger’s essay, the German term ‘Technik’ can mean technology, however, it can also mean technique, craft, or skill. These connotations are not so apparent in the English term ‘technology’ which is often taken to mean applied science, or the

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364 Heidegger, *QCT*, pp4-5.
scientific study of the practical arts. Thus, 'technology' implies a theoretical element that 'Technik' does not necessarily also include. As will be apparent from the arguments of the last two chapters, this is problematic in a discussion of Heidegger's thought because he argues that modern science is in fact a symptom of Technik which thereby cannot itself be simply applied science. Thus, it is important to keep in mind that the relationship between science and technology is precisely what is in question in this discussion.

This characterization of our everyday understanding of technology remains valid today. However, the repeated assertion of our mastery over technology is often provided as a response to the suspicion that technology is not in fact entirely within our control. Heidegger fails to bring out clearly the uncertainty that drives these repeated assertions of human mastery over technology in his discussion of the instrumental definition. The more that we assert that technology provides us with new potential and scope for action, the more apparent it is that this can be both beneficial and dangerous. This can be seen clearly in such areas as genetic engineering, nuclear energy, and modern information technologies. Potentially, these technologies can produce both great good and great harm. Indeed, our interest in technology is characterized by a concern that it be adequately monitored and regulated. This is an approach which itself could be characterized as a technique aimed at the most efficient development of technological advances. Heidegger does capture something of this issue when he points out that, having assumed this instrumental view, 'Everything depends on our manipulating technology in the proper manner as a means. We will, as we say, "get" technology "spiritually in hand." We will master it.'

Although we are not normally troubled by technology for the 'essential' reasons that Heidegger puts forward, we are nevertheless not entirely confident of our mastery either.

Heidegger often writes about technology in a manner that makes it appear that he is the first to recognise in it a philosophically interesting problem. His characterization of the 'everyday' understanding of technology furthers this impression. Although the instrumental definition that he describes is still quite common, many philosophers had come to see it as an inadequate account well before the publication of *The Question Concerning Technology* in 1954. As I mentioned in the introduction, the writings of Marxist philosophers such as Adorno and Horkheimer,

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along with those of Marcuse, show an acute awareness of the relationship between technology and reason. Indeed Marx himself had already attempted to understand the relationship between consciousness and the material and economic conditions of human life. Thus, although some of the current interest in technology as a philosophical problem has certainly developed from Heidegger’s confrontation with the issue, it should be noted that technology was already of interest to many philosophers. Whilst Heidegger’s account of technology is unique in its focus upon the metaphysical foundations of modernity, the impression he gives of Western culture as utterly blind to technology as a philosophical issue is certainly not true. Indeed, Heidegger’s critique lacks the close examination of the social effects of modern technology which is so characteristic of the thinkers mentioned above.

2.

Heidegger argues that the definition of technology as an instrument is correct, but it does not get to the heart of the matter. If we are to gain an adequate understanding of technology, then we must ask after its essence. Heidegger’s use of essence, or Wesen, in this context is idiosyncratic as it refers not to that which determines the ‘whatness’ of an object as opposed to its existence or ‘thatness’, but rather to the manner in which something comes to presence. This notion of ‘essence’ as an historical event in which something comes to presence, in this case technology, is closely bound up with Heidegger’s account of the essence of truth as aletheia or unconcealment.

The essence of technology must lie, according to Heidegger, in a modification to the structure of ‘unconcealment’ that holds between being and man, such that modern manipulations of nature become possible. This notion of ‘unconcealment’ is one of the central terms of Heidegger’s philosophy. Its significance will become clearer through a discussion of Heidegger’s critique of correspondence theories of truth. Heidegger’s approach to the problem of technology remains within the broad approach he took towards determining the essence of modern science, a matter that was discussed in the previous chapter. I demonstrated there that he conceived of understanding as reliant upon an initial and enabling project (Entwurf) of the matter that is understood. This insight led Heidegger from technological objects back to the initial anticipation of the relationship between man and nature, that first make possible our modern technological existence. Thus, Heidegger seeks to determine the decisive, although hidden and extremely abstract, aspects of the manner in which man and nature are revealed to us.
Heidegger’s answer to this question is that man’s attitude towards nature in the modern age is increasingly one of ‘challenging’ (Herausfordern). He writes, ‘The revealing that rules in modern technology is a challenging, which puts to nature the unreasonable demand that it supply energy that can be extracted and stored as such.’ This challenging of nature is further characterized by an ‘expediting’ (För dern) of the energies of nature. Thus, man exposes the energies of nature and makes these energies available for use. This process forms one gigantic economy of ordering that has no end. Heidegger writes:

Unlocking, transforming, storing, distributing, and switching about are ways of revealing. But the revealing never simply comes to an end. Neither does it run off into the indeterminate. The revealing reveals to itself its own manifoldly interlocking paths, through regulating their course. Regulating and securing even become the chief characteristics of the challenging revealing.

Our common response to technology is to meet the fact of technological expansion with redoubled efforts to regulate its development. If we follow Heidegger’s characterization, this reaction is a deepening of the technological mode of revealing. The regulation of technology is simply a technology of regulation. It is for this reason that Heidegger thinks our response to technology has been inadequate.

Heidegger takes this idea of technology as a mode of ‘revealing’ further in his claim that whatever becomes a part of this economy of revealing and regulating acquires its own peculiar mode of being. He gives the name ‘standing-reserve’ (Bestand), to the mode of being of those beings that are part of this economy. The standing-reserve is insofar as it has its place in this technological system. The example of an airliner is given in The Question Concerning Technology to illustrate this mode of being. Although we can view the airliner as a material object standing on the runway, its peculiar character is then lost. Thus, ‘Seen in terms of the standing-reserve, the machine is completely unautonomous, for it has its standing only from the ordering of the orderable.’ The airliner, revealed as part of this ordering of the orderable, is simply there as ‘a possibility of transportation’.

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368 All of these translations of Heidegger’s terms are taken from the William Lovitt translation of The Question Concerning Technology.
369 Heidegger, QCT, p14.
370 Heidegger, QCT, p16.
371 Heidegger, QCT, p17.
3.
As Don Ihde has noted, this description of 'standing-reserve' as the mode of being of beings in the modern age, is remarkably similar to the description of ready-to-hand objects in *Being and Time*. This is true insofar as Heidegger argues that the 'standing-reserve' does not exist as an isolated object but as merely an element within a broader economy of 'regulating and securing' as Heidegger puts it. This appears similar to his claim in *Being and Time* that handy items must appear within a context of other useful things. However, I suggest that the similarities between these two categories do not extend any further than this superficial resemblance. This is because Heidegger is pursuing two different ends in his descriptions of beings in *Being and Time* and *The Question Concerning Technology*. In the former work, he is trying to characterize the form in which objects appear in our everyday commerce with them, whilst in the latter work he is attempting to characterize the meaning of being in the modern age.

It is true that the intention of Heidegger's descriptions of the 'standing-reserve' is not entirely clear, and he does give the impression that he is conducting another phenomenological investigation of the appearance of beings, just as he had done in *Being and Time*. Yet these examples are so brief and enigmatic that they are best read as an attempt to quickly sketch the conclusions about metaphysics that Heidegger reached in his earlier works. The following passage serves as an illustration of this point:

The revealing that rules in modern technology is a challenging *[Herausfordern]*, which puts to nature the unreasonable demand that it supply energy that can be extracted and stored as such. But does this not hold true for the old windmill as well? No. Its sails do indeed turn in the wind; they are left entirely to the wind's blowing. But the windmill does not unlock energy from the air currents in order to store it.

In contrast, a tract of land is challenged into the putting out of coal and ore. The earth now reveals itself as a coal mining district, the soil as a mineral deposit. The field that the peasant formerly cultivated and set in order *[bestellte]* appears differently than it did when to set in order meant to take care of and to maintain. The work of the peasant does not challenge the soil of the field. In the sowing of the grain it places the seed in the keeping of the forces of growth and watches over its increase. But meanwhile even the cultivation of the field has come under the grip of another kind of setting-in-order, which *[stellt]* nature. It sets upon it in the sense of challenging it. Agriculture is now the mechanized food industry. Air is now set upon to yield nitrogen, the earth to yield ore, ore to yield uranium, for

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example; uranium is set upon to yield atomic energy, which can be released either for destruction or for peaceful use.\textsuperscript{373}

It is clear from this passage that Heidegger is trying to characterise the distinctive being of natural objects in the modern era. Yet his analysis lacks the careful distinctions that are to be found in his earlier works. He does not say whether he is describing natural objects as they appear in our everyday commerce with them, or as they appear to scientific and metaphysical reflection. The distinction between these two levels was central to the project of \textit{Being and Time}, however, Heidegger does not make his intentions clear in this later essay and, in fact, he appears to confuse scientific and everyday interaction with beings.\textsuperscript{374} The above passages seem to suggest that, regardless of whether a modern farmer understands himself in this way, his activities betray a distinctly ‘technological’ approach to nature. Presumably this is because of the position of the modern farmer within a modern economic and scientific framework rather than due to his own understanding. Yet Heidegger never makes this explicit nor explains why this understanding of being is the appropriate one for the interpretation of all modern phenomena when he does not arrive at it through an examination of the beings themselves.

This ambiguity in Heidegger’s analysis poses a serious problem for interpreters who argue that his account is straightforwardly phenomenological, just as the analysis of the ready-to-hand had been in \textit{Being and Time}. I have in mind particularly Ihde’s account of \textit{The Question Concerning Technology} as well as the appropriation of this essay in the works of Borgmann and Dreyfus.\textsuperscript{375} I do not mean to suggest that there are not distinctive elements in our interaction with modern technology, as opposed to the technology of previous ages, that may be discovered through a phenomenological examination. Rather, I suggest that Heidegger’s essay does not truly exhibit such an approach. In fact he proceeds from the understanding of the relationship between

\textsuperscript{373} Heidegger, \textit{QCT}, pp14-15.

\textsuperscript{374} The distinction I refer to here is not that which was addressed in chapter three, namely between theory and practice. I argued there that Heidegger attempts to undermine this distinction in \textit{Being and Time}. The point at issue here is whether Heidegger’s determination of natural beings as standing-reserve can be legitimately applied to all beings, or indeed whether it can even be taken as the only manner in which natural beings are in the modern age.

metaphysics and production, which he developed elsewhere, and tries to characterize our experience of objects on this basis.

This approach exemplifies the problems of Heidegger's account of the essence of technology and his history of being in general, in that he derives the character of modern life from his metaphysical reflections on the modern understanding of being, instead of through a concrete examination of it. Thus, he assumes that because nature is understood at a metaphysical level as the product of man himself, then in our actual interaction with objects we treat them as nothing more than resources to be manipulated at our convenience. Indeed, he even argues that we treat other humans in this manner. He writes:

Only to the extent that man for his part is already challenged to exploit the energies of nature can this ordering revealing happen. If man is challenged, ordered, to do this, then does not man himself belong even more originally than nature within the standing-reserve? The current talk about human resources, about the supply of patients for a clinic, gives evidence of this. The forester who, in the wood, measures the felled timber and to all appearances walks the same forest path in the same way as did his grandfather is today commanded by profit-making in the lumber industry, whether he knows it or not. He is made subordinate to the orderability of cellulose, which for its part is challenged forth by the need for paper, which is then delivered to newspapers and illustrated magazines. The latter, in their turn, set public opinion to swallowing what is printed, so that a set configuration of opinion becomes available on demand. Yet precisely because man is challenged more originally than are the energies of nature, i.e., into the process of ordering, he never is transformed into mere standing-reserve. 376

Heidegger brings up a series of very different issues in this passage and yet he tries to reduce them all, without any argument, to examples of 'standing-reserve'. Thus, he is not attempting to rise, through the careful description of individual elements of modern life, to the essence of technology. Rather, he proceeds in the reverse direction.

4.

The final points I will address in this outline of Heidegger's position in The Question Concerning Technology, are his contentions that man himself cannot simply choose to abandon this technological mode of revealing, and equally that it was not man that brought about this mode of revealing in the first place. Thus, 'Man can indeed conceive, fashion, and carry through this or that in one way or another. But man does not have control over unconcealment itself, in which at any given time the real

376 Heidegger, QCT, p18
shows itself or withdraws.\textsuperscript{377} Put very simply, Heidegger is arguing that modern man is revealed in such a way that he is called upon to ‘challenge’ nature. That nature is revealed as capable of being put into order, and man revealed as the one who carries out this setting in order, is not itself the doing of man.

The thought that the revelation of man and world within this economy of ordering cannot be ascribed to man himself is perhaps the most controversial aspect of Heidegger’s account of technology. It implies that we cannot of our own accord escape this situation. The difficulty of Heidegger’s position can be illustrated by establishing a contrast with Jacques Ellul’s technological determinism.\textsuperscript{378} Ellul’s position is ‘determinist’ in the sense that he argues that the ends which man sets for himself cannot be separated from the technology that is required to realise those ends. The freedom of choosing whatever ends we desire is, according to Ellul, merely apparent because the large scale processes of politics and science are in fact put in the service of the technological imperative of efficiency. This view is based upon an empirical examination of the relationships between the various facets of society which are generally assumed to be independent of technology. Thus, the institutions of the state, the scientific community, the media, and the economy, appear to operate in a manner that is entirely determined by the dictates of the advancement of technology. Whether this view is convincing is not of consequence here, rather what I am seeking to point out is that this argument is founded in sociological observation.

By contrast, Heidegger spends almost no time describing the reality of what he claims is an epoch determined entirely by technology. His case rests rather upon examinations of the thought of various major figures in the Western philosophical tradition. Although Heidegger’s position is also ‘determinist’ in the sense that he thinks the essence of technology is not under the control of man, he does not base his arguments upon observation of the concrete conditions of society. Rather, his case rests upon a determination of the peculiarity of our modern understanding of being. Thus, for Heidegger, the sociological examinations that Ellul undertakes are irrelevant to the question of determining the fundamental nature of technology. This seems to raise serious difficulties, as it appears that the actual nature of man’s

\textsuperscript{377} Heidegger, \textit{QCT}, p18.
entanglement with technology is of no philosophical importance; rather it is the very possibility of modern technology that we should focus on.

This feature of Heidegger's analysis is not confined to his account of technology. Rather, the difficulty of reconciling the actual existence of man with a philosophical account of this existence was one of the dominant themes of Heidegger's thought in the period surrounding the publication of *Being and Time* in 1927. I have already attempted to demonstrate that *Being and Time* must be read as a continuation of Heidegger's previous efforts at establishing a means of describing human existence without systematically overlooking its distinctive features in the process. Indeed this is one of the motives for the reformulation of theory and practice in terms of the *vorhanden* and the *zuhanden*. If our everyday practical involvement in the world possesses its own unthematic, conceptual content, and our explicitly theoretical activities are understood as a modification of our everyday practice, then we need no longer see theory and practice as opposing categories. As everyday life contains its own understanding and interpretation (which for Heidegger are inseparable), then philosophical reflection is only an explicit turning of this existence upon itself.

However, this situation becomes complicated because the determinations that this philosophical reflection makes regarding human existence are also its own conditions of possibility. Thus, Heidegger can be seen as attempting to grapple with the problem of how to understand the fact that the analysis of Da-sein is constrained, and its possibilities given by its own object, that is itself. Its manner of knowing must be compatible with that knowing which it claims to observe. The historicity of Da-sein provides an additional complication in that it brings out the point that Da-sein's self understanding necessarily includes a foreign element, that is Da-sein's past. This past is not of our choosing and cannot be altered by us, and yet it provides the ground from which we must take up our possibilities for living. The issue of how the essence of technology is related to the actual existence of man in an age which is determined by such an essence, is more complex than it first appears. In order to gain a fuller understanding of Heidegger's position I turn now to his conception of truth as *aletheia*.

5.

In *Being and Time* Heidegger argues that our ordinary understanding of truth as a property of statements or judgements is in fact a derivative phenomenon. The motivation for this manoeuvre is the same as that which drove Heidegger's attempt to collapse the distinction between the theoretical and the practical aspects of human
Chapter Six

existence. Heidegger's guiding thought throughout Being and Time is that explicit philosophical reflection can be a possibility of human beings only if our everyday existence is itself constituted by understanding and interpretation. Thus, much of the book is spent establishing how it can be that everyday life carries on in an unthematic understanding of the world. The account of truth forms part of this project and is a natural extension of the analyses of the distinction between vorhandenheit and zuhandenheit, the unified structure of being-in-the-world, and the account of understanding and interpretation as constituted by the fore-structure.

It is this last issue, the fore-structure of interpretation and understanding, that provides a basis from which to approach Heidegger's analysis of truth. Of particular interest here is his characterization of the difference between two different senses of 'as' in section 33 of Being and Time entitled 'Statement as a derivative mode of interpretation'. Here he argues that we can distinguish between the existential-hermeneutical 'as' and the apophantical 'as' of the statement.\(^{379}\) The distinction between these two forms of 'as' lies in the explicitness with which this interpretation is held. Thus, in our everyday commerce with beings they are understood but this understanding is not explicit, as is the case with 'theoretical' reflection on beings. This distinction returns us to the idea of the vorhanden and the zuhanden and the issue of their difference. As I argued in chapter three, the difference between these two categories is not the same as that between practice and theory. Rather the distinction is in the 'fore-having' of the matter in question.

Heidegger illustrates this point with his familiar hammer example. He argues that whilst it is common in logic to consider the meaning of a statement to be what it asserts about an object, this is not primarily the case. Thus, Heidegger argues that if we presuppose the meaning of the statement 'The hammer is heavy' to be that 'this thing, the hammer, has the property of heaviness', then we have missed the meaning such statements have in our usual involvement in the world. We are not usually explicitly positing that an object has certain properties, rather our concern is caught up in practical matters. Therefore, "The primordial act of interpretation lies not in a theoretical sentence, but in circumspectly and heedfully putting away or changing the inappropriate tool "without wasting words"."\(^{380}\) When we speak about objects in our daily lives we are not usually making a 'statement' in the sense of attributing a

\(^{379}\) Heidegger, \textit{BT}, p148. For a discussion of this relationship and of Heidegger's account of truth in general see chapter six of Ruin, \textit{Enigmatic Origins}.

\(^{380}\) Heidegger, \textit{BT}, p147.
property to an object. The transformation that must occur if we are to make such a
statement lies in our fore-having in that ‘Something at hand with which we have to
do or perform something, turns into something “about which” the statement that
points it out is made.’ 381 The manner in which we approach objects when we are
making such judgements is a modification of our everyday involvement which
carries its own understanding of the world. Heidegger is trying to establish that the
stance we take when we merely ‘look’ at an object is a derivative mode of being-in­
the-world, and following from this, we should be wary of letting this mode cover
over our more primordial existence.

What emerges in this discussion is that the apophantical ‘as’, or the manner in which
we ‘see’ an object when we are making a statement about it, is grounded in the ‘as’
of circumspect interpretation. Put more simply, Heidegger claims that ‘The
statement is not an unattached kind of behaviour which could of itself primarily
disclose beings in general, but always already maintains itself on the basis of being­
in-the-world.’ 382 This finding is mirrored in Heidegger’s examination of
correspondence theories of truth. Here the issue is whether truth, when understood
as a property of statements that correspond with reality, is not also founded on a
more primordial disclosure.

In both section 44 of Being and Time and his essay On the Essence of Truth (1931),
Heidegger appropriates the ancient Greek term aletheia in order to show that
propositional truth depends upon a prior disclosure of a world. He insists that
aletheia, normally rendered as simply ‘truth’, should be translated as
Unverborgenheit, a German term which has been rendered into English as
‘unconcealment’ or even more awkwardly as ‘unhiddenness’. 383 The importance of
insisting that aletheia be translated as Unverborgenheit rather than Wahrheit or truth,
can be seen in Heidegger’s critique of correspondence theories of truth. Such
theories are, according to Heidegger, characterised by an adherence to three theses.
These theses are:

1. The “locus” of truth is the proposition (judgement).

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381 Heidegger, BT, p147.
382 Heidegger, BT, p146.
383 As Ruin points out in his discussion of truth, Heidegger’s various attempts to express this idea of a
primordial ‘unconcealment’ or ‘opening’ lead him to employ a variety of terms over the
years. This list includes Aufgeschlossenheit, Erschlossenheit, Unverborgenheit,
Unverhulltheit, Entdeckheit, and Unverstelltheit. See the note at Ruin, Enigmatic Origins,
p223.
2. The essence of truth lies in the "agreement" of the judgement with its object.

3. Aristotle, the founding father of logic, attributed truth to judgement as its primordial locus, he also started the definition of truth as "agreement".\(^{384}\)

Heidegger gives the impression that he takes the entire metaphysical tradition, at least from Aristotle on, to be advocates of this correspondence theory of truth. Such a position appears fraught with difficulties, for even if we concede that this has been the dominant conception of truth throughout the history of Western philosophy, there remains a wealth of positions within this tradition. The issues of what the judgement is supposed to agree with and how this agreement is to be achieved have been the subject of many philosophical controversies. Indeed one of the defining differences between the philosophy of the modern and the medieval ages can be seen in the different conceptions of correspondence that held sway in each.

If we understand 'correspondence' in a broad sense as some kind of agreement or correlation between a judgement and its object, then it is certainly the case that medieval philosophy held a correspondence theory of truth. However, this situation is complicated by the fact that for medieval thinkers there was no question that the real essences of objects could be known by man. In medieval philosophy, the object is itself a more or less adequate expression of a divine idea, and a true statement is an explicit stating of this expression. The point here is that, although they both involve correspondence, the medieval formulation of truth is not the same as that of the post-Cartesian age. Medieval philosophy is not motivated by a need to rationally establish a relationship with the world. Furthermore, truth is not yet restricted to propositions as objects themselves can be more or less true instantiations of divine ideas.

Although it is Descartes who first explicitly attempts to rationally establish our knowledge of reality, it is Locke that first restricts truth to propositions.\(^{385}\) Indeed, although Heidegger does not state this, it is Locke that provides the model for the position that he objects to most vehemently, seeing it as based on a double error. Locke overlooks the original disclosure that Da-sein is dependent upon by restricting truth to propositions and by attempting to establish what must already be the case—the possibility of a relationship between thought and reality. Locke argued that the ideas of the mind were the product either of sensation or reflection, and that the mind

\(^{384}\) Heidegger, BT, p198.

\(^{385}\) For a full discussion of this restriction see chapter 8 of Campbell, Truth and Historicity.
worked only with these two sources of ideas. Furthermore, Locke understood language to refer to the ideas of the mind. Thus, he states that ‘Verbal propositions, which are Words the signs of our Ideas put together or separated in affirmative or negative Sentences’. Problems immediately arise from this understanding of the mind and language. The first problem is that the mind has no direct access to whatever it is that affects it in order to produce sensations. As the mind only operates upon the ideas given to it through reflection upon itself or through sensation, the very notion of an object outside of the mind is in fact an idea of the mind. Propositions do not refer us to objects external to the mind, rather they refer to the pictures that are produced in the mind through both sensation and reflection. Whether these pictures represent external objects accurately is an impossible question to answer, for ‘How shall the Mind when it perceives nothing but its own Ideas, know that they agree with Things themselves?’ Locke was only able to reply (to his own question) that this was the case, even though such a correspondence could never be established.

6.

Heidegger grounds his own account of truth, insofar as it belongs to statements, on a phenomenological examination of how it is that we make judgements and understand them to be true or false. To illustrate this process he describes a case in which ‘someone make[s] the true statement with his back to the wall: “The picture on the wall is hanging crookedly”’. We confirm the truth of such a statement through turning to face the wall and looking to see whether or not the picture is actually hanging crookedly as it was presented in the statement. The essential point here is that when we undertake this process of confirmation, the ‘it’ that we turn around in order to confirm is in fact the very same object that we are turning to look at. It is not the case that we are turning around in order to test the correspondence between the real object and some mental representation that was referred to when the statement was originally made. The fact that the statement directs us to the object itself, whatever we decide about the being of this object, is very important for Heidegger. Indeed, as mentioned above, he claims that the primordial meaning of logos is apophasis, which he takes to mean ‘to let beings be seen from themselves.’ The difficulties of claiming that statements refer to mental images or

386 Locke, Essay, IV. v. 5.
387 Locke, Essay, IV. iv. 3.
388 Heidegger, BT, p200.
389 Heidegger, BT, p144.
representations of objects as they really are is demonstrated by Locke’s abandonment of knowledge of real essences.

Heidegger argues that the object we have in mind, or ‘intend’, when we originally make the statement is the very same object that we subsequently turn around to see. Thus, what is to be demonstrated in this turning around is that the painting ‘shows itself as the very same thing’ it was when it was first presented as hanging crookedly. What we seek in confirmation is the ‘being’s showing itself in its self-sameness’. The statement was true because it presented the picture on the wall just as it was. Heidegger avoids the problem of making an ideal and a real object agree with one another, with all the attendant difficulties of demonstrating in what respect such differing species of being could agree. He does this by arguing that a statement is true not because its ‘meaning’ corresponds with the object, but because it shows the object as it is. We can confirm the truth of a statement by comparing the object as presented by the statement with the object itself. Thus, it is the two different appearances of the object that correspond. If an object shows itself to be the same being that was presented in the statement, then the statement can be said to have let ‘beings “be seen” (apophansis) in their discoveredness.’ Furthermore, if such a statement turns out to be false, then the object is not as it was originally presented by the statement. The false statement nevertheless presents the object in question, it simply does so incorrectly. The object is intended by the false statement not as it is, but rather in a semblance or disguise. Thus, both disclosing and covering over are possibilities of statement making.

The notion that ‘the being true (truth) of the statement must be understood as discovering’, leads Heidegger to a claim that holds far reaching implications for our understanding of truth. This claim is that as truth has been shown to be based in discovering rather than correspondence, ‘being-true as discovering is in turn ontologically possible only on the basis of being-in-the-world’. What is named by the term ‘being-in-the-world’ is the indissoluble unity that constitutes the human mode of being, of Da-sein. If ‘world’ is understood as a totality of interrelated

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392 Heidegger, BT, p201.
393 Heidegger, BT, p201.
394 Heidegger, BT, p201.
matters at hand, then there can be no human mode of being that is worldless. A human that has no world in the sense of a totality of interrelated matters at hand, is not in the human mode of being. Thus, it can be seen that as Da-sein is the mode of being in which beings are brought out of their concealment and presented to thought, it is Da-sein from which the possibility of truth arises. More precisely it is the primordial phenomenon of disclosedness through which Da-sein first finds itself in a world that grants the possibility of truth. It is this line of argument which leads Heidegger to the controversial statements that ‘truth is only because and as long as Da-sein is’ and that ‘Understood in its most primordial sense, truth belongs to the fundamental constitution of Da-sein’. 395

7.

It is important that Heidegger’s identification of unconcealment as the most primordial sense of truth is not read as introducing unconcealment as an alternative version of propositional truth. The two quotations from Being and Time above demonstrate that truth is used by Heidegger to name both the propositional notion of truth, as well as that which grounds this propositional truth, unconcealment. This confusion remains in the later work On the Essence of Truth. Here Heidegger employs the term ‘correctness’ (Richtigkeit) to name the manner in which propositions may accord with their objects and appears to be reserving the term ‘true’ to name unconcealment as he states that ‘Truth does not originally reside in the proposition’. 396 Heidegger himself eventually comes to realise the untenability of using truth to refer both to aletheia and propositional truth. He comments in The End of Philosophy and the Task of Thinking that:

Insofar as truth is understood...as the correspondence of knowledge with beings...aletheia, unconcealment may not be equated with truth. Rather, aletheia, unconcealment thought as opening, first grants the possibility of truth. 397

His early conflation of aletheia and propositional truth is unfortunate as it then appears that aletheia is the condition of the possibility of propositional truth, as well as propositional truth itself. This conclusion is incompatible with Heidegger’s account of propositional truth as one possible mode amongst others of relating to entities in the world. If aletheia and propositional truth are the same thing then it appears that all of Da-sein’s relationships with entities in the world must take the

395 Heidegger, BT, p211, and p208.
form of making statements about these entities. Such a position is in obvious contradiction to Heidegger's characterisation of statements as the fossilised products of Da-sein's discovering mode of being-in-the-world. A statement arises from Da-sein's discovering mode of being and becomes an entity in the world. Although the statement retains its ability to discover entities, it is a derivative or secondary mode of discovering.

Thus, to understand propositional truth and aletheia to be the same is to run contrary to Heidegger's entire attempt in Being and Time to describe the everyday existence of human being as always already in a world. It is this everyday existence that renders ridiculous attempts to establish the relationship between man and world. This ambiguity should therefore not be interpreted as an insurmountable problem of Heidegger's account of truth, rather it should be seen as a confusing use of terms which was later clarified. In light of this examination I shall use the term aletheia to refer to unconcealment understood as the condition for the possibility of propositional truth, not propositional truth itself.

The basic distinction between aletheia, or the many other terms Heidegger employs to name this original field of disclosure, and propositional truth remains a central part of Heidegger's thought throughout his life. However, his descriptions of the relationship between man and aletheia changes dramatically in the years following the publication of Being and Time. This can be demonstrated by examining

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398 Heidegger, BT, pp201-208. Mark Wrathall also argues that Heidegger himself is responsible for much of the confused reception of his theory of truth through his imprecise use of the terms 'aletheia' and 'truth'. His further point that Heidegger's position is also a correspondence theory of truth is somewhat misleading. For Heidegger, the truth of a statement is confirmed when the object as it was presented by the statement agrees with the object as we see it in a confirming intuition. This remains substantially different from the usual understanding of correspondence theories of truth which attempt to find a correspondence between the structure of linguistic entity such as a statement, judgement, or sentence and reality. See Mark Wrathall, 'Heidegger and Truth as Correspondence', in International Journal of Philosophical Studies, vol. 7 (1999), pp69-88. For another useful article on Heidegger's theory of truth see Mark Wrathall, 'Heidegger on Plato, Truth, and Unconcealment: The 1931-32 Lecture on The Essence of Truth', in Inquiry, vol. 47 (2004), pp443-463.

399 An example of the conflation of aletheia and propositional truth can be found in: Ernst Tugendhat, "Heidegger's Idea of Truth", trans. by Christopher Macann, in Hermeneutics and Truth, (Northwestern University Press, Evanston, Illinois, 1994), pp83-97. Tugendhat employs Heidegger's early use of the term "truth", to refer both to unconcealment and a property of certain statements, to argue that "Heidegger overlooks the problem of truth precisely because of the way in which he makes the truth into his foundational concept"(p95). Tugendhat does not look beyond this problem of terminology. If we examine the instances in which "truth" is used by Heidegger, we can see that it is used to refer to two distinct concepts. Furthermore, Tugendhat does not take Heidegger's comments from The End of Philosophy and the Task of Thinking into account.
Heidegger’s language in *Being and Time* (1927) and in the *Letter On Humanism* (1947). In *Being and Time*, Heidegger argues that ‘truth (discoveredness) must always first be wrested from beings. Beings are torn from concealment. The factual discoveredness is, so to speak, always a kind of robbery’.\(^{400}\) The notion that the true nature of beings is always initially hidden and that they show themselves in disguise, is strongly expressed in this passage. The latter writing, *Letter on Humanism*, repudiates the violence of the earlier description of man’s approach to beings. Man is now described as ‘the shepherd of Being’ whose existence, (or ‘ek-sistence’ as Heidegger calls it in this essay), ‘is ecstatic dwelling in the nearness of being. It is the guardianship, that is, the care for Being’.\(^{401}\)

These comments initially appear quite contradictory, however, the sense of Heidegger’s earlier claim that ‘truth must always first be wrested from beings’ is not completely clear. This passage may be read as an allusion to the issues of history and authenticity, matters which are of central importance in *Being and Time*. Thus, Heidegger’s reference to the wrestling of beings from concealment may refer to the manner in which we must overcome or appropriate received opinion in order to disclose beings as they are. As I demonstrated in chapter three, Heidegger thought that the past could only be an *historical* past if it was appropriated in the present. He argued in *Being and Time* that the past does not possess a stable meaning of its own that we can discover by the examination of sources, rather, it gains its meaning by being understood in the light of the future possibilities of existing human beings. Human understanding always begins within a certain tradition of thought, yet we must appraise this inheritance according to our own concerns and possibilities if it is to be authentically significant. It might be that Heidegger has in mind this process by which history is repeated or reclaimed for the present when he claims that truth must be wrested from beings.

Alternatively, Heidegger may have in mind the fact that modern science *essentially* involves the use of experiments to determine the nature of beings. This process of experimentation involves the careful constraining of certain parameters in order to establish the precise effect of changes in others. Through a series of practical manipulations experimentation ‘forces’ beings to reveal what they truly are. For modern scientists, the true nature of beings is only found by manipulating and

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\(^{400}\) Heidegger, *BT*, p204.

constraining them in certain ways. This second reading of Heidegger’s comments on truth is more relevant to the issue of technology as it appears, if we adopt this reading, that he was already aware of the distinctive nature of modern science. As I have described in the preceding few chapters, Heidegger’s understanding of the difference between ancient and modern science was not fully developed until the 1930s and 40s. However, in this passage on truth he does appear to hint at an important element of that later account, namely that modern science is essentially experimental. The dramatic contrast between Heidegger’s comments in Being and Time and the Letter on Humanism is an indication of his changing evaluation of modern science and metaphysics. The latter claim that ‘man is the shepherd of being’ stems from Heidegger’s attempt to develop a new way of understanding human existence and the nature of being itself, free from the traditional structures of Western metaphysics.

8. Thus, Heidegger argues that truth understood as ‘correctness’ is dependent upon an initial disclosure of beings. This can be understood as the most extreme consequence of Heidegger’s account of the circularity and finitude of human understanding. As I argued in the discussion of Being and Time in chapter three, Heidegger takes up Dilthey’s insight that human understanding never has an absolute beginning upon which it can develop a completely certain scientific structure. It does not first stand off from the world in order to determine which categories it can validly apply to it. Rather, humans find themselves in a world which they already understand by means of a language, a culture, and a society, which they did not create but simply find themselves within. In several important passages from Being and Time Heidegger writes that:

Scientific proof must not already presuppose what its task is to found. But if interpretation always already has to operate within what is understood and nurture itself from this, how should it then produce scientific results without going in a circle, especially when the presupposed understanding still operates in the common knowledge of human being and world? But according to the most elementary rules of logic, the circle is a circulus vitiosus. But the business of historical interpretation is thus banned a priori from the realm of exact knowledge.402

He continues in the following passage:

402 Heidegger, BT, pp142-143.
But to see a vitiosum in this circle is to look for ways to avoid it, even to “feel” that is an inevitable imperfection, is to misunderstand understanding from the ground up... What is decisive is not to get out of the circle, but to get in it in the right way. This circle of understanding is not a circle in which any random kind of knowledge operates, but it is rather the expression of the existential fore-structure of Da-sein itself. The circle must not be degraded to a vitiosum, not even a tolerated one. A positive possibility of the most primordial knowledge is hidden in it which, however, is only grasped in a genuine way when interpretation has understood that its first, constant, and last task is not to let fore-having, fore-sight, and fore-conception be given to it by chance ideas and popular conceptions, but to guarantee the scientific theme by developing these in terms of the things themselves. Because in accordance with its existential meaning, understanding is the potentiality for being of Da-sein itself, the ontological presuppositions of historiographical knowledge transcend in principle the idea of rigour of the most exact sciences.403

Thus, all interpretation relies upon a prior understanding of what is to be interpreted, no matter how vague and imprecise this may be. This is true of specific regions of beings which are subject to scientific investigation, however, it is also true of beings in general. The most fundamental determination upon which all other determinations are dependent is our understanding of being itself. Both in our everyday commerce with beings and in our scientific investigations, we already understand being itself in a certain way, we know what it means for a being to be. This projection of an understanding of being against which we can interpret particular beings is the most fundamental moment of human existence and it must precede and enable our pursuit of particular truths, understood as ‘correct’ judgements. Thus Heidegger’s reflections on aletheia and the circular nature of human understanding lead him to argue that all particular truths about beings are relative to a initial understanding of beings itself.

Heidegger’s analysis of the difference between ancient and modern science provided a demonstration of this concept of truth. He argued there that modern science should not be understood as an improvement upon ancient science despite the fact that from our modern perspective ancient science appears utterly wrong and misguided. Rather, Aristotelian science was founded upon a different understanding of being from that of the modern era. He saw that the process of production had provided the dominant means by which being had been understood in the tradition of metaphysics, and that this had taken on a new form in the modern age. Heidegger argues that beings are now the products of man himself, rather than of God, the self directed movement of nature, or a demiurge. Thus, the determinations of modern and ancient

403 Heidegger, BT, p143.
science are proper to a different ‘revelation’ or ‘unconcealment’ of being. Heidegger writes in Being and Time that:

Constituted by disclosedness, Da-sein is essentially in the truth. Disclosedness is an essential kind of being of Da-sein. “There is” ["gibt es"] truth only insofar as Da-sein is and as long as it is. Beings are discovered only when Da-sein is, and only as long as Da-sein is are they disclosed. Newton’s laws, the law of contradiction, and any truth whatsoever, are true only as long as Da-sein is. Before there was any Da-sein, there was no truth; nor will there be any after Da-sein is no more. For in such a case truth as disclosedness, discovering, and discoveredness cannot be. Before Newton’s laws were discovered, they were not “true.” From this it does not follow that they were false or even that they would become false if ontically no discoveredness were possible any longer.

In this passage Heidegger is arguing that all ‘truth’, understood as unconcealment or aletheia in this case, is relative to the being of Da-sein. He does not mean by this that truth is subjective in the sense of being arbitrary or a matter of taste. Rather, he argues that ‘...only because “truth,” as discovering, is a kind of being of Da-sein, can it be removed from the arbitrariness of Da-sein. The “universal validity” of truth, too is rooted solely in the fact that Da-sein can discover and free beings in themselves.’

It is only through the projection of a certain understanding of being that beings themselves can be discovered.

With this account of aletheia in mind it is possible to understand Heidegger’s claims regarding the ‘essence’ of technology. In The Question Concerning Technology he writes that:

Enframing is the gathering together that belongs to that setting-upon which sets upon man and puts him in position to reveal the real, in the mode of ordering, as standing-reserve. As the one who is challenged forth in this way, man stands within the essential realm of Enframing. He can never take up a relationship to it only subsequently. Thus the question as to how we are to arrive at a relationship to the essence of technology, asked in this way, always comes too late. But never too late comes the question as to whether we actually experience ourselves as the ones whose activities everywhere, public and private, are challenged forth by Enframing.

Heidegger employs the term ‘Enframing’ (Gestell) to name the peculiar manner in which beings are revealed in the modern era, namely as ‘standing-reserve’. Thus, Heidegger thinks that our modern entanglement with technology is not simply a

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404 Heidegger, BT, p208.
405 Heidegger, BT, pp208-209.
406 Heidegger, QCT, p24
matter of human choice, but of the understanding of being that prevails in the modern era. Moreover, he contends that we will never come to grips with this matter until we turn our attention from the particular effects that modern technology has produced in the social, economic, political and scientific realms of modern life, and focus upon this ‘essential’ problem. Thus, he continues on from the passage quoted above to argue that, above all, ‘...never too late comes the question as to whether and how we actually admit ourselves into that wherein Enframing itself comes to presence.’

Although an understanding of Heidegger’s account of truth allows us to see more clearly what he means by such phrases as ‘Enframing’ and ‘the essence of technology’, it does not resolve the problems that I mentioned earlier in this chapter. In fact it only serves to heighten the difficulty of his position. For even if we grant the central point of Heidegger’s discussion of truth, namely that all truth is relative to a fundamental disclosure of being, it remains unclear how the modern understanding of being determines the character of modern society and its relationship with nature. I have argued throughout this study that Heidegger is right in his claim that there is an essential relationship between modern science and technology. That relationship lies in the fact that modern science is, in contrast to ancient Greek and medieval science, essentially experimental and practical. The findings of modern science allow us to manipulate nature in a way that was not previously possible because modern scientific knowledge is itself practical, it is knowledge of how to produce certain effects in nature. Furthermore, this close relationship between science and technology is, as Heidegger contends, founded upon a new understanding of being. However, he is mistaken when he attempts to employ these insights as an explanation for the character of modern life in general which, he claims, is dominated by the boundless exploitation of both man and nature. Heidegger seems to think that because the determination of the nature of being is the most fundamental issue for metaphysics and science, it must also be central to understanding society, economics, and politics. Yet it is difficult to see how one can coherently explain the history of Western society since the time of Descartes by means of a very rough sketch of the ontological developments of the period. Insofar as Heidegger attempts such a explanation he manages only to obscure his insightful analysis of modern metaphysics.

I come now to the final issue of this chapter, namely the question of how Heidegger attempts to compel us to see that beings are revealed as standing-reserve. This is the second of the problems that I outlined at the beginning of this chapter, the first problem being the validity of Heidegger's reduction of all beings to this category of 'standing-reserve'. The difficulty with Heidegger's approach arises from two sources. First he separates the history of being from the science of history, and second he comes to see this history of being as a single unified phenomenon which must be rejected in its entirety. The combination of these two claims leaves Heidegger’s audience in a difficult position because he ultimately relies upon us simply accepting his account of the history of being, rather than relying upon accurate interpretations of the philosophical tradition.

As I mentioned in chapter three, Heidegger distinguishes between 'historiography' and 'historicity'. He understood historiography as the scientific study of the past, whilst he used historicity to name an essential structure of human existence itself. In addition to these two categories, Heidegger attempted to establish a history of being. He conceives of this 'history of being' as the most fundamental of all these determinations of history as it makes possible historicity and historiography. Heidegger explains, somewhat cryptically, the relationship between this history of being and historiography in the following passage from The Question Concerning Technology:

The essence of modern technology starts man upon the way of that revealing through which the real everywhere, more or less distinctly, becomes the standing-reserve. “To start upon a way” means “to send” in our ordinary language. We shall call that sending-that-gathers [versammelde Schicken] which first starts man upon a way of revealing, destining [Geschick]. It is from out of this destining that the essence of all history [Geschichte] is determined. History is neither simply the object of written chronicle nor simply the fulfilment of human activity. That activity first becomes history as something destined. And it is only the destining into objectifying representation that makes the historical accessible as an object for historiography, i.e., for a science, and on this basis makes possible the current equating of the historical with that which is chronicled.\footnote{Heidegger, \textit{QCT}, p24.}

Thus, the 'history' of the different modes in which being has been revealed is, for Heidegger, more fundamental than historiography. This relationship becomes a problem, however, because Heidegger identifies historiography and its findings with
an epoch of being that he is trying to overcome. This is the point at which Heidegger's reading of the history of Western philosophy as a single whole, unified by an understanding of being that was first developed by Plato and Aristotle, exacerbates this division of historiography and the history of being. I have not time here to provide an account of Heidegger's interpretations of the various stages of Western philosophy and several extensive accounts of his interpretation of this tradition are already available. However, Gillespie provides a useful summary in the following passages:

For Heidegger history begins with the early Greeks and ends with the explicit nihilism of late modernity. It is in his view the history of an error. The origin lies in the initial Greek mistake in grasping Being on the basis of the what-question as presence and the solidification of this misunderstanding in the thought of Plato and Aristotle. The history of the West is nothing other than the deepening of this error, a wandering ever further into the darkness of a blind alley that leads only to the ruin and desolation of the universal exploitation of the earth and the unlimited degradation of man by world technology and ideological totalitarianism.

The source of this error and the responsibility for its consequences, however, do not lie in man, according to Heidegger, but in Being itself as destiny.

This is the framework which Heidegger employs to interpret the history of the West. Yet as I mentioned at the end of the preceding chapter, he makes it quite clear that this interpretation is not drawn from what has been thought in the history of philosophy, but instead from what has been left unthought. I suggest that this strange conception of historical understanding stems from Heidegger's reflections on the nature of historicity in his earlier works. He argued in *Being and Time* that the past was only truly an historical past if it was 'taken up' or appropriated in the present. Heidegger thought that this argument undermined the understanding of historical methodology that had developed in Germany in the nineteenth century. He argued that the past does not possess its own 'objective' meaning which we can discover simply by observing it. Instead it is made meaningful in the light of future possibilities that are projected by existing people. The understanding of being is the most fundamental of these future possibilities and Heidegger is attempting to understand being in a new way. Thus it follows that his understanding of the tradition is also different. Gillespie writes of this situation:

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Heidegger’s conception of interpretation is fundamentally bound up with his conception of Being and History. It is concerned not merely with the right or wrong reading of a text or historical situation but with the fundamental ontological transformation that occurs in or through this text or situation. It is in this sense that he wants to distinguish his method from mere interpretation as hermeneutics. His hermeneutical stance derives from the revelation of Being. This revelation, as we have seen, unfolds itself both forwards and backwards, establishing both a new goal and a new tradition appropriate to this goal. The means by which this new tradition comes to be is hermeneutics. Heidegger thus strives to think not what was thought, i.e. not the “Historical” truth, but what was left unthought, what indeed could not be thought because it was concealed by the prevailing goal and tradition. Heidegger’s retrieval of past thought thus always is the establishment of a new tradition that is necessarily at odds with the old one and that always fails to “do justice” to it. 411

Thus, because Heidegger thinks that the entirety of Western philosophy, and indeed Western history in general, flows from an understanding of being which first developed in ancient Greece, we are left with no option but to accept or reject his new account of being and the tradition. Because our entire scientific apparatus has developed on the basis of an understanding of being as presence, its findings are of no use in determining the accuracy of Heidegger’s claims. The problem is formulated in such a way that all that is left to us is to make a leap into this new understanding or to remain with the essence of technology. Yet, the premises upon which Heidegger sets up this crisis are all highly questionable. His understanding of the relationship between the revelation of being and the character of everyday life, his reduction of the philosophical tradition to a single ontological determination, his attempt to think what was unthought in the tradition without relying upon an accurate determination of what was thought, are all points at which we could disagree with Heidegger.

10.

I will not go any further into Heidegger’s reading of the philosophical tradition at this stage. My aim in this chapter was merely to acknowledge that Heidegger’s account of the essence of technology is very much bound up with his reading of metaphysics. As I have shown, he thinks that the modern age is characterised by nihilism and endless technological expansion, and that this is the result of an original misunderstanding of the nature of being in ancient Greece. It is not necessary to discuss the weaknesses of this account in great detail in order to see how implausible it is on several grounds. As I have detailed above, the most obvious difficulty of Heidegger’s position is his lack of any explanation of how the ‘history of being’,

assuming that we adopt his version of it, interacts with concrete historical developments. Without such an explanation Heidegger’s version of the ‘history of being’ appears simply as a crutch manufactured to support his deeply critical assessment of modern life. However, I do not think that the weakness of this element of Heidegger’s reading of the essence of technology undermines the insights that I have developed in the preceding two chapters. Despite the weakness of Heidegger’s association of metaphysics and nihilism, the insight that our conception of being has been decisively shaped by an analogy between beings and artefacts remains valid. Thus, in the course of the last three chapters, I hope to have made clear, at least with respect to his critique of the essence of technology, that we may appropriate some of his insights without having to defend them all. Having rejected Heidegger’s own estimation of the significance of the fact that beings have been understood via an analogy with artefacts, the question now arises as to the true import of this insight. This is a matter that I will take up in my concluding chapter.
Conclusion

Following the discussions contained in the preceding six chapters it is now possible to reach a conclusion concerning the two questions I posed at the outset of this study. These two questions were ‘What is the substance of Heidegger’s account of modern technology?’ and ‘What are the limitations of this as an account of our relationship to technology?’ I will address these questions in turn through a brief recounting of the findings that have emerged in this study. However, before I begin that task it is worth recalling the context within which I put these questions.

In my introduction I argued that although it is important to address the ethical and practical consequences of each new technological development, this approach does not exhaust the philosophical significance of technology. Indeed, I stated that if we wanted to determine how modern technology differed from the technology of previous ages, aside from its greater complexity, then we must examine the metaphysical foundations of the modern age. This direction of investigation was suggested by the fact that modern science and modern technology are very closely related, in fact discoveries by and especially theoretical developments in the former are often used to explain the great increase in efficiency and power of the latter. However, the simple recognition of this relationship is not sufficient to explain the distinctive nature of modern technology, as it only leads to more fundamental questions. In particular, it does not explain why science and technology have formed such a close alliance in modernity when this did not occur in either the medieval or ancient periods of human history. In my introduction, I demonstrated the novelty of this alliance by outlining the different conceptions Aristotle and Bacon held regarding the relationship of scientific and practical knowledge. Whereas Aristotle defined *technē* and *epistēmē* in opposition to one another, Bacon asserted that scientific knowledge amounted precisely to power over nature. Thus, my investigation of modern technology was directed from the outset towards the
metaphysical determinations that lay behind both science and technology and which might explain their relationship.

This is the background within which I approached Heidegger's critique of technology. Although he is by no means the only philosopher to have investigated the nature of modern technology, he remains unique in his recognition of the fact that it presented not only ethical and practical problems, but metaphysical issues as well. The following passage from *The Question Concerning Technology* illustrates his approach:

> It is said that modern technology is something incomparably different from all earlier technologies because it is based on modern physics as an exact science. Meanwhile we have come to understand more clearly that the reverse holds true as well: Modern physics, as experimental, is dependent upon technical apparatus and upon progress in the building of apparatus. The establishing of this mutual relationship between technology and physics is correct. But it remains a merely historiographical establishing of facts and says nothing about that in which this mutual relationship is grounded. The decisive question still remains: Of what essence is modern technology that it happens to think of putting exact science to use? 

I return to this initial phase of my investigation in order to clarify the sense of the two questions that I mentioned above. In asking, *'What is the substance of Heidegger's account of modern technology?'*, I am not asking simply for an account of what Heidegger wrote and said about technology. Rather, I am asking *'How does Heidegger's account of the essence of technology aid us in understanding the metaphysical foundations of modern technology?'* Of course answering this question demands an accurate explication of Heidegger's position, yet this is not the ultimate end of the investigation. Heidegger's work provides a means to think through the problems that I outlined above and although he also addresses this question, he does so within an investigative framework of his own. Therefore, my question regarding the 'substance' of Heidegger's account must be read as already implying my second question about the limitations of this account. In following Heidegger's thought, I have also attempted to determine where his thinking is no longer helpful.

1.

Heidegger's work on the metaphysical foundations which underlie the union of modern science and technology yielded two crucial findings. Firstly, the form of

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knowledge manifest in modern science is indistinguishable from the *practical* knowledge that Aristotle called *techne*. Secondly, throughout the history of Western metaphysics, being itself has been understood through an analogy with artefacts. Heidegger reaches the first of these conclusions through a critique of the role of the subject in modern metaphysics. However, this critique consists in a demonstration of the fact that modern philosophy has produced a distorted account of human existence because it has unwittingly carried over an understanding of being and scientific knowledge from medieval philosophy. Contrary to the claims of early modern philosophers that they were beginning philosophy entirely anew based only upon what could be established by reason, modern philosophy assumes several decisive elements of the tradition it purports to reject. Thus, Heidegger’s critique of modern metaphysics depends upon an understanding of both medieval and ancient ontological doctrines. As such, his claim that modern science is an essentially technological form of knowledge, is dependent upon a reading of the history of metaphysics. This reading in turn suggests his further claim that since the beginning of Western philosophy in ancient Greece beings have been understood as artefacts.

In the following sections I will briefly recount the arguments that led to these two points regarding the relationship between metaphysics and technology.

As is reflected in my division of this study into two sets of three chapters, Heidegger’s critique of modern philosophy can be divided into two stages. The first stage consists of his attempt to develop a new account of human existence in opposition to his philosophical contemporaries. Although a critique of the modern tradition is implicit in Heidegger’s work in the 1920s—as is clear from the fact that he undertakes an examination of human being in order to re-open the question of being itself—his main focus remains the development of a positive account of human existence. This positive account became increasingly elaborate through the course of the 1920s and reached its peak in *Being and Time*. Although Heidegger continually reformulated the concepts of truth, understanding, language and authenticity that he developed in this early period, he never abandoned the critical *standpoint* which he had gained. Even though he never settled on a final ‘doctrine’, he always maintained a position from which these fundamental concepts of philosophy appeared questionable. On this basis I suggest that although Heidegger himself did not deem *Being and Time* to be a success, it was instrumental in establishing a critical distance between himself and the metaphysical tradition as it then stood.
The second phase of Heidegger’s critique of modern philosophy begins in the 1930s and continues until his death. He turns away from the attempt to provide a systematic account of human existence and towards interpretations of particular issues and figures in the metaphysical tradition. It is in this phase that he develops his explicit account of the essence of technology. Yet, as my choice of topics for the first three chapters suggest, if we take Heidegger’s critique of technology as an attempt to understand the common foundation of modern science and technology in modern metaphysics, then his earlier work is just as important as his later, more explicit account. This is true in two different senses. Firstly, because we can gain a better understanding of Heidegger’s later approach by examining the development of important themes and interpretations in his earlier work. Secondly, because this early work represents a critique of modern metaphysics in its own right. I return now to the details of this first critique of the modern tradition.

2.

In my first three chapters I argued that the key to understanding the significance of *Being and Time* is to be found in Heidegger’s treatment of history. Heidegger distinguishes between the science of history or ‘historiography’ (*Historie*), and the more fundamental historicity (*Geschichtlichkeit*) of human existence itself. By recognising that history is not only the object of a science but is an essential characteristic of human existence itself, Heidegger makes a decisive break with the tradition of modern philosophy. The importance of this move lies in the fact that it undermines the various attempts made by modern philosophers to employ human subjectivity as a foundation for scientific knowledge.

I have argued throughout this study that if, as Heidegger claims, modern philosophy is marked by a decisive break with the ontological order of medieval philosophy, then John Locke’s *Essay Concerning Human Understanding* should be taken as the beginning of modern philosophy. Heidegger does not recognise the importance of Locke in the establishment of this modern tradition and he prefers instead to cast Descartes in this role. This is understandable given that Descartes portrays himself as beginning philosophy anew on the basis of what he can establish for himself with certainty. However, Heidegger is mistaken because, despite the fact that the self-certainty of the human subject plays a crucial role in Descartes philosophy, he remained firmly attached to a medieval ontology according to which beings were thought of as the creatures of God. It was only in John Locke’s *Essay* that a decisive break is made with the medieval ontological tradition. In that work Locke made two
extremely influential moves. First, he distinguished between real and nominal essences and argued that we only have direct access to the latter. Second, he adopted both a radically particularist ontology and an atomistic understanding of experience in direct opposition to the prevailing Aristotelian notion that what truly exists are general forms embodied in some matter. He still believed that objects possessed real essences; however, he identified these essences with the material constitution of beings rather than with their rational form. These two arguments combined to make the possibility of scientific knowledge highly problematic. Indeed, Locke himself adopted a sceptical outlook concerning the extent of human knowledge. This scepticism stems from the fact that scientific knowledge had previously been conceived of as necessary and universal knowledge of real essences. This ideal of knowledge now seemed impossible to attain, for if we have access only to atoms of sense experience, rather than to the rational order of nature as this had been determined by God, then it seems that the best we may hope for is contingent knowledge of these sensory appearances.

As I argued in my examination of J. S. Mill, Kant, Windelband and Rickert, this dramatically new ontology forced subsequent philosophers into a pre-occupation with the scope and legitimacy of scientific knowledge. This 'epistemological school', to borrow Dilthey's phrase, developed two distinct responses to this problem, both of which failed to secure the ancient ideal of universal and necessary scientific knowledge of the real essences of objects. Thus, British empiricists such as J. S. Mill relied upon the method of induction as a means of rising from our particular experiences to general laws of nature, whilst Kant and his followers appealed to the transcendental forms of experience as a foundation for necessary scientific knowledge. The empiricists could not justify the assumption that the regularities which we observe in our experience were necessary regularities; on the other hand the Kantians restricted the scope of scientific knowledge to appearances in order to salvage its necessity.

Although these philosophers differed in the detail of their approaches, they are united by their attempt to provide a valid foundation for science within the human mind. However, the very possibility of finding such a foundation was undermined by Heidegger's claim that human existence is essentially historical. In Being and Time Heidegger argued that the being of human beings is not the same as that of substantial objects and that the unity of human existence is not constituted by the possession of the same characteristics through time. Rather, the unity of human
existence is to be found in the mode in which it acts and takes up its possibilities. Heidegger argues that humans do not have an essence which can be understood independently of their situation within time and history; instead temporality and historicity are our very ‘essence’. As Heidegger put the matter:

_The “essence” of Da-sein lies in its existence._ The characteristics to be found in this being are thus not objectively present “attributes” of an objectively present being which has such and such an “outward appearance,” but rather possible ways for it to be, and only this.\(^{413}\)

Through this description of human existence as essentially worldly, historical and temporal, Heidegger undermined the notion that humanity can attain the divine outlook upon being, as was implied by the generally received ideals of theoretical knowledge. The foundation of human knowledge is not an absolutely detached ‘I’ which observes the world from without, but a self which only is through its involvement with the world, and a world which is revealed only in this concerned engagement. For Heidegger, the unity of human existence stems from an active unification of past, present, and future, rather than from an underlying substance which remains the same throughout the continuous transformation of our accidental characteristics. The direction of this argument was suggested, as Heidegger states in _Being and Time_, from Dilthey’s attempts to develop a descriptive psychology upon which to found historical knowledge.

Thus, Heidegger accomplishes two things in his attempts to provide a systematic account of the structure of human existence. First, he undermined the modern project of using human existence as means of establishing that our scientific knowledge was necessary, objective and universal. Second, he questioned whether the concept of ‘substance’ was adequate to describe the being of all beings. Heidegger recognised that this concept of ‘substance’ persisted in the priority that was, and still is, accorded to ‘thingliness’ or ‘objective presence’ in our understanding of beings. However, as he demonstrated in _Being and Time_, the identification of ‘substantiality’ with being in general obscured the true nature of human existence and its involvement with the world. Thus, although technology was not yet an explicit theme for Heidegger, his early work accomplished a break with the modern tradition of philosophy and provided the critical position within which his account of technology developed. This position includes a wealth of new

\(^{413}\) Heidegger, _BT_, p40.
interpretations of fundamental philosophical concepts such as truth, interpretation and experience. Furthermore, the rudiments of his later reading of subjectivity as merely a continuation of medieval and ancient ontological doctrines were already apparent at this early stage.

3. One of the important results of Heidegger’s examination of human existence is his account of the ‘fore-structure’ or ‘project’ of understanding. He argued that understanding necessarily involves an anticipation of the objects that are in question. If our disclosing of objects is a process of understanding then there can be no ‘pure’ or un-interpreted object which can form the basis of subsequent investigations. The appearance of the object occurs only within a context and gains its character from this context. This argument is crucial for Heidegger’s analysis of the difference between ancient and modern science, because it justifies the procedure of examining ‘nature’ as a concept that underlies the discovery of ‘facts’ by the sciences, rather than viewing it as a simple and unquestionable reality. To put this point another way, Heidegger argues that everything we encounter, both in our everyday lives and in explicit scientific research, is already understood in a certain way. In our everyday life this anticipatory understanding of objects is present but it is not explicit. However, in scientific research we explicitly conceive of objects within a highly complex and elaborated framework and it is only within such a framework that facts can be established. With regard to modern sciences such as physics, chemistry, biology and so on, the most fundamental anticipation of their objects lies in their conception of nature. Even more basic than this conception of nature, however, is the understanding of being itself. Thus, although these pre-conceptions become increasingly abstract there is nothing that escapes this circle of understanding in which everything is understood as something.

This is the methodological foundation for Heidegger’s investigation of the difference between ancient and modern science which in turn is one of the foundations of his critique of technology. His examination of modern and ancient science is not focused on particular scientific discoveries or theories but upon the different understanding of ‘nature’ that is assumed in each period and the effect this has on the character of natural science. The central finding of this examination is that the form of knowledge that is characteristic of modern science is equivalent to that form of knowledge that Aristotle termed technē, that is productive knowledge. The ‘nature’ that concerns modern physics is not derived from simple observation but is
conceived in advance and then *produced* through experimentation. Thus, modern natural science is an *essentially* practical form of knowledge as it must constrain nature through experimentation in order to determine which laws it follows. This situation is very different from the relationship between man and nature that underpinned Aristotelian science. Aristotle's method involved simple *observation* of how things ordinarily behave, rather than *experimentation* which involves constraining and manipulating natural objects in order to provide evidence for preconceived hypotheses.

On the basis of this reading of modern science, Heidegger provides an answer to the question of why modern science and modern technology are so closely related. In fact he demonstrates that modern natural science depends essentially upon the practical manipulation of nature. Modern science is then itself a form of technology, if 'technology' is understood as knowledge of how to bring something into being. Yet this is not the most fundamental determination of Heidegger's investigation of technology. Rather, he also argues that this new configuration of science, nature and man is dependent upon a change in the conception of being itself at the beginning of the modern age. This transformation consists in man's assumption of the role of the absolute 'subject'. Heidegger argues that the modern determination of being is novel because man takes it upon himself to establish what can count as a being based upon reason's examination of itself. In modernity, reason becomes divorced from being such that man, in so far as he is rational, must first provide a framework in which being can be understood.

This is fundamentally different from the relationship between being and man in ancient Greek and medieval philosophy. For Plato, the world is the result of the Demiurge bringing together form and matter, whilst the Christian understanding of God as the *absolute* creator meant that he was considered to have produced *both* form and matter.414 Despite this significant difference regarding the creation of form and matter, both ancient Greek and medieval philosophers understood the natural world to be rationally ordered. In both these periods the intelligible forms were already 'in' natural things. In the modern age, however, reason was restricted to

[414] It is true that Plato did not himself possess an explicit concept of 'matter'. It was not until Aristotle appropriated the term *hyle* to name 'that out of which' any particular thing is made that such a concept was developed. Nevertheless, Plato's account of world-making certainly *implied* such a concept. I have already mentioned the development of 'hyle' as a philosophical term in section eight of chapter four.
humanity and the being of nature was a matter to be determined through the self-examination of this reason. As I mentioned earlier, Heidegger mistakenly argues that Descartes marks the beginning of this new ontological order. This point should in fact be identified with Locke’s decisive separation of real and nominal essences for it is only here that philosophers lost the conviction that they could grasp the real essence of beings. Despite this minor problem, Heidegger’s interpretation of the modern understanding of being provides an insightful analysis of modern metaphysics. This analysis of subjectivity complements his earlier investigation of the different conceptions of nature that are found in ancient and modern science. The account of nature that arose from the investigation of science implied the account of subjectivity that he derived from his reading of Descartes. Thus, in his investigation of the essence of technology the most fundamental determination that Heidegger arrives at is that ‘to be’ in the modern age means ‘to be represented’. This thesis implies both the accounts of subjectivity and nature that I described above.

4.

With these central findings in mind, we can now ask ‘What are the limits of Heidegger’s account of technology?’ As a means of clarifying my answer to this question I will first lay out the various senses of the term ‘technology’. As I outlined at the beginning of chapter six, there are at least four senses in which ‘technology’ is employed. Thus it can be used to name man-made objects or artefacts, the knowledge that is employed in the production of these artefacts, the tools that are required in the production of artefacts, and the large scale systems within which artefacts are employed in order to achieve particular goals. Heidegger groups all of these senses together and refers to them as the ‘instrumental definition’ of technology. He argues that this instrumental definition does not get to heart of the matter because it does not address the structure of unconcealment that holds between being and man in the modern age. According to Heidegger, the instrumental definition of technology does not acknowledge that our new found mastery over nature is founded not only in a new approach to beings, but also in a new understanding of humanity. He writes in *The Question Concerning Technology*:

> So long as we represent technology as an instrument, we remain held fast in the will to master it. We press on past the essence of technology.
Conclusion

When, however, we ask how the instrumental comes to presence as a kind of causality, then we experience this coming to presence as the destining of a revealing.\textsuperscript{415}

Heidegger is correct insofar as he argues that technology presents us with metaphysical problems as well as more obvious questions concerning the ethical and practical effects of particular technological advances. Furthermore, his examination of the metaphysical ground of modern science and technology provides us with an understanding of the fundamental conceptual changes that took place at the beginning of the modern age. From this point of view it is possible to provide a \textit{metaphysical} explanation of why modern science is essentially practical whereas medieval and ancient sciences were not. The fundamental elements of this explanation are that, in the face of the Lockean distinction of real and nominal essences, modern philosophers did not abandon the medieval concepts of substance and scientific knowledge. Rather, they employed humanity as the absolute subject and attempted to derive scientific knowledge from this basis. From the study of the metaphysical foundations of modern, medieval, and ancient Greek science, it is possible to see that beings had been conceived as artefacts in each period. Furthermore, the different conceptions of the maker and his materials in each case affected the structure of the natural sciences that were practiced in each era.

It is true that most modern philosophers \textit{do} explicitly reject the medieval concept of substance in the sense that they do not accept that 'to be' means 'to be a creature of God'. Nevertheless, as Heidegger correctly saw, they do unwittingly perpetuate the more fundamental understanding of being which underlay the medieval concept of substance. This more fundamental issue is the tendency to employ the being of objectively present things as the guideline for understanding being as such. This approach to understanding the being of all beings informed Aristotle's conception of \textit{ousia} and was carried over into the medieval concept, \textit{substantia}. From there it influenced the development of modern philosophy.

Throughout these three periods of philosophy the real has, for the most part, been identified with what is eternally present and unchanging. Yet this approach precludes us from developing an adequate understanding of beings that are \textit{essentially processes of change and development}. By interpreting everything that is through an analogy with artefacts the philosophical tradition also assumes that it is

\textsuperscript{415} Heidegger, \textit{QCT}, p32.
possible to separate the essence of a being from its existence. An artificer conceives of what he will produce in advance and the production of the object is only the instantiation of this pre-existing idea. Yet there are beings that cannot, without distortion, be interpreted in this way. As Heidegger rightly pointed out, the essence of a human being cannot be separated from its existence because it is a self-making process. Humans do not have their nature settled in advance, rather, it is determined through the process of existing itself. Thus, there is no ‘human nature’ that is separable from its particular temporal and historical development. That modern philosophers repeatedly tried to employ the ‘subject’ as a stable foundation for scientific knowledge demonstrates two points. First, the tendency to interpret being in terms of static objective presence remains strong in the modern tradition. Second, this tendency distorts the understanding of human existence.

Thus, Heidegger’s investigations of the metaphysical foundations of technology uncovered a surprisingly fundamental union between the Western understanding of being, the nature of products and the act of their production. These findings suggest further questions such as ‘Why has being been interpreted via an analogy with artefacts?’ and ‘Is this means of understanding being appropriate?’ and ‘Can we find a more fundamental guideline by which to understand being?’

Although Heidegger certainly grappled with these issues in his later work, his thinking becomes confused by his inflation of the explanatory power of these ontological findings. As I argued in my interpretation of The Question Concerning Technology in chapter six, Heidegger’s later work lacks the careful distinctions that he made in the 1920s between the scientific and everyday modes of human existence. As a result of this he tends to reduce the complexity of human life to the ontological determinations that supposedly underpin it. Thus he employs the finding that being means ‘representedness’ in modern philosophy to argue that, although we do not understand our actions in these terms, we treat everything as mere ‘stock’. However, even if we accept Heidegger’s assumption that these highly abstract ontological determinations somehow guide our everyday interaction with other people and objects in general, this seems to reduce all of our actions, whatever their concrete nature may be, to mere epiphenomena of this founding ontological position. Heidegger couples his assertion that all of our actions take place in the light of an understanding of beings as simply ‘stock’, with the claim that our actions cannot directly alter this situation. He writes that:
Conclusion

The coming to presence of technology threatens revealing, threatens it with the possibility that all revealing will be consumed in ordering and that everything will present itself only in the unconcealedness of standing-reserve. Human activity can never directly counter this danger. Human achievement alone can never banish it. But human reflection can ponder the fact that all saving power must be of a higher essence than what is endangered, though at the same time kindred to it.\textsuperscript{416}

Therefore, although Heidegger’s critique of technology demonstrated that technology and Western metaphysics are far more closely related than is immediately apparent, his assessment of the significance of this fact is fundamentally mistaken. I suggest that the heart of this problem with Heidegger’s view of the significance of ontology lies in an ambiguity in his conception of the relationship between the scientific and everyday human existence. He argues in \textit{Being and Time} that human existence is ‘ontological’ in the sense that in all of its actions it already understands being in some way. It is this ‘ontological’ constitution of human existence that makes possible ‘ontology’ understood in the more familiar sense as the explicit study of being. The difficulty is that Heidegger loses sight of the fact that human life is articulated in many different ways. Thus, although it is true that humans must understand being in some way in all their dealings, it is also true that the explicit pursuit of truth and being which characterises science and philosophy is only one direction in which life can develop. This is not to say that an understanding of both truth and being is not important in other areas of life, or that it does not help shape the character of a society. However, it is a mistake to think that ontological determinations are alone sufficient for an understanding of an entire historical epoch. Furthermore, it is a mistake to think that these ontological determinations are not themselves influenced by the historical context in which they were developed. Heidegger makes both these mistakes in his attempt to develop a history of being which underlies the rest of human history. Thus, the shortcomings of Heidegger’s account of the essence of technology lie in its extension beyond the realms of metaphysics and science, into an account of the history of Western civilisation. This extension produces a distorted account of that history and obfuscates the illuminating findings of his examination of modern metaphysics.

However, these deficiencies in Heidegger’s work should not lead us to dismiss his critique of the essence of technology. For, as I have tried to demonstrate, through this critique Heidegger managed to bring into the light some of the most fundamental characteristics of our metaphysical tradition. His vision of the significance of the

\textsuperscript{416} Heidegger, \textit{QCT}, pp33-34.
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intertwining of technology and being was ultimately dogmatic and insupportable. Yet this should only encourage us to take up his legitimate insights and free them from this context. Thus, the most fundamental achievement of Heidegger's investigation of the essence of technology was to render questionable once more such concepts as being, nature, truth, essence, knowledge and humanity.

The exposure of the priority that was, and still is, given to substantiality in Western metaphysics provides a new opportunity to examine the adequacy of our established philosophical and scientific structures. Heidegger himself was blinded to the new range of questions his account opened up due to his simplistic understanding of the 'history of being'. However, we need not be limited by this same outlook. Instead of simply condemning the positive sciences as a product of a misguided understanding of being, we can examine them more closely to see how they have, through concrete research, developed new ways of understanding the being of their objects. The achievements of the positive sciences should not be ignored if our aim is to develop a richer conception of being which will not distort our understanding of particular beings. A new understanding of being will not simply 'befall' us, rather, it must be gained through the critical measurement of our understanding of being against the appearance of beings themselves.
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