The Scientific World-Conception, Worldview, World Picture:
Towards a Heideggerian Positivism

Zsolt Kapelner
Central European University

1. Introduction

In my paper I set out to find a middle ground between Heidegger's early, i.e. pre-1930, conception of science, and the scientific world conception of the logical empiricist or logical positivists in the late 1920s and early 1930s. It is a commonplace in the history of philosophy that Heidegger's and the logical positivists' views on science were diametrically opposed. I argue, nonetheless, that, despite appearances, a synthesis of these views is both possible and desirable. I draw on the shared conviction of Heidegger and the positivists that, on the one hand, science proper, or authentic science, is characterized by a certain openness, or readiness to fundamental change, and, on the other hand, that it is always at risk of becoming a rigid, closed system of principles, that is, a worldview, as the logical positivists said, or, in Heidegger's words, a world picture. That risk can only be averted by leading science back to its foundation in the experiential and practical sphere of ordinary life, for science, and the scientific conception of the world, as the Vienna Circle's manifesto makes it clear, ought to serve life.

The year 1929 witnessed the publication of two very important philosophical texts: the manifesto of the Austrian logical empiricists or logical positivists,[1] "The Scientific Conception of the World: The Vienna Circle", and Martin Heidegger's seminal lecture "What is Metaphysics?" In the late 1920s, logical positivists, especially members of the Vienna Circle, were on their way to becoming the most influential figures in 20th century philosophy of science, while Heidegger was gaining a reputation as both a leading German philosopher and a notoriously anti-scientistic thinker. Their purportedly opposing viewpoints clashed in 1931, when the prominent positivist Rudolf Carnap deemed Heidegger's metaphysical claims put forward in "What is Metaphysics?" pseudostatements devoid of meaning (Carnap 1959, 69). Not surprisingly, the idea that Heidegger and the positivists were radically opposed on the matter of science became a commonplace in the history of philosophy.

In recent decades, however, many scholars have defended the view that a common ground between these thinkers can be found. Michael Friedman (2000) pointed out that Heidegger and the Austrian logical positivists were deeply embedded in the contemporary German neo-Kantian philosophical culture. They shared interests, theoretical convictions, and even teachers. For these reasons, many authors have admitted that some Heideggerian and logical positivist ideas are congruent in certain respects (Bowie 2000, 471, 474). In this paper I take this idea one step further, and argue that a *synthesis* of Heidegger's and some logical positivists' views on science is possible as well as desirable. Presenting that synthetic view, however, is beyond the scope of the present investigation. My aim is merely to indicate those aspects of the two conceptions that can serve as the basis for a future synthesis.

Before I begin, some preliminary remarks are in order. To begin with, it would be impossible to discuss every aspect of Heidegger's views on science, for the relevant texts and thoughts are incredibly numerous and rich. Similarly, the logical positivist movement was so multifaceted and produced so much material on this topic that I cannot hope to take into account all of it in this short paper. I therefore confine my investigation to Heidegger's early works[2] (with the exception of the 1938 essay "The Age of the World Picture"), and to two main figures of logical positivism: namely, Rudolf Carnap and Otto Neurath.

I choose Heidegger's early, i.e. pre-1930, works because during this period he had a much more positive view on science than after his famous *turn*. He believed that a philosophical grounding of science was possible (Rouse 2005, 180), and that philosophy itself should be conceived of as a science or at least as scientific (Glazebrook 2000, 63). These beliefs suit my present purposes much better than his later views. From the 1930s on, he advocated a much grimmer picture of modern science stating that it does not complement philosophy, but rather it is *opposed* to it. These ideas lend themselves much less easily, if at all, to a comparison with logical positivism which undeniably has a pro-science attitude.

As for the logical positivists, choosing representatives of such a large movement with so many different members is never an easy task, and virtually any choice can be called into question. My decision to focus on Carnap and Neurath is no exception. One can argue that these members of the so-called "left Vienna Circle" represent a dominant, though not predominant, version of logical positivism, a version that was explicitly

opposed by such members of the movement as the leader of the Vienna Circle Moritz Schlick (Oberdan 1998, 298 ff.).

I believe that this challenge can be answered. Carnap and Neurath were arguably the most influential logical positivists both within and outside the movement. Even if their views weren't held by all positivists, they did exert a great influence on every one of them, and they also effectively shaped the public and professional perception of the movement during the course of the 20th century. Therefore I take them to be appropriate representatives of logical positivism.

Of course, I am aware that the way in which I limit my discussion is already influenced by my agenda. Comparing the early Heidegger with other logical positivists, such as Schlick or Friedrich Waismann, would most certainly not yield the results I present here. Similarly, as I noted above, Heidegger's later conceptions of science could hardly be synthetized with Carnap's and Neurath's views. Nonetheless, I hold onto my choice, for my main goal in this paper is not to establish a historical point but rather to prepare the ground for a positive, first-order philosophical theory of science.

2. Heidegger's philosophy of science

Heidegger is rarely thought of as a philosopher of science. If anything, he is famous for being an anti-scientistic thinker who formulated the famous motto, "science does not think." This conception, however, is evidently mistaken.[3] He was concerned with problems of science throughout his career, and even though he was far from being preoccupied with this topic, he engaged in a thorough discussion of it at pivotal points in his writings (Schwendtner 2005, 16). His remarks, at least in the early works, are seldom condemnatory. What explains this special attention that science receives from Heidegger and how should his statements be interpreted?

Let me begin with the general philosophical outlook of the early Heidegger.[4] His main project is to answer the question "what is Being?" He approaches the problem through the analysis of human existence (Heidegger 1962, §2, 3). This analysis is phenomenological insofar as it appeals not to abstract concepts or linguistic analysis, but rather to the *experiential-practical basis of everyday life*. He points out that human beings are essentially embedded in a world with which they are always practically engaged. In Heidegger's terms, the human being or *Dasein* is a being-in-the-world (Heidegger 1962, § 12), and its existence is constituted by *care* (Sorge), that is, a deep practical as well as existential involvement and interest in the

various entities that inhabit that world in which it finds itself (Heidegger 1962, § 41).

Science, for Heidegger, is one of the ways in which we engage with the world and the entities in it. It is characterised by a certain focus on the things themselves. In the case of most everyday activities, Heidegger argues, the entities we interact with *withdraw* or dissolve in their function; when we use a hammer, for example, the hammer itself does not stand forth, but rather it is present only in its function (Heidegger 1962, 98). But when we investigate the hammer scientifically, we allow it to show itself, independent of our interests and goals.[5] As Heidegger puts it:

> Yet when we follow their most proper intention, in all the sciences we relate ourselves to beings themselves. […] To be sure, man's prescientific and extrascientific activities also are related to beings. But science is exceptional in that, in a way peculiar to it, it gives the matter itself explicitly and solely the first and last word. In such impartiality of inquiring, determining, and grounding, a peculiarly delineated submission to beings themselves obtains, in order that they may reveal themselves. (Heidegger 1998, 83)

In Heidegger's jargon, scientific reason renders its objects present-at-hand (*vorhanden*) instead of ready to hand (*zuhanden*). Things that are present-at-hand exist as inert objects in the external world. The main mode of accessing them is *contemplation* from a distance, not *use*. This contemplative attitude gives rise to what Heidegger calls the theoretical stance.[6] Sciences are theoretical insofar as they are contemplative and disinterested. This mode of being related to the world is fruitful insofar as it reveals certain aspects of it that would otherwise be inaccessible, precisely because of the withdrawal of the things in the average everydayness or ordinary life (Rouse 2005, 175 ff., esp. 178).

Heidegger holds that the theoretical stance is not fundamental; it originates from the experiential-practical basis of everyday life. By default, we do not relate to the world in a contemplative way, but rather in an engaged, involved, and practical way. The very existence of a theoretical stance is made possible by this more fundamental kind of relation. Theorizing is but one way of engaging with the world, and all forms of engagement presuppose a network of background practices, customs, and beliefs that jointly constitute the existence of Dasein as care.

Science becomes problematic when it detaches itself from its sphere of origin. This sphere belongs to the experiential-practical basis of life which can only be investigated by phenomenological philosophy. It is philosophy that discloses this area of Being that science attempts to investigate "and,

after thus arriving at the structures within it, makes these available to the positive sciences as transparent assignments for their inquiry" (Heidegger 1962, 31). As Heidegger emphasizes, "such research must run ahead of the positive sciences, and it *can*" (1962, 30).

Scientific research, then, is fruitful insofar as it allows us to access certain aspects of the world. In the absence of a philosophical groundwork, however, it becomes futile, for it is not a fundamental kind of investigation. Science is only one among the many possible ways in which we might relate to the world. If it becomes predominant, it can disable other kinds of relations, thus impoverishing our experience as well as our practical life. And since the very existence of the human being is constituted by the experiential and practical involvement with the world, i.e. care, the predominance of science can impoverish our very existence. It is important to see, however, that this is not a problem with science per se, but rather with a certain *abuse* of scientific reason.

3. The scientific world-conception

The logical positivist view of science is much harder to summarize, even if we limit ourselves to Carnap and Neurath. Their writings on science are far more extensive and richer than those of Heidegger. They covered themes ranging from the philosophical analysis of Einstein's theory of relativity, the structure of scientific theories and explanations, and the issue of the logical analysis of the language of physics and the problems of physicalism. I cannot take into account all of these topics in this paper. Instead, I only discuss the role of science in acquiring knowledge and in human life in general.

A common perception of the logical positivists is that they were worshipers of science. While Heidegger, as we saw, conceived of science as an activity embedded in and reliant on other kinds of everyday practices and experiences, the positivists assigned a *fundamental* role to science. According to this common interpretation, the positivists believed that every aspect of human life should be subordinated to science and those that cannot, e.g. traditional metaphysics and ethics, should be abandoned altogether.

This somewhat simplistic view of logical positivism has been questioned in recent decades by many historians of philosophy such as Thomas Uebel (1991), Alan Richardson (1996), and John O'Neill (2003). Logical positivists, in their view, did not celebrate scientific reason for its own sake disregarding other aspects of life. They did indeed aspire to reconfigure the entirety of life in accordance with reason (probably scientific); that

aspiration, however, did not stem from a blind worship of science, but rather from a deep commitment to an Enlightenment project that was meant to be the continuation of the grand tradition of the French *philosophes*, e.g. Diderot and d'Alembert, and their contemporary successors, most importantly, Ernst Mach (cf.: Uebel 2004; Carus 2007a).

Such aims are clearly stated in the 1929 manifesto of the logical positivist movement "The Scientific Conception of the World: The Vienna Circle." In it, Carnap, Neurath (both of whom were the main authors, cf.: Uebel 2008), and Hans Hahn proclaim, "endeavours toward a new organization of economic and social relations, toward the unification of mankind, toward a reform of school and education, all show an inner link with the scientific world-conception" (Neurath, Carnap, and Hahn 1973, 304–305). Their aim, they say, is not merely to theorize, but "to fashion intellectual tools for everyday life, for the daily life of the scholar but also for the daily life of all those who in some way join in working at the conscious reshaping of life" (Neurath, Carnap, and Hahn 1973, 305). They close the manifesto with a bold claim: "the scientific world-conception serves life, and life receives it" (Neurath, Carnap, and Hahn 1973, 318).

Science and scientific philosophy, in this view, do not exist and should not be pursued for their own sake, but rather as part of a larger project aimed at the conscious reshaping of life. This tenet, while generally accepted at least in the so-called "left Vienna Circle", was interpreted in different ways by different authors. Neurath, for example, believed that political agendas can be taken into consideration in the evaluation and elaboration of scientific theories, especially in the social sciences (Uebel 2005, 758). Carnap, by contrast, insisted that while science and philosophy of science are subservient to the larger Enlightenment-project, political and ethical premises ought not to figure in scientific reasoning. But as Uebel puts it:

> [W]hile there did obtain in the left Vienna Circle disagreements about the extent to which pragmatic-political considerations may influence philosophy of science, none obtained concerning the view that in the larger scale of things even philosophy of science possesses a certain political valency and that, for the reasons indicated, pragmatic-political considerations might play a role in science itself. (Uebel 2005, 760)

It is important not to exaggerate the importance of social and political activism in the logical positivist movement. Some members, such as Schlick or Waismann, were much less interested in the reshaping of life than, for example, Neurath, who was, after all, a political activist (Cartwright et al.

1996, 1 ff.). It is also true that after the Second World War, the social and political impetus of the movement subsided, and was never re-established.[7] Nevertheless, the claim that logical positivism adhered to doctrinaire scientism and that it was not at all concerned with science's wider social role is thoroughly misguided.

The scientific world-conception of the Vienna Circle posited science as an instrument within a wider project aimed at the reconfiguration of the society and life in accordance with reason. Science and philosophy of science has value, in their view, only insofar as they contribute to this agenda. In this respect, logical positivists conceived of themselves as heirs to the philosophers of the Enlightenment (Uebel 2004, 56). Even though this commitment to the idea that science and philosophy is, or at least should be, intertwined with life did not surface in each and every writing of the positivists, it was clearly lurking in the background all the time.

4. Worldview and world picture

These brief overviews of the Heideggerian and logical positivist conceptions of science already indicate some similarities. For example, both reject the idea that science is an isolated, purely intellectual enterprise that has no bearing at all on other domains of life. There remains, however, a major contradiction between them that needs to be resolved in order to make a synthetic view possible. While the positivists believe that science and scientific thinking play a crucial role in reconfiguring life, Heidegger seems to distrust science and think that it should be contained and regulated by philosophy, and that otherwise science becomes dangerous. In this section I discuss this apparent contradiction.

What kind of science is held to be problematic and dangerous by Heidegger? His main contention concerning science was that it allowed us access only to some aspects of reality. Science posits the object of investigation as present-at-hand, i.e. present in an objective, inert manner, investigable only through disinterested contemplation. But things are usually *not* encountered as present-at-hand, and some entities, such as the human being (Dasein), is never present-at-hand (Heidegger 1962, 67). Therefore, if we attempt to relate to reality only in a scientific way, we distort and impoverish our understanding of the world. Since our understanding and engagement with the world constitutes our very being, assigning a fundamental role to science impoverishes our very existence.

In his early writings Heidegger clearly deemed this kind of science to be *inauthentic*, belonging to a "fallen" mode of existence of human beings

(cf. Schwendtner 2005, 121). In one of his later pieces he describes inauthentic science as a "shop floor"[8] (Heidegger 2002, 63) that produces in an almost industrial manner a *world picture* (Heidegger 2002, 71), i.e. a total representation of everything that exists as present-at-hand. This terminology can be rather instructive for the present investigation.[9]

Logical positivists have a notion similar to Heidegger's world picture that they evaluate in a similar way. This is the concept of the world view. Phillip Frank remarked that the very term "scientific world-conception" was employed in order to avoid the term "worldview" (Frank 1949, 38) which, as Neurath explains in his 1930 essay "Ways of the Scientific World Conception," is, unlike a world-conception, a closed system of basic principles that recognizes the world as a whole and is established in order to grasp the totality of reality. It aims "at comprehending a mighty *world-picture*" (Neurath 1983, 32, emphasis added).

Neurath calls the aspiration for such overarching worldviews *pseudorationalism*. Genuine scientific rationality, as we shall see, is characterized by ambiguity and undeterminedness (Cartwright et al. 1996, 129). When these are denied to science, when indefiniteness is replaced by definiteness, pseudorationalism arises (Neurath 1982, 136). Pseudorationalism also appears when one denies the importance of individual decision and deliberation that is germane to scientific practice, i.e. when we "regard scholars as a sort of *automata* that detect contradictions and deduce consequences." (Neurath 1982, 136, emphasis added)

It would be hard to deny the similarities between pseudorational science and inauthentic science as Heidegger describes it. Both are aimed at producing an all-embracing, total account of the world and what it contains through a rigid, almost automatic process of deducing universally valid statements from observed data. Furthermore, both are condemned: on the one hand, because they produce false statements about the world and on the other hand, more importantly, because they have detrimental consequences for life in general. Just as inauthentic science impoverishes human existence, pseudorationalism forestalls the conscious reshaping of life in accordance with reason.

These considerations indicate the first point that can serve as the basis for a synthetic view of Heidegger's and the logical positivists' accounts of science. Such a view would be based on the commitment, shared by Heidegger and the positivists, to the idea that science can be (and it indeed is) abused in contemporary society, and this abuse is driven by a desire for an all-encompassing worldview or world picture that is produced in an

automatic, almost industrial process that replaces genuine scientific practice and yields undesirable consequences for ordinary life.

A Heideggerian positivist critique, for example, would point out how problematic it is to publish vast amounts of papers, to make enormous investments, such as the Large Hadron Collider, and to found academic institutions for the sole purpose of resolving the remaining puzzles given rise to not by problems with which people struggle in reality but by the inherent dynamics of the fields of contemporary science. She would condemn attempts to explain phenomena such as religion and morality by subsuming them to already established paradigms, e.g. neurophysiology and cognitive psychology, instead of approaching them from their original experiential and practical bases and attempting to do justice to them in their own terms. At the same time she would praise climate change research for setting out from an actual and quite pressing problem of our times while acknowledging that it is not entirely free from the dangers of the world picture. Her ultimate aim would be to point out both the ways in which a scientific world picture (or worldview) limits our understanding and how such a limitation diminishes the prospects of a wider project aimed at the conscious reshaping of life.

One might object that there is still a major difference between pseudorationalistic science and inauthentic science. While pseudorationalism is a remnant of metaphysical and theological thinking, and thus is essentially alien to science, the tendency to become a shop floor pertains to its very nature, according to Heidegger. Though this might be true of the later Heidegger, in his early period he took this version of science to be inauthentic, and, as Tibor Schwendtner emphasizes, Heidegger acknowledged the possibility of an authentic kind of science (Schwendtner 2005, 124). Interestingly, his proposals as to how science should be redeemed are very similar to that of the logical positivists. Let us now turn to this issue.

5. An authentic conception of science

If inauthentic science, according to Heidegger and the logical positivists, is characterized by a closed set of basic principles and a rigid methodology, then it stands to reason to assume that authentic science, in their view, is essentially open to the radical revision of both the basic principles to which it is committed and the methods it employs. This is indeed a view to which both camps adhere in different, though compatible, and more importantly, combinable ways. In this section I discuss the nature of these views, and the possibility of their synthesis.

By the early 1930s, following their famous protocol sentence debate, both Carnap and Neurath came to the conclusion that science proper is characterized by radical openness (cf.: Uebel 1996). Neurath always advocated scientific anti-foundationalism. Not only did he believe that there was no one true method to science, but he also denied that it can have any firm foundation. As his famous metaphor indicates, scientists are like sailors who have to rebuild their ship on the open sea – they are never "able to start afresh from the bottom. Where a beam is taken away a new one must at once be put there, and for this the rest of the ship is used as support." (Neurath 1973, 199)

An important element of this metaphor is that "the ship can be shaped entirely anew" (Neurath 1973, 199). Science is an everlasting discourse among scientists governed solely by pragmatic considerations (Cartwright et al. 1996, 142 ff.). If the demand of the day, to which science always has to respond, requires it, science has to revise even those of its elements that seemed to be the firmest beforehand. The a priori exclusion of certain possible changes would already amount to pseudorationalism.

Carnap developed similar views during this period. The idea that science fulfils a pragmatic role and that it functions as an instrument by means of which we organize our chaotic experiences already appeared in his early writings (Carus 2007b, 27 ff.). Such views were operative even in his first major work, titled *Der Logische Aufbau der Welt,* which is often misinterpreted as an exemplar of doctrinaire positivist foundationalism (cf.: Friedman 1999, 144 ff.).[10] From the 1930s on, however, he clearly advocated an anti-foundationalist, thoroughly pragmatist view that is not only very akin to but also influenced by Neurath's thinking.

In his 1934 book *Logical Syntax of Language*, Carnap developed a liberal epistemology that is committed to the dictum made famous by W.V. Quine: no scientific statement is immune to revision (Carnap 2001, 318). At the same time he started to subscribe to a certain kind of overarching pragmatism similar to that of the renowned American pragmatist philosopher C.I. Lewis, and others, e.g. Charles Morris and Ernst Nagel (A. Richardson 2007, 298). These philosophers were highly esteemed by Carnap, who regarded the American pragmatist movement as "an ally in [the logical positivists'] fight against traditional metaphysics." (Carnap 1963, 868)

The idea that science proper or authentic science is essentially open to the radical revision of its basic concepts is not at all foreign to Heidegger's views. At a crucial point at the beginning of *Being and Time*, he makes the following remark: The real 'movement' of the sciences takes place when their

basic concepts undergo a more or less radical revision which is transparent to itself. The level which a science has reached is determined by how far it is capable of a crisis in its basic concepts" (Heidegger 1962, 29). The real or authentic[11] movement of science, then, consists precisely in the radical revision of its basic concepts. A science is real or authentic, it seems, whenever it is capable of a crisis – that is, of such a radical revision.

Authentic science, according to Heidegger, is characterized by openness in another sense too. It also needs to be open to its sphere of origin in the experiential-practical basis of human existence (Schwendtner 2005, 112). Science is open to that sphere insofar as it is able to reflect upon the fact that it is not a self-enclosed project that exists for its own sake, but stems from more fundamental problematics. When authentic science, open to its sphere of origin, faces a crisis, it is able to resolve it by appealing to that sphere.

That act of appealing to the sphere of origin is in Heidegger's view a *replication* or repetition of its original foundation, i.e. the original moment when a problem gave rise to the scientific inquiry (Schwendtner 2005, 119; cf.: Heidegger 1962, 347). An analogy from Heidegger's teacher Husserl might be instructive at this point. In the *Crisis of European Sciences* (1970), Husserl claims that scientific fields stem from more fundamental problematics arising in the so-called "life-world", i.e. "the world constantly given to us as actual in our concrete world-life" (Husserl 1970, 51). For example, geometry stems from the original problem of how to measure land and estate – a problem present in our actual day-to-day activities. During the course of the history of science, however, certain fields became detached from their sphere of origin, and retreated to the abstract realm of measurements and mathematical formulae.

Heidegger's proposal that science should be open to its sphere of origin, i.e. respond to crises by replicating its original foundation, might be interpreted in the following way: in times of crisis, science should appeal to the original "real-life problem", e.g. the problem of how to measure land, which gave rise to the theoretical enterprise, and investigate what kind of revision that original problem demands. Heidegger emphasizes, however, that this replication should not be thought of as a simple *copy*, but rather as a *reply*, as in a debate, i.e. a critical and reflective and, if necessary, modified re-enactment of that original founding moment (Schwendtner 2005, 119).

These considerations can provide the logical positivists with significant aid. An important problem for Carnapian-Neurathian pragmatism is that it is not always clear which pragmatic considerations ought to govern

scientific research. As A.W. Carus remarks when discussing Carnap's and Neurath's boat, "the decision what port to head for next we have to make on board" (Carus 2007a, 22); there are no initially given principles determining the direction of the research. But if that is so, how is decision possible at all? Should we aim at making our theories simpler, or should we enhance their predictive force? The pragmatist will point out that this depends on our aims and what the current situation requires from us. But how should we find out what is required from us and what our aims should be?

Heidegger seems to have an answer. According to him, we should derive our pragmatic principles from the sphere of origin of the field in which we work. We should examine the original problem from which it stems, and attempt to reflectively re-enact the original foundation of the theoretical enterprise. It is important to see that this strategy does not reintroduce foundationalism into our model. The principle that science in times of crisis should replicate its original foundation is not a fundamental epistemic principle that would justify or in any other way grant legitimacy to the decisions we make. Instead, it is a proposal as to how to preserve authenticity and avoid pseudorationalism.

In turn, the Heideggerian account can also be ameliorated by the positivist account. Recall that the idea that science is a kind of activity deeply embedded into a larger social context is not at all foreign to Neurath and Carnap. The crucial difference between their views and those of Heidegger is that the larger enterprise science is part of is essentially and primarily social and political, while Heidegger's is, in a broad sense, existential. A combination of these two conceptions of the deeper basis of science on the level of everyday life might result in an enriched understanding of the role that science plays in life.

6. Conclusion

This paper has shown that the views on science of the early Heidegger and some key logical positivists are compatible and can be synthetized. Such a synthesis would have two bases. First, their shared commitment to a radical anti-foundationalism and a thorough pragmatism according to which science is, by its very nature, deeply embedded in the wider domain of social, political, and personal life. Second, their critique of the kind of scientific reason that is blind to science's embeddedness in life, and its lack of solid foundations; such science is problematic not only because

it leads to a false view of what science is, but also because its prevalence bears detrimental consequences to society and human life in general.

By claiming that a synthesis of the Heideggerian and logical positivist philosophies of science is possible, I do not claim that every aspect of these different philosophies is reconcilable. Essential disagreements remain between Heidegger and the positivists, e.g. on the relationship between philosophy and science, on the legitimacy of the phenomenological method, etc. I also do not claim that the synthetic view would be ipso facto justified. It might well be the case that this synthesis would not be correct, or that its justification would require further elaboration that cannot be based on Heidegger's or the logical positivists' thoughts alone.

Nonetheless, I do believe that creating this synthetic view would be a worthwhile enterprise. In today's society, the significance of science is increasingly growing. Whether or not we conceive of it as a self-enclosed activity or as something deeply embedded into social, political, and existential structures of human life is of crucial importance. The synthetic view I discussed would be able to provide firm philosophical foundations for the claim that science needs to be reconnected with the wider territory of ordinary life that gives rise to it in the first place.

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[1] Calling the movement "logical positivism" is somewhat problematic. Many of its members did not adhere to this name, and preferred others, e.g. "logical empiricism", "scientific humanism", etc. In today's scholarship, the term "logical empiricism" is most widely used. I use "logical positivism" because in fields outside the history of analytic philosophy it is still widespread.

[2] For more information on the distinction between Heidegger's early and later period and the unity of his thought, see Olafson (1993).

[3] Glazebrook (2000, 214), Kockelmans (1985, 133 ff.), and Batovanja (2009) each address the "science does not think" comment.

[4] Of course, this is but a fraction of Heidegger's early theory of human existence. For a more detailed discussion of his thoughts relevant to this discussion, see Richardson (2012, chap. 3–4).

[5] However, this does not mean that science reveals the thing in itself, its true, underlying nature, for no such nature exists, according to Heidegger.

[6] Heidegger put special emphasis on the origins of the world "theory" and "theoretical", which is the Greek word "theorein" meaning "to contemplate".

[7] For further discussion on the history of the de-politicisation of logical positivism, see Reisch (2005).

[8] Heidegger uses the term "Betrieb" which means both "constant activity" (the standard translation) and "shop floor," as in industrial production (but not "workshop" which is another important Heideggerian term).

[9] The essay in question is Heidegger's 1938 "The Age of the World Picture." Although it belongs to his later period, the tendencies he describes in it are extensively discussed in his early writings as well (Schwendtner 2005, 122).

[10] On the wider context of the *Aufbau* see Galison (1996), Richardson

(1998), and Tuboly (2014).

[11] Heidegger uses here the term "eigentlich", usually used to refer to authenticity (Eigentlichkeit).