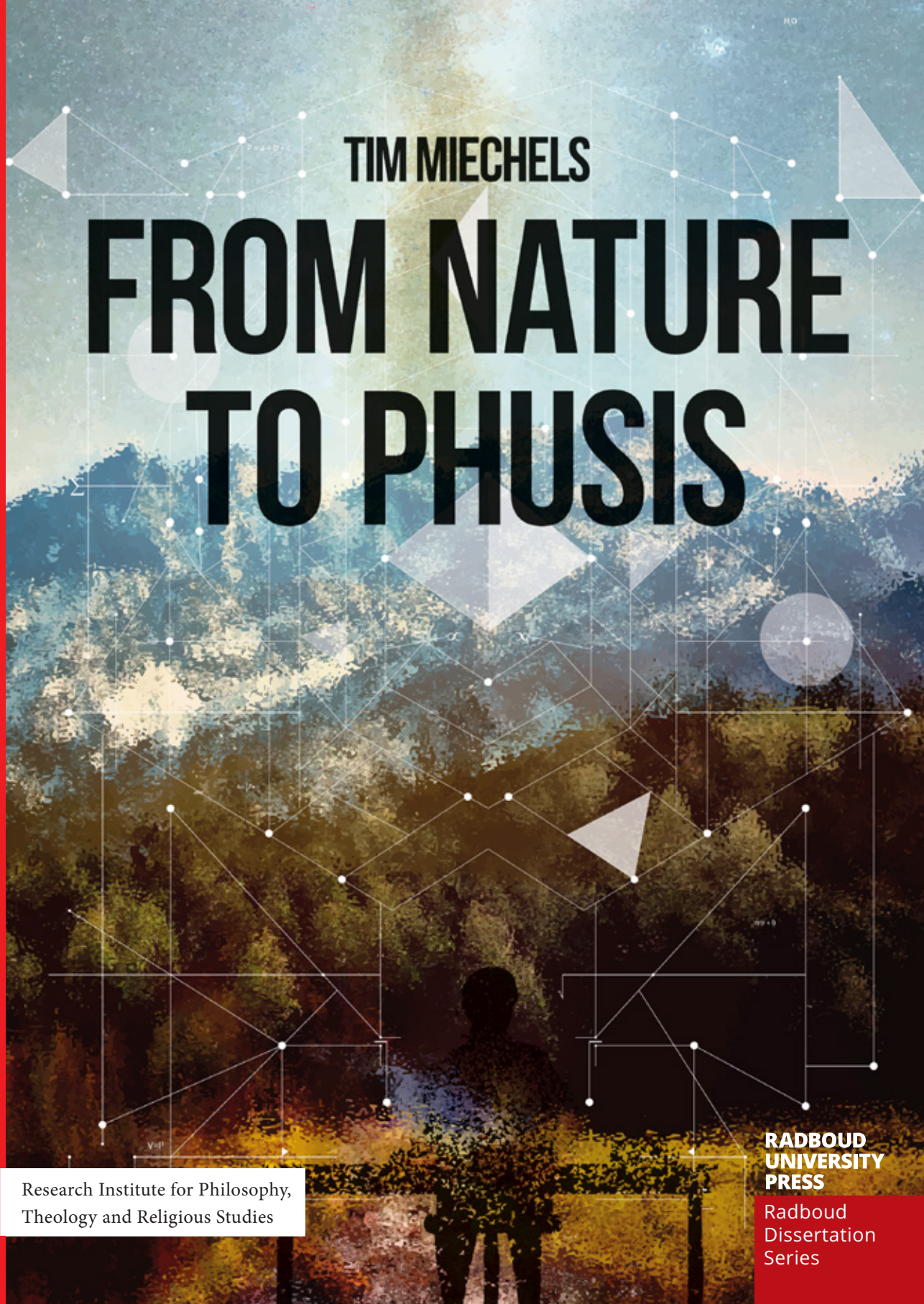


The background of the book cover is a complex, abstract composition. It features a dense network of thin white lines connecting small white dots, creating a web-like or molecular structure. Overlaid on this are various geometric shapes, including triangles, circles, and polygons, some in shades of grey and blue. The overall color palette is a mix of cool blues and greys at the top, transitioning into warmer, textured yellows and oranges towards the bottom. In the lower center, there is a dark silhouette of a person standing, looking out over a landscape that appears to be a field or a body of water, rendered in the same warm, textured colors. The title and author's name are prominently displayed in the upper half of the cover.

TIM MIECHELS

FROM NATURE TO PHUSIS

Research Institute for Philosophy,
Theology and Religious Studies

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From Nature to *Physis*

Heidegger's Criticism of Naturalism and the Possibility of
Naturalizing Phenomenology

Miechels, T. (Tim)

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From Nature to *Phusis*

Heidegger's Criticism of Naturalism and the Possibility of
Naturalizing Phenomenology

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Chapter 1

Introduction

What is the relation between the world I experience every day, and the world described by the natural sciences? In the formulation of his famous paradox, British astronomer Arthur Eddington (Eddington 1928, ix) imagines himself sitting at not one, but two desks. One desk is a thoroughly familiar everyday object that his cup of coffee rests on, that he uses every day, that is extended in space and has a familiar color scheme, among other things. The other desk is the less familiar scientific desk, consisting of tiny particles and a whole lot of empty space, lacking all the characteristics of the first table. So we end up with two desks: the desk as an everyday object and the desk as a scientific object. The seemingly singular world around me thus shows itself as a world characterized by duplicity. For this fact of duplication holds for all the other objects around us: there are two cups of coffee on my two desks, I am sitting on two chairs typing on two keyboards. Strictly speaking, I myself consist of two persons as well: the familiar person that is slightly tired because he has not slept well and is looking forward to a cup of coffee on the one hand, a collection of cells, organs and firing neurons on the other. Going back to Eddington's original example, this leads to the question: What exactly is the relation between these two desks?

If we paint a very broad-strokes picture, we will find different answers to this question depending on whether a philosopher supports naturalism or adopts a phenomenological viewpoint. The naturalist philosopher will prioritize the scientific desk. They will consider the scientific desk to be the most fundamental, real, objective desk, while considering the everyday object a subjective, epiphenomenal illusion. The phenomenologist will prioritize the desk as an everyday object¹, emphasizing the immediate givenness of the desk as we use it every day, while considering the scientific desk to be a derivative desk that can only be discovered on the basis of our everyday dealings with the desk as a practical object.

Things are of course not as simple as this broad-strokes picture seems to suggest. The relation between phenomenology and naturalism is a pervasive and multi-dimensional issue. Two of phenomenology's founding fathers—Martin Heidegger and Edmund Husserl—both had their own reasons to be critical of naturalism and consider it an adversarial position to their philosophical projects. These reasons, as well as the envisioned relation between the concepts of “phenomenology”, “science” and “nature” that ensues from them, have continued to be fruitful topics of investigation in the scholarship of these two authors.

Despite these critical attitudes at the roots of phenomenology, however, much effort in contemporary phenomenology scholarship goes into investigating the possibility

¹ See for example: (Heidegger 2000b, 60; Heidegger 1987, 71)

of naturalizing phenomenology. Proponents of this idea hold that phenomenology is not necessarily antithetical to naturalism. To go back to Eddington's example: rather than prioritizing one desk over the other, phenomenology is held to bring with it the possibility to bridge the explanatory gap between the desk as an everyday object and the scientific desk, without reducing one to the other. In the wake of this project, different authors are engaging with questions like: Why are phenomenologists generally considered to be critical of naturalism (Moran 2008; Reynaert 2015; Rouse 2005)? What does this critical attitude mean for the prospect of naturalizing phenomenology (Zahavi 2013)? What is the operative idea of nature in a naturalized phenomenology and does naturalizing phenomenology bring with it the need to phenomenologize nature (Holenstein 2014; Schewel 2013)?

While work has been done scrutinizing those individual questions and their possible answers, an integrated perspective which takes into account the interconnectedness of these questions has been sorely lacking. Such an interconnected perspective is important, because the different questions and discussions mentioned above are parts of the same story concerning the relation between phenomenology and naturalism. The main goal of this thesis is to connect the questions and discussions about naturalizing phenomenology, phenomenology's critical attitude towards naturalism and the meaning of nature, in order to create an interconnected, coherent perspective on the relation between phenomenology and naturalism.

The central concept of concern in this dissertation is "naturalism" and its meaning in the philosophical project of Martin Heidegger. The starting point for my investigation is the idea that the notion of "naturalism" is a relational notion, which means that in order to understand it there are at least two other notions we need to understand with it, namely "science" and "nature." These notions follow directly from the two main components that are often distinguished in naturalism, respectively a methodological and an ontological component (Papineau 2023). The way we understand and criticize naturalism, or naturalize phenomenology, is therefore highly dependent on the underlying understanding of nature and science. The field that opens up when examining the interplay between the notions of "naturalism", "nature" and "science" is at the core of this dissertation. Other related notions follow directly or indirectly from this interplay.

Similar to this relational understanding of naturalism, the understanding of Heidegger's stance on naturalism at stake in this dissertation departs from an understanding of its relation to Husserl's criticism of naturalism. In his programmatic text *Philosophy as Rigorous Science* (Husserl 2002; Husserl 1987),

Husserl formulates his phenomenological project in stark opposition to naturalism. Since the criticism of naturalism plays a much more central role in Husserl's philosophical writings than it does in Heidegger's, an investigation of Husserl's criticism first of all helps to understand the starting point of Heidegger's stance on naturalism. Importantly, it was Husserl's criticism of psychologism that inspires the young Heidegger's first steps on the path towards phenomenology, as becomes clear in his doctoral dissertation *The Doctrine of Judgment in Psychologism* (Heidegger 2023; Sheehan 1997, 5). Second, examining Husserl's reasons for being critical of naturalism also serves the purpose of showing in what ways Heidegger moves beyond Husserl and can be said to intensify the line of criticism set in motion by his mentor. This is important, for it is against the background of Husserl's phenomenology and criticism of naturalism as put forward in *Philosophy as Rigorous Science* that Heidegger most extensively tackles the topic of naturalism.

The research question of this dissertation is: how can Heidegger's stance on naturalism help us to better understand the possibilities and challenges inherent in the project of naturalizing phenomenology? To answer this research question, I will address the following sub-questions: 1) what is the relation between Husserl's and Heidegger's criticism of naturalism? 2) What is the relation between phenomenology and science that Husserl and Heidegger envision? 3) Can Heidegger be regarded as a realist with regard to the entities of natural science? 4) Is there a viable alternative conception of nature that can be formulated on the basis of Heidegger's philosophy?

The way these sub-questions tie together to the main question follows the logic of understanding "naturalism" as a relational notion. The first sub-question focuses on understanding Heidegger's stance on naturalism as a development of Husserl's more well-known criticism of naturalism. The second sub-question investigates the understanding of science and its relation to phenomenology, based on the idea that an understanding of the specific sense in which we talk about science is crucial for an adequate understanding of naturalism. The third and fourth sub-questions both focus on our understanding of nature, in two different ways. The third sub-question asks whether there is any merit to reading Heidegger as a robust realist regarding the entities of natural science, or to formulate it differently, to ask the question: is Heidegger's philosophy compatible with a form of naturalism that is underpinned by a classical conception of nature? The fourth and final sub-question then goes the alternative route by asking: is there an alternative conception of nature that can be found in Heidegger's philosophy that is helpful to the debate surrounding naturalizing phenomenology? By investigating these sub-questions, the interplay between the notions of "naturalism", "nature" and "science" in the philosophy of

Heidegger is thoroughly investigated, thereby allowing me to provide an answer to the research question. In each of the following chapters a different sub-question is elaborated.

In the first part of this introduction, I want to paint a picture of naturalism in relation to contemporary phenomenological research, specifically the debate surrounding the possibility of naturalizing phenomenology. My emphasis here will be on the relations between “naturalism”, “nature” and “science”. In the second part, I will focus on Heidegger’s criticism of the concept of “naturalism” and the relation of this criticism to that of his former mentor Edmund Husserl. In this part, I will further outline why I consider Heidegger’s philosophy a fruitful place to think about the relation between phenomenology and naturalism. In the final part, I will provide an outline of the different chapters that make up this dissertation and the way they contribute to the main line of investigation pursued in the dissertation.

1. The Criticism of Naturalism

1.1 Ontological and Methodological Naturalism

When taking a closer look at the term “naturalism”, it becomes clear that it is difficult to find a general definition. Different authors mean different things when they use the term, depending on their specific philosophical agenda. That is why David Papineau states that “[t]he term ‘naturalism’ has no very precise meaning in contemporary philosophy” (Papineau 2023). However, that does not mean that it is impossible to find some common denominators, especially when relating the concept of “naturalism” to that of “phenomenology.”

At its core, the idea of naturalism entails two separate but connected claims: an ontological and a methodological claim. The ontological claim of naturalism tells us something about the *what* of reality. According to ontological naturalism (ON), reality is composed of only natural entities. It is important to note that the concept of “natural entities” is vague and can be interpreted in many different ways. Methodological naturalism (MN) deals with the proper manner of access to reality, that is, not with the *what* of reality, but with the *how* of our investigation into reality. As a naturalist, it is not necessary to endorse both claims. They are distinct enough that one can commit to one, while disagreeing with the other.

In their chapter in *The Blackwell Companion to Naturalism* (2016), Keith Ansel Pearson and John Protevi investigate the relation between phenomenology and these different

claims of naturalism. In order to do so, they distinguish different levels of strength in the claims of MN and ON. Pearson and Protevi lay out the following positions: Weak MN requires that there is compatibility between natural science and philosophy. It hinges on the possibility of one discipline informing the other, while philosophy can maintain its independence from science. Strong MN requires a continuity between natural science and philosophy, meaning that philosophy has no real independence from science. Superstrong MN is synonymous with scientism, claiming that only the natural sciences produce meaningful results.

On the side of ontological naturalism, there is weak ON, which denies the existence of supernatural entities, but allows for “entities and states emergent from and irreducible to the physical” (Pearson and Protevi 2016, 34). Strong ON is a version of nonreductive physicalism, allowing nonphysical properties, but not nonphysical states, a “property dualism linked to a substance monism” (34). Finally, superstrong ON is a reductive physicalism, holding that only physical entities exist.

Pearson and Protevi argue that phenomenology is hostile to all versions of naturalism. They state that Husserl specifically makes a strong distinction between phenomenology and natural science, stating that transcendental philosophy is a form of knowledge that provides the conditions of possibility for natural scientific knowledge. This transcendental approach makes that according to Pearson and Protevi, Husserl’s position should be understood in stark opposition to all forms of MN. This becomes most concrete in Husserl’s methodological step of bracketing the general thesis of the natural attitude. This methodological principle stands in stark opposition to the natural sciences which by necessity work within the natural attitude. This shows a strong methodological distinction. Pearson and Protevi also consider Husserl to be anti-ON, insofar as his central focus is the transcendental subject. The transcendental subject should be understood as the condition of the meaning of the world as it appears, instead of as a thing in the world that can count as an object for natural scientific investigation.

Due to the summarizing nature of Pearson’s and Protevi’s chapter, not all of their arguments get enough room to breathe. For while it seems uncontroversial that Husserl’s philosophy is at odds with the strong versions of naturalism they identify—which come down to positions of scientism (in the case of MN) and reductive physicalism (in the case of ON)—Husserl’s rejection of the weaker forms of naturalism is not immediately obvious. This rings especially true for weak MN. For the compatibility between natural science and philosophy that weak MN aims for is at least akin to the kind of interconnection between scientific enterprises that

Husserl aims for in *The Crisis of European Sciences and Transcendental Phenomenology*. In the case of weak ON the argument seems to be somewhat clearer. For while the rejection of the supernatural in combination with an allowance of irreducible nonphysical entities seems unproblematic, the keyword for Husserl's refusal of this position seems to be the word "emergent". The demand that nonphysical entities would have to be emergent on physical entities, is incompatible with the idea of transcendental subjectivity.

In order to more definitively determine the relation between phenomenology and the six different types of naturalism, more clarity is needed regarding the notions of "nature" and "science" at play here. For any precise understanding of ON in relation to phenomenology hinges on the understanding of nature that comes with it. In the same volume as Pearson and Protevi, Hans Halvorson points out that it is notoriously difficult to clearly define natural entities, for "scientists are constantly postulating new entities, such as quantum wavefunctions, quarks, and genes. And who is to say whether or not these entities are natural?" (Halvorson 2016, 138-139). We simply lack a defining set of characteristics of which entities count as natural. We cannot define it in terms of current scientific theories, because –as mentioned above–science is constantly changing. Other definitions, like trying to define the natural by referring to "time, space, energy or mass" (139) also do not work for some contemporary scientific ideas and concepts. For example, "photons are natural entities that neither have a location in space, nor have mass" (139). This example also complicates the definition of the natural in terms of the physical, for it is not entirely clear how something that has mass nor location would count as physical. Finally, if we take the physical as contrasted to the psychological, does the psychological count as natural and if yes: under what circumstances? All of these are questions and problems to which there are no clear answers or solutions given within ontological naturalism.

In the same sense, the different variations of MN call for a clarification of science and its relation to phenomenology. For if phenomenology and science would fundamentally share a scientific impetus, the idea of nonrestrictive compatibility between science and phenomenology would be unproblematic. As soon as a certain hierarchy between scientific and phenomenological questioning arises, leading to restrictions going from one field to the other, the situation becomes more complicated. However, if science and phenomenology are two fundamentally different enterprises altogether, any conception of MN seems to be highly problematic. So, the question of the possible compatibility between phenomenology and MN hinges on two following questions: What kind of phenomenology? What kind of science?

1.2 Naturalizing Phenomenology

The premise underlying the project of naturalizing phenomenology is the idea that science has something to gain by integrating (elements of) phenomenology into its methodology. Both aforementioned questions—what kind of phenomenology? what kind of science?—are answered at the outset of this project. From its first conception in the 1999 seminal volume *Naturalizing Phenomenology* onward, the dialogue concerning possible collaborations between phenomenology and science has been mainly focused on a specific kind of phenomenology and a specific kind of science. The programmatic introduction to the volume phrases it thusly: “phenomenology of a Husserlian kind or origin and the contemporary efforts towards a scientific theory of cognition” (Petitot et al. 1999, xiii).² The key promise of integrating Husserlian phenomenology with cognitive science is the overcoming of the so-called explanatory gap between the mind as seen by the cognitive sciences and the mind as we experience it; or to formulate it differently, the gap between scientific data concerning the mind and phenomenological data concerning the mind. The key challenge is the following: “We will argue that on the basis of its past achievements in describing such phenomenality, Husserlian phenomenology can play a key role in helping to meet this requirement, provided that it can be naturalized, and even though Husserl himself strongly opposed naturalism. By “naturalized” we mean integrated into an explanatory framework where every acceptable property is made continuous with the properties admitted by the natural sciences (1-2).”

This demand for phenomenology to be naturalized is held to be necessary in order to integrate phenomenology into a cognitive scientific framework, which in turn is necessary in order to close the explanatory gap. The editors themselves are aware of the tension this creates regarding Husserl’s critical attitude towards naturalism. This awareness is all the clearer in the opening quote from Husserl the editors chose to start their introduction with. In the quote is from *Philosophy as Rigorous Science*, where Husserl characterizes the naturalization of consciousness as “the philosophy combated here” (Husserl 2002, 256; Husserl 1987, 12).

Husserl’s reasons for being critical of naturalism are summarized by the editors as follows: for Husserl, phenomenology is aimed at investigating “a region of being that is not natural” (Petitot et al. 1999, 37), while still being “ontologically anterior

² A notable exception to this is of course the work of Hubert Dreyfus, who uses a mainly Heideggerian framework to criticize Artificial Intelligence (Dreyfus 1972; 1992, Dreyfus and Dreyfus 1986). I am excluding Dreyfus here because the goal of his writings is critical rather than collaborative. I will come back to Dreyfus later in this subsection. For more recent literature calling for the inclusion of Heidegger into this discussion see: Kiverstein and Wheeler (2012); Vasterling (2014).

to natural being, both psychological and physical” (38). This means that Husserl’s phenomenology is at the very least fundamentally non-naturalistic, in the sense of relating to a domain that is not natural itself, but rather underlying the domain of nature. Methodologically speaking, this has the following consequence: “Husserl was thus deeply convinced of a necessary incompatibility between the general nature of phenomenological data (in both their loose and technically Husserlian senses) and the basic requirements of mathematization, thereby introducing a sharp contrast between phenomenology and the Galilean sciences of nature” (42).

To put it simply, our lived experience cannot be mathematized because the forms that we experience are never as exact as mathematics requires, but always and fundamentally inexact and vague (42). There thus exists a staunch opposition to both ontological and methodological naturalism in Husserl, making his philosophy not only non-naturalistic, but explicitly antinaturalistic. The editors of *Naturalizing Phenomenology* are fully and explicitly aware of this, but they nonetheless call a spade a spade when they write: “It is our general contention indeed [...] that phenomenological descriptions of any kind can only be naturalized [...] if they can be mathematized” (42).

Accomplishing the collaborative effort between cognitive science and phenomenology thus requires “cutting Husserlian phenomenology from its antinaturalist roots” (43). However, the editors are careful to distinguish their efforts from the reductionist programmes of, for example, eliminativism, proponents of which do not want to naturalize, but rather eliminate, mental properties (45). Rather than reducing our lived experience to natural categories, the goal of the authors is an ontological recategorization: “transforming the ontological categorization of the former and doing away with a time-honored opposition” (46). The example they give of such an ontological recategorization is the way classical mechanics erased the opposition between the sublunar and supralunar spheres, which they hold to be similar to how the rise of cognitive science destroys the opposition between mind and body (48).

This leaves open the question: what would the naturalization of Husserlian phenomenology entail? The editors identify five strategies that are used in different ways in the papers comprising the rest of the volume. The first is the reductionist strategy, which is dismissed by the editors for the reasons discussed above. The second is the “as if” strategy, which comes down to the following consideration: “although they might have no genuinely objective content, phenomenological descriptions are nevertheless necessary instruments for the prediction of behavior” (65). The editors equate this view with Daniel Dennett’s intentional explanation (Dennett

1989; Petitot et al. 1999, 65). The third strategy is that of mutual constraining, which consists of trying to think of the relation between neurobiological attributes and phenomenological descriptions in terms of mutual constraints (Petitot et al. 1999, 67), where the obvious open question is: in what way should we conceptualize these mutual constraints? The fourth strategy is naturalization in terms of an enlargement of the concept of “nature”, which is described by the authors in the following way: “generalizing the concept of “nature” in such a way as to include processes involving a phenomenalization of physical objectivity” (68-69). This means to basically reformulate the idea of nature in such a way as to make it broader than the scope of superstrong or strong ON, in order to allow for the inclusion of, for example, intentionality in the realm of nature. The fifth and final strategy for naturalization is functionalist naturalization. According to this strategy, phenomenological descriptions should be rephrased as “functional statements in one of the prevailing computational senses of the term” (71-72).

Since its conception in the 1999 volume, the theme of naturalizing phenomenology and questions surrounding its possibility, feasibility and desirability have been hotly debated topics. The project has found followers (see, e.g., Wheeler 2012; Gallagher 2013) who argue that science has a lot to gain from a collaboration with phenomenology, but only under the condition that phenomenology adheres to some minimal form of naturalism, ensuring the compatibility of the two fields. Critics (see, e.g., Moran 2013; Dreyfus 2012; Ratcliffe 2012) stress that naturalism runs contrary to the basic tenets of naturalism, making it fundamentally impossible for phenomenology to be naturalized, even in a minimal sense.³ In spite of these discussions, applying the phenomenological method in various sciences seems to yield some promising results in—for example—psychiatry (De Haan 2020) and neuroscience (Gallagher 2007). The scope is even broadened beyond the traditionally cognitive sciences the naturalizing phenomenology project is aimed at, to include biology. This happened in the work of Evan Thompson (2010), who uses Merleau-Ponty’s (66-87) ideas concerning the vital order to enhance his thinking about living organisms.

Despite these promising results, much ground still needs to be covered. This is the general gist of Andrea Pace Giannotta’s and Francesco Pisano’s introduction to the 2022 journal issue *The Prospect of Naturalizing Phenomenology: New Essays*. Referring to the 1999 volume, they write: “Then, the bet was that phenomenological analyses of mental phenomena could be profitably related to scientific questions of cognition”

³ Both lines of argumentation will be more extensively treated in chapters two and five of this dissertation.

(Giannotta and Pisano 2022, III). However, while much progress has been made on the side of science as well as on the side of phenomenology, “pivotal questions remain unresolved. Hence, the bet is still open” (IV). One of the open questions they return to concerns the naturalizing strategy in terms of an enlargement of nature, as described above. Giannotta and Pisano describe this strategy in terms of “phenomenologizing nature” (V) and ask whether this enlargement of the scope of nature is still feasible and what it would entail.

In the following sub-section, I will touch upon the idea of liberal naturalism as a new approach to naturalism that takes up the challenge raised by Giannotta and Pisano, as well as Petitot et al. before them. In the final chapter of this dissertation, I will return to the question of the meaning and possibility of a phenomenologized nature.

1.3 Liberal Naturalism

Towards the end of the previous sub-section, we saw the scope of the discussion regarding naturalizing phenomenology being broadened with the introduction of phenomenology into the context of biology. Where the project of naturalizing phenomenology was aimed at a very specific kind of science, namely cognitive science, something significant seems to have shifted with this move to biology. This is connected to the strategy outlined by Giannotta and Pisano: to enlarge the scope of nature itself: to phenomenologize nature. This challenge by itself already moves the idea of naturalizing phenomenology into a radically different direction from the one envisioned by Petitot et al. in 1999. There, the basic idea was that phenomenology can only be relevant to science as long as it does not challenge science’s conception of nature or natural entities. Here, the idea becomes that phenomenology can only be relevant to science as long as science’s conception of nature is not taken as a rigid definition. Thompson’s attempt to connect the scientific theory of autopoietic living systems in terms of Merleau-Ponty’s vital systems is an example of how this works in practice. In the rest of this paragraph, I will further examine this idea of phenomenologizing nature by means of the example of a recently developed strain of naturalism, namely liberal naturalism.

In *Phenomenology, Naturalism and Science. A Hybrid and Heretical Proposal* (Reynolds, 2018), Jack Reynolds recounts the reasons for phenomenology’s initial adversity towards naturalism. Similar to Pearson and Protevi and Petitot et al., he notes that this becomes especially clear in Husserl’s criticism of naturalism, which Reynolds explains to be very much in line with Husserl’s conception of phenomenology as the only theoretical endeavor which “offers an independent and autonomous means of defining the subject matter and explananda that any scientific inquiry investigates”

(Reynolds 2018, 1). Even though the exact meaning of phenomenology shifts somewhat throughout Husserl's works, Reynolds takes this search for epistemic foundations to be central to Husserl's philosophical project. Consequently, any form of naturalism that eschews this relation between phenomenology and the other sciences is fundamentally suspect for Husserl. Reynolds holds that the adversity is even stronger in Heidegger's philosophy, for example in the infamous claim that "science does not think" (Heidegger 1976, 8). Phenomenology thus remains "methodologically distinct from scientific practice and antithetical to any naturalism in which philosophy is envisaged as strictly continuous with science" (Reynolds 2018, 2).

Reynolds explains how naturalists are equally critical of phenomenology, holding it to be irrelevant to the naturalist project of giving "empirically respectable accounts of consciousness, cognition, normativity and so on" (2018, 2). He paraphrases critics like Dennett (1991; Reynolds 2018, 2-3) and Searle (2001; Reynolds 2018, 3) saying phenomenology lacks an agreed upon method or agreed upon results, and that it therefore can never be a serious research program that works together with the empirical sciences. Any meaningful collaboration between phenomenology and any type of empirical science whatsoever is therefore ruled out by these hardline naturalists.

Reynolds wants to contest this dichotomy between phenomenology and naturalism. According to him, the dominant view of phenomenology is that phenomenological philosophy can, and should, place one-way constraints on empirical science. Phenomenology and naturalism are thus held to be incompatible. There are, however, research programs that contest this dominant view regarding the relation between phenomenology and naturalism. Reynolds names two examples, one stemming from phenomenology, the other stemming from naturalism. The one stemming from phenomenology is the 4E approach to cognition, which, inspired by phenomenological themes, attempts to understand cognition as something embedded, embodied, enactive and extended instead of something that is just going on inside the head (Newen et al. 2018; Reynolds 2018, 5).

A research program from the side of naturalism that contests the sharp separation between phenomenology and naturalism is liberal naturalism. This is a recent form of naturalism that is at the same time anti-scientistic and anti-supernatural. Instead of accepting "scientific metaphysics" liberal naturalism focuses on what Mario De Caro and David Macarthur in reference to Wilfrid Sellars (1962) call "the manifest image" (De Caro and Macarthur, 1). They characterize this realm as the "nonsupernatural nonscientific realm" and they explicitly identify it with Husserl's concept of "life-

world” (1). Hence, what this type of naturalism counts as “nature” or “natural” is not a variation of physicalism or any other vaguely defined scientific worldview. Rather, the natural is only negatively defined as the anti-supernatural (2).

What is problematic about this definition is that its defenders seem reluctant to further define what exactly they mean by the supernatural. Rather than defining it, they state that liberal naturalism considers “the question of the supernatural as a vital topic for further research” (2). So, rather than explicitly stating what this anti-supernaturalism is meant to rule out, they define its mission in terms of making sure philosophy does not lose touch with reality, which is then further explained by saying liberal naturalism means to make sure that our knowledge of the world “is suitably tethered to the empirical realm” (2). Interestingly, they define reductionist scientism as a view that has lost touch with reality, while the following passage suggests a close relation between the empirical realm as they see it and Husserl’s life-world or Heidegger’s meaningful world of everydayness: “Philosophers in the scientific age we are currently living in have been so focused on the sciences, particularly the natural sciences, and how philosophy relates to them, that they have overlooked the world under their own noses” (2).

If nature is indeed identified here with a phenomenological notion of “world”—as the passage above seems to suggest—without explicitly stating it, then this would bring phenomenology and naturalism very close indeed. One could ask whether any self-proclaimed naturalist would be very happy with this definition of nature, which is a possible explanation for why De Caro and Macarthur are not that eager to connect their own dots. One could also ask whether this type of naturalism would qualify as a type of naturalism that can ensure cooperation between empirical science and phenomenology.

In chapter six of De Caro and Macarthur’s seminal volume on liberal naturalism, Andrea Staiti further defends the claim that liberal naturalism and Husserlian phenomenology are compatible (Staiti 2022, 55). Staiti contests that the claim sounds absurd, considering Husserl’s explicitly stated strong opposition to naturalism. However, Husserl’s main criticism of naturalism in *Philosophy as Rigorous Science* is that it treats consciousness as a “mere appendage of the physical” (Staiti 2022, 56), having no distinctive traits of its own. However, as we have seen, liberal naturalists have no such positive definition of nature as the physical, so this criticism is rendered inapt when directed to this specific brand of naturalism. Furthermore, Staiti claims Husserl’s criticism of naturalism in the sense of physicalism is very much compatible with liberal naturalism’s claim that third-person accounts of the self

and self-consciousness are inadequate. What Husserl means by “naturalism” is thus what liberal naturalists call “scientistic naturalism” or “physicalism”, so Husserl and the liberal naturalists share common enemies. That Husserl and liberal naturalists also share a positive agenda, is not as obvious. For while liberal naturalism seems to bring phenomenology and naturalism close, the operative notion of “nature” here is underdeveloped.

2. Heidegger and Naturalism

What has become clear from the previous section is that when naturalism enters into a dialogue with phenomenology, the conversation partner that is selected on the side of phenomenology is most often Edmund Husserl. The reason for this is twofold. First, his focus on consciousness means that his phenomenology roughly has the same subject matter as cognitive science, making him a good fit with that specific field of science. Second, while he criticizes both the ontological and methodological implications of naturalism, he values the scientific impetus that underlies it. Husserl’s problem therefore is not with this scientific impetus itself, but with the fact that naturalism cannot live up to the promise contained within this scientific impetus, namely a completely rational, universal understanding of the world. Or as Husserl himself formulates the life goal of the philosopher, “universal science of the world, universal, definitive knowledge, the universe of truths in themselves about the world, the world in itself” (Husserl 1970, 335; Husserl 1976, 269). Since the goal of his philosophical project is an explicit theoretical understanding of the world in its totality, the idea of integrating Husserlian phenomenology into a framework that according to Husserl himself at least shares a similar goal (Husserl 2002, 278; Husserl 1987, 41) is not that far of a stretch.

However, the naturalization of phenomenology by means of the adoption of Husserlian phenomenology into a cognitive scientific framework does pose an important danger, namely the danger of turning phenomenology into a mere tool in the toolbox of the cognitive scientist. Phenomenology can then add to or enhance ongoing scientific research, but is not in a position to offer fundamental or transformative criticism.

This is where Heidegger enters the scene. In this dissertation, I start from the working hypothesis that Heidegger’s philosophy is a fruitful partner in conversation for reconsidering the promise and challenges inherent in naturalizing phenomenology. This hypothesis is based on Heidegger’s criticism of naturalism being more radical

than Husserl's in at least two respects. First of all, Heidegger problematizes Husserl's exclusive focus on human consciousness, rendering Husserl unable to reflect on our existential being-in-the-world and instead quietly accepting modern subjectivity as the definition of the human (Keane 2020, 274). As I will extensively show in the second chapter of this dissertation, this self-understanding has far-reaching implications for our understanding of the world around us. A second, connected line offered by Heidegger's thinking concerns his criticism of the theoretical attitude as our supposed primary way of relating to the world. This has been a main point of focus in Heidegger's thought starting from its inception in the 1919 War Emergency Semester, when he writes: "It is not just naturalism, as some have opined (Husserl's 'Logos' essay), but rather the general prevalence of the *theoretical*, which deforms the true problematic" (Heidegger 2000b, 73; Heidegger 1987, 87). The "true problematic" here is the question of what constitutes the real, that is, the question of what is really given in experience. The important point here is that if we take the primary form of our relation to the world to be theoretical, the world can only show itself in a misshapen form.

In this dissertation, I will argue that Heidegger's fundamental criticism of naturalism makes his philosophy a good starting point for a constructively critical dialogue concerning the possibilities and challenges contained in the project of naturalizing phenomenology. This is not immediately obvious, for as we can see now, exactly the two points that make Husserl's phenomenology a good fit with the project of naturalizing phenomenology, are points where Heidegger's phenomenology fundamentally departs from that of his former mentor.

In the literature on Heidegger, there are two battlegrounds that are important to take into account in order to come to the conclusion that Heidegger is a valuable conversation partner for the project of naturalizing phenomenology. The first one concerns Heidegger's stance on science. This is important, for, as I have laid out in the first part of this introduction, any stance on naturalism implies a particular stance on science and vice versa. To establish Heidegger's precise relation to naturalism thus requires a close investigation of the way Heidegger views science, what he considers to be the relation between science and phenomenology, and the difference between Heidegger's and Husserl's views on this matter. For this investigation to have any merit, the important question to answer at the outset is: Does Heidegger have enough knowledge about the way actual scientific research is conducted to make his observations about science worthwhile? And if not, does this mean that we should dismiss his position on science? As we shall see, positions on this differ.

The second of these battlegrounds concerns Heidegger's stance on nature. Like the debate on Heidegger's merits as a philosopher of science, this discussion is important because a position on naturalism implies a position on nature and vice versa. This discussion can be broken down into two parts. First of all, there is the question of whether or not Heidegger can be considered a realist with regard to nature as it is laid bare by the natural sciences. When the answer to this question is negative (as my answer shall be), then the second point to turn to here is Heidegger's alternative understanding of nature as *φύσις* (from now on: *phusis*). The debate here focuses on the question of whether this notion of "*phusis*" is helpful at all in philosophical and scientific discourse, or rather makes nature into something mysterious that cannot be accessed by scientific means at all. If this were true, this would amount to saying that a collaboration between philosophy and science would amount to nothing. If philosophy would want to grasp this mysterious nature it would do better seeking the company of poetry, because poetic language is far better at getting us in touch with true nature than the language of the scientist.

2.1 Heidegger and Science

William Richardson declared Heidegger to be a philosopher who might have been concerned with a criticism of modern science, but not a philosopher of science as such. This became very clear from the following infamous opening line: "On the longest day he ever lived, Heidegger could never be called a philosopher of science" (Richardson 1968, 511). According to Richardson, Heidegger never developed a comprehensive theory of science and had little to no knowledge of actual scientific research and what it entails. Followers of this line of argumentation, like Patrick Heelan, state that "Heidegger's critique of 'science' is essentially a critique of one classical, historically important branch of scientific knowledge" (1995, 581), calling Heidegger oblivious to more current scientific developments, due to his lack of competence in the field of the natural sciences. This means that while Heidegger's philosophy does contain some themes that are important to science and warrant further research by those who are competent when it comes to current scientific research, Heidegger himself does not qualify as a philosopher of science. Richardson's claim has been challenged by Heidegger scholars such as Theodore Kisiel (1977), Babette Babich (1995), and Trish Glazebrook (2000), who argue that Heidegger did develop a philosophy of science and should therefore be classified a philosopher of science, citing numerous works in both the early and late periods of his thought.

Kisiel notes that the combination of Heidegger and science seems strange indeed at a first glance (Kisiel 1977, 162). Heidegger is primarily famous for his philosophy of existence as put forward in *Being and Time*, and his engagement with the question

of Being throughout his works. Especially in his later works, Kisiel notes that for Heidegger the question of Being became thoroughly intertwined with the question of science and technology “insofar as the institutions and the attitudes they have provoked permeate the fabric of 20th century existence and thus incredibly mark the way we now live, move and have our being” (163). Kisiel notes that this means that for the later Heidegger, the question of Being became synonymous with the question concerning science and technology: “In short, the question of Being now reads: What does it mean to be in a scientific-technological age?” (163).

Kisiel, however, does echo the sentiments of Richardson and Heelan when he emphasizes the one-sidedness of Heidegger’s analysis of science. Heidegger basically adopted the logical positivist idea of what constitutes a science as *the* image of modern science. A view that is far too narrow from the perspective of philosophy of science in 1977, Kisiel holds (165). Nevertheless, Kisiel suggests “that Heidegger has blazed a trail which helps to see how this proliferation of new images [of science] converges on the simple heart of the matter in which we live, move and are” (181). This last comment echoes Heelan’s idea that there are threads in Heidegger’s thinking about science that are worth taking up by people that are better qualified to do so.

In the same volume as Heelan, Babich responds to these allegations of Heelan and Kisiel. She argues “that Heidegger’s scientific limitations or qualifications are irrelevant and more importantly that the reflections Heidegger offers on the matter of science represent a wholly warranted and indispensable, properly philosophical concern” (Babich 1995, 589). While Babich concedes that Heidegger is not a philosopher of science in the sense of belonging to the field of the analytical philosophy of science, she does think his philosophy “provides the basis for a continentally formed philosophical understanding of science” (589). Babich characterizes Heidegger’s philosophy of science, thus understood, as a critique of modernity. Modern natural science is unable to think nature in its full extent, understood by the Greeks as *phusis*, and instead work with a flattened, reduced conception of nature, in which the possibility of measurement is at the very heart of the enterprise. In this sense, Babich attests, Heidegger’s critique applies equally to classical scientific paradigms such as Newtonian physics, as to contemporary quantum physics.

For Glazebrook, Heidegger being a philosopher of science is not a point of contention. She considers Heidegger a philosopher of science, because throughout his works, he is concerned with the question of what constitutes a science. The thesis he most extensively explores is the following: “science is the mathematical projection of nature” (Glazebrook 2000, 1). This engagement with science in general,

natural science in particular, is one of the fundamental threads running throughout the different phases in Heidegger's thinking, an engagement which according to Glazebrook also connects Heidegger before the *Kehre* to Heidegger after the *Kehre*: "the question of natural science is a constant and continuous support against which Heidegger's thinking develops and grows" (4).

Casting the question of whether or not Heidegger technically qualifies as a philosopher of science aside, what is relevant from this discussion first of all, is that all commentators agree that science plays an important role in Heidegger's oeuvre, which in itself warrants a detailed investigation into Heidegger's exact stance on science. Second and more fundamentally, this dissertation will follow Babich's claims, in the sense that I do not consider Heidegger's lack of a detailed perspective on current day scientific research to undermine the importance of his ideas about science. As we shall see, the nature of his criticism of science and the limits he posits regarding what science can tell us about the world around us, take place on a more fundamental level than that of an individual science. I will show that it is exactly the fundamental nature of this critique that makes Heidegger an important conversation partner in the debate concerning naturalizing phenomenology. However, this leaves open the question of whether or not the finer details of the exact collaboration between phenomenology and science would need to be filled in by philosophers more knowledgeable about contemporary scientific research.

2.2 Heidegger and Realism

If we admit that Heidegger has something worthwhile to say about science, then what exactly is his stance on science's ability to uncover nature as it is in itself? Does Heidegger think science is able to do this? Or, to phrase the question differently, can Heidegger be considered a realist regarding nature as it is understood by science?

Interestingly, diverging answers to these questions presented in the literature have one thing in common: they start from Heidegger's tool analysis. In *Being and Time*, Heidegger famously makes a distinction between *Vorhandenheit* and *Zuhandenheit*. This distinction relates to two different ways of relating to the world around us, that is, theoretical and practical, respectively. In *Being and Time*, Heidegger prioritizes the practical attitude: "The kind of dealing which is closest to us is as we have shown, not a bare perceptual cognition, but rather that kind of concern which manipulates things and puts them to use; and this has its own kind of 'knowledge'" (Heidegger 1962, 95; Heidegger 1977, 90).

This practical attitude is different from the theoretical view, which sees everything it encounters as what Heidegger calls *vorhanden*. This attitude will regard any being it encounters as an object, a thing, with certain properties, like heaviness, shaped in a certain way, etc. that we can discover by looking at it. This attitude of merely looking at things is the attitude of the theoretical view: “Theoretical behavior is just looking, without circumspection” (99; 93-94). This is, as said, not the way we primarily relate to our environment.

In the practical relation that we first and foremost have with the world, we do not regard the beings we encounter as mere things, but we encounter what Heidegger calls *Zeug*, or tools. Tools never exist in isolation. This is what Heidegger means with the sentence: “Taken strictly, there ‘is’ no such thing as *an* equipment” (97; 92). A piece of equipment never exists, because equipment always refers to a multitude of other beings. First of all, it always refers to other equipment. The pen we encounter refers to paper, to ink, etc. These references are not like features of an object, they are part of the being of the pen, it is what makes us understand the pen *as* a pen. This totality of referencing equipment, to which the hammer belongs, is therefore always already discovered before the individual hammer. Every piece of equipment we encounter in our everyday world presupposes a totality to which it belongs, which is part of its being as equipment: “To the being of any equipment there always belongs a totality equipment, in which it can be this equipment that it is” (97; 92). The equipment can always only be understood from the whole to which it belongs. This referring to other beings is not some accidental feature of tools, it is a fundamental characteristic of the being of tools, which Heidegger calls *Zuhandenheit*.

The most infamous realist account that departs from Heidegger’s tool analysis is Graham Harman’s (Harman 2002; Harman 2011). He develops a wholly new strand of realism that is focused on objects, based on the idea that object-object relations should be put on the same level as human-world relations, interpreting Heidegger’s tool analysis as an analysis in which hammers and pens are there for human engagement, but also always able to withdraw, and therefore fundamentally more than just a pole in human engagement.

Harman’s novel account of Heidegger’s tool-analysis finds a potential ally in Hubert Dreyfus’ understanding of Heidegger’s position regarding the reality of the entities of natural science (2001). Starting from Heidegger’s tool analysis, Dreyfus distinguishes two realist positions that can be formulated based on Heidegger’s account: Deflationary realism—which holds that the entities of science are just as real as everyday objects, but that it makes no sense to think of them as independent

from human beings—and robust realism—which holds that science can give us access to the entities of the universe as they are in themselves. He holds that both of these positions are part of the heritage of Heidegger, and he aims to show that Heidegger is a robust realist when it comes to science.

We see a very different perspective concerning Heidegger's realism in *Being and Time* in Gert-Jan van der Heiden's paper on hermeneutical realism (2022). Van der Heiden cites paragraphs 43 and 44 of *Being and Time* as being explicitly dismissive of realism (170-171). Furthermore, Van der Heiden holds that *Being and Time* is not a fertile place to look for a different approach to realism. He emphasizes how Heidegger primarily interprets the things we encounter in the world primarily as tools, leaving no room for different kinds of encounters. In his words: "another encounter with innerworldly beings, which would allow these beings to appear as what they are, beyond their use, is itself beyond *Sein und Zeit's* reach" (172). According to Van der Heiden, this is due to the "subjective overtones" (174) inherent in Heidegger's account of disclosedness in *Being and Time*. If we want to find a different, more affirmative account of realism in Heidegger, Van der Heiden suggests we need to look beyond Heidegger's tool-analysis in *Being and Time*, like his analysis of things in "The Thing" (Heidegger 1971).

Van der Heiden's reading is in line with Heidegger's own remarks concerning realism in *Being and Time*. He considers his own existential position to differ "in principle from every kind of realism; for realism holds that the Reality of the 'world' not only needs to be proved, but is capable of proof" (Heidegger 1962, 251; Heidegger 1977, 275). He considers realism to be lacking in "ontological understanding" (Heidegger 1962, 251; Heidegger 1977, 275) and explicitly says that when considering realism and idealism as two opposing positions, idealism is the more sensible position: "As compared with realism, *idealism*, no matter how contrary and untenable it may be in its results, has an advantage in principle" (251; 275). He holds that his advantage exists in "an understanding of the fact that Being cannot be explained through entities" (251; 275).

There are thus multiple seeming contradictions regarding Heidegger's stance on realism. Both on the level of the question of whether he is a realist at all, and on the question of whether he can be considered a realist concerning scientific theories. I will return to this topic in chapter 4 of this dissertation, where I will further argue that neither of the realist positions put forward by Dreyfus and Harman are in line with Heidegger's thinking in his middle period. This negative conclusion regarding Heidegger's realism, especially regarding the entities of natural science, immediately leads to a next set of questions, namely: is there an alternative conception of nature that can be found in Heidegger's work and if yes, whether this notion of "nature"

is helpful at all to the discussions regarding naturalizing phenomenology and liberal naturalism?

2.3 Heidegger and Nature

Starting from Heidegger's rejection of realism regarding nature as it is posited by the natural sciences, what different picture of nature emerges from Heidegger's works? Commentaries distinguish three different notions of "nature" in Heidegger's early and middle writings (see, for example, Foltz 1995, 37; Cooper 2005, 340-432; Storey 2015, 66-70; Bubbio 2018, 189-191): objective nature, equipmental or envining nature, and primordial nature. Let us focus on the first two senses of nature first.

Objective nature is nature as it is studied by the natural sciences: the collection of entities under consideration by Dreyfus' robust realism. Productive Nature is nature as we put it to use in our everyday dealings: as the raw materials we use in our work or the elements we seek protection from. Of these two senses of nature, the second one is the more primordial, with objective nature only showing itself when productive nature breaks down, i.e. when our involvement in nature in this productive sense is disrupted and gives way to "pure, theoretical inspection" (Storey 2015, 68). This objective conception of nature is thus a derivative conception of nature, which is the result of what Cooper calls an "epistemological turn" (Cooper 2005, 341), wherein human understanding is understood as the onlooking of a detached spectator. In *Being and Time*, Heidegger explains how this way of understanding nature is only possible based on a prior practical engagement with natural entities. In Cooper's words: "The natural environment must first be experienced as it is by the farmer, forester or hunter before it can become an object of detached, spectatorial enquiry for the biologist or zoologist" (342).

This distinction between objective and envining nature aligns neatly with the distinction between *Vorhandenheit* and *Zuhandenheit* discussed in the previous paragraph, where objective nature is the realm of *vorhanden* objects, and envining nature is the realm of *zuhanden* tools. The discussion about Heidegger's alleged robust realism regarding the entities of natural science hinged mostly on the interpretation of the relation between these conceptions of nature. The interpretation of this relation outlined above does not go well with scientific realism, which is why commentators either have to subvert the relation, at least in some instances, or deny the possibility that Heidegger is a scientific realist.

There is, however, a third conception of nature that is already present in *Being and Time*, even if it is only touched upon there: "the Nature which 'stirs and strives', which

assails us and enthralls us as landscape" (Heidegger 1962, 100; Heidegger 1977, 95). This concept of "nature" is not really worked out by Heidegger until several years later, starting in the 1929 *The Fundamental Concepts of Metaphysics: World–Finitude–Solitude* and continuing in other works like *Introduction to Metaphysics* and *Contributions to Philosophy*. There, Heidegger explicitly considers this the primordial conception of nature—more primordial than the practical, equipmental one—and he names it *phusis*: that which arises out of itself.

With this primordial notion of "nature" in hand, I want to circle back to the understanding of nature at play in the projects of naturalizing phenomenology and liberal naturalism. For some commentators, like Storey, consider Heidegger's interpretation of "nature" as "*phusis*" to be a mystification of nature. Nature is reduced here to, as Storey puts it: "radical alterity, an altogether strange and incomprehensible kind of being that can only be described metaphorically, aesthetically, and poetically" (Storey 2015, 78). If that is true, then what does that mean for the possibility of a philosophical understanding of nature? Does this not make nature as *phusis* seem closer to the vaguely defined supernatural of liberal naturalism than to an understanding of nature that is helpful at all to any of the recent debates concerning phenomenology, science, and naturalism. Or can we understand "*phusis*" in a way that renders the notion workable in the debates concerning naturalizing phenomenology and liberal naturalism?

This dissertation will answer that final question with a yes. Based on a thorough reading of both *The Fundamental Concepts of Metaphysics* and *Introduction to Metaphysics*, I will interpret the notion of "*phusis*" as enabling a hermeneutical relation between science and philosophy, that is in line with the project of liberal naturalism, and possibly in line with the project of naturalizing phenomenology, given that we understand the need of naturalizing phenomenology to go hand in hand with the need of phenomenologizing nature.

3. Overview of the Dissertation

3.1 Structure of the Dissertation

This dissertation takes the form of a collection of four articles, followed by a general conclusion in which I critically reflect on the results of these articles. The aim of the individual articles is to step by step find an answer to the main question: How can Heidegger's stance on naturalism help us to better understand the possibilities and challenges inherent in the project of naturalizing phenomenology? The way this

question is answered is by a close investigation of the way Heidegger understands the interrelated concepts of “naturalism”, “nature” and “science.”

Chapter 2 consists of the first article, which is entitled: “The Naturalistic Tendencies of Husserl’s Phenomenology” and is aimed at answering the sub-question: what is the relation between Husserl’s and Heidegger’s criticism of naturalism? This article was published in *Tijdschrift voor Filosofie* 83(4). The article is devoted to understanding Husserl’s criticism of naturalism and contrasting it to Heidegger’s criticism of naturalism. This serves the purpose of clearly getting into view what both authors understand by “naturalism” and what their reasons are for criticizing the notion. Interestingly, Heidegger claims that Husserl—despite his overt criticism—does not escape naturalism because of his theoretical focus and unquestioning understanding of the human being as a rational animal. The goal of this first article is to substantiate the claim, outlined above, that Heidegger’s criticism of naturalism is more fundamental than Husserl’s criticism. Heidegger extends Husserl’s criticism of naturalizing consciousness and ideas, to a criticism of naturalism that calls into question the understanding of human existence as consciousness and the connected primacy of the theoretical attitude. By radicalizing Husserl’s critical examination in this way, Heidegger exposes the naturalistic tendencies that he considers to be still present in Husserl’s phenomenology. Tendencies that might make Husserl a good fit for the naturalizing phenomenology project at first glance, but also cause Husserl’s phenomenology to lack the tenacity required for a mutually reformatory collaboration between science and philosophy.

Chapter 3 consists of the second article, which is entitled: “Husserl and Heidegger on Galileo’s Mathematization of Nature and the Crisis of the Sciences”, and is aimed at answering the sub-question: What is the relation between phenomenology and science Husserl and Heidegger envision? This article was published in *HUMANA. MENTE Journal of Philosophical Studies* 16(43). Moving from the general understanding of naturalism and its criticism as formulated by Husserl and Heidegger in section one, this article seeks to explore the way the two authors perceive the relation between science and philosophy. In this second article, I will explore the similarities and differences in the reasons why Husserl and Heidegger consider the sciences to be in a state of crisis, and the role they think philosophy can play in solving this crisis. The goal of this second article is to highlight the stark differences in the relation between science and philosophy the two authors envision. For Husserl, philosophy itself should strive to be more scientific and, by doing so, is able to solve the crisis of the sciences. Contrariwise, Heidegger considers philosophy to be fundamentally different from science and the crisis the sciences are in to be inherent to the way science itself is

structured. Similar to the previous article, I will argue that Heidegger's analysis and criticism here is more radical than Husserl's. However, while the stark difference between science and philosophy could lead one to the conclusion collaboration is unattainable and perhaps unwanted, I will argue that it is precisely this difference that makes true collaboration possible, but only when the differences between the two and their approaches are cherished instead of pushed aside.

Chapter 4 consists of the third article, which is entitled: "A Heideggerian Perspective on Realism", and is aimed at answering the sub-question: Can Heidegger be regarded as a realist with regard to the entities of natural science? This article was published in *Ekstasis: Revista de Hermenêutica e Fenomenologia* 11(2). The article is an important negative step in the search for an alternative conception of nature in the works of Heidegger. One possible conception of nature to be found would be the scientific conception of nature, which is exactly the conception of nature Dreyfus attributes to Heidegger. The criticism Heidegger levels against this robust realism shares a compelling similarity with Graham Harman's criticism of undermining and overmining philosophies. Since Harman-like Dreyfus-bases his realist position on a reading of Heidegger's analysis of tools in *Being and Time*, an investigation into the compatibility between Harman's speculative realism and Heidegger's position is crucial. The goal of this article is to critically investigate two different kinds of contemporary realism that both have their roots in a reading of *Being and Time* from a broader Heideggerian perspective. The reason Dreyfus' claim needs to be critically investigated is that if robust realism is indeed Heidegger's position, an investigation into an *alternative* conception of nature in his works would be ill-conceived. The reason Harman's position needs to be critically investigated is that a far-reaching similarity between Heidegger and speculative realism, would entail clues as to the direction in which an alternative conception of nature should be sought.

Chapter 5 consists of the fourth and final article entitled: "Nature as *phusis*. Towards a Hermeneutical Relation Between Science and Phenomenology", and will answer the sub-question: Is there a viable alternative conception of nature that can be formulated on the basis of Heidegger's philosophy? This article is submitted to *Continental Philosophy Review*. The article is devoted to an alternative conception of nature that can be found in Heidegger's work from the late twenties onward, namely nature as *phusis*. One of the aims of this article is to explore Heidegger's understanding of nature as *phusis* as a candidate for a phenomenological concept of "nature" that is helpful to the debates concerning naturalizing phenomenology and phenomenologizing nature. I will take Heidegger's analysis of *phusis* as a starting point for formulating a new, hermeneutical relation between phenomenology and

science that is markedly different from existing proposals that exist under the moniker “naturalizing phenomenology”. The goal of this article is to build on the insights won in the previous articles and enhance them with an investigation into the compatibility of phenomenologizing nature and Heidegger’s concept of “*phusis*”. With this, I will show how Heidegger’s interpretation of nature as *phusis* leads to a concrete, mutually transformative collaboration between science and philosophy. This will be the final step in answering the research question: how can Heidegger’s stance on naturalism help us to better understand the possibilities and challenges inherent in the project of naturalizing phenomenology?

The structure of the dissertation thus follows the logic of regarding “naturalism” as a relational notion. The way Heidegger’s criticism of naturalism is uncovered is by starting to regard the general meaning of the term “naturalism” in Heidegger’s work, to then get to the more detailed picture by focusing on his views of science and nature. Furthermore, the dissertation is structurally set up in such a way that the first two articles concern the past and origin of Heidegger’s thinking. Specifically in the form of a comparison with related notions in Husserl’s work. The second two articles relate Heidegger to the future in the form of a comparison with related notions in—respectively—robust realism, speculative realism and naturalizing phenomenology. By following this structure I have attempted to both do justice to the origin of Heidegger’s thought, while also taking into account its relevance in the philosophical landscape of today.

3.2 Primary Sources⁴

As noted above, Heidegger’s engagements with the topics of “nature” and “science” can be seen as cornerstones of his philosophical work. They are fundamental threads tying together his early work with his later work. However, with a *Gesamtausgabe* that now spans an incredible 102 volumes and an enormous and ever-expanding wealth of secondary literature, I had to make some choices regarding which texts to include, and which to exclude.

The textual focus point of this dissertation lies in the works of Heidegger’s early-middle period, starting with the Marburg lecture courses in the winter semester of 1923 and extending into some of the work from the second Freiburg period, up to the

⁴ When quoting from the texts from both Heidegger and Husserl I will primarily make use of English translations. In my references, however, I will also give the page numbers for the quotes in the original German version of the texts. The references will always give the English page numbers first, followed by the page numbers from the original German. For the original German versions of Heidegger’s texts, I will exclusively refer to the *Gesamtausgabe* editions. For Husserl, I will exclusively refer to the Husserliana editions.

summer semester of 1935. This means two periods are largely excluded, that is his early Freiburg period from the War Emergency Semester of 1919 until the summer semester of 1923 and his extensive later period ranging from the winter semester of 1935 until his death in 1976. The specific focus on Heidegger's middle period serves the purpose of carving out texts in which Heidegger develops a more or less coherent stance on the topics under discussion in this dissertation. There are already shifting definitions at play in the texts in this constrained time period. To further outline and trace these shifts throughout Heidegger's entire oeuvre falls outside of the limited scope of this dissertation.

I am of course aware that this somewhat rigid focus on a specific timeframe in Heidegger's thinking leaves out a lot of other relevant texts from his early and later thinking. Notable exclusion are Heidegger's thoughts about biology in *The Basic Problems of Phenomenology*⁵, his philosophy of technology in *The Question Concerning Technology*, and his continuation of thinking an alternative conception of nature in *Contributions to Philosophy*. The exclusion of texts from Heidegger's early period was informed by the fact that Heidegger was in this period still finding his own philosophical position over and against that of the Neokantians and Husserl. While the relation to the latter is obviously important to the content of this dissertation, the focus will be on their differences rather than their similarities. Therefore, Heidegger's more mature and fully formed phenomenology of his middle period is a more promising starting point for this dissertation, even if a comparison between the younger Heidegger's engagement with Husserlian phenomenology has its own merits. The exclusion of texts from Heidegger's later period was informed by a shift in his analyses and evaluation of science. This becomes clear in his philosophical writings on technology, where the end-point of modern science in the form of technology certainly complicates the possibility of a fruitful interplay between phenomenology and science. That being said, the relation of all of these excluded works to the thematic line at stake in this dissertation is fruitful ground for future research.

The main focus is on the following works: *Being and Time*, *Introduction to Phenomenological Research*, *History of the Concept of Time: Prolegomena*, *The Fundamental Concepts of Metaphysics: World-Finitude-Solitude*, *Introduction to Philosophy* and *Introduction to Metaphysics*. The specific focus on these texts is the result of the thematic focus of this dissertation on the concepts of "naturalism", "nature" and "science." While the articles that make up this dissertation are based on a thorough reading of the texts under discussion, the main goal of this dissertation is neither

⁵ I am referencing GA58 here, a lecture course taught in the winter semester of 1919-1920, not GA24, which is a course under the same title, taught in the summer semester of 1927.

purely exegetical, nor to give a complete overview of all of Heidegger's remarks on the topics of naturalism, science, nature and other related themes. Rather, the goal is to see if these key texts by Heidegger can shed some much needed light on the ongoing discussion concerning the relation between phenomenology and naturalism.

The inclusion of *Being and Time* in this dissertation almost goes without saying. Aside from the fact that the text is widely considered to be Heidegger's magnum opus and a key to understanding Heidegger's thinking in the twenties and early thirties, it also deals with some key themes of this dissertation such as the relation between scientific research and phenomenological investigation, an extensive criticism of philosophical realism, and the different possible meanings of the term "nature". *Introduction to Phenomenological Research* plays an important role because of the fact that this text includes Heidegger's most extensive treatment of the concept of "naturalism." Furthermore, Heidegger treats the concept in a discussion with Husserl's *Philosophy as Rigorous science*, in which he accuses Husserl of not completely escaping naturalism. This makes this text the perfect place for a discussion of the different meanings the concept of "naturalism" has for Husserl and Heidegger. *History of the Concept of Time* is included in this dissertation for the thought-provoking claim that nature should be regarded as "*unworlded' world*" (Heidegger 1985a, 168; Heidegger 1994b, 227). Furthermore, Heidegger's remarks concerning the interplay between the way we consider ourselves and the way we consider our relation to the world provided the key for understanding Heidegger accusing Husserl of naturalism in *Introduction to Phenomenological Research*.

Another piece of the puzzle can be found in *Introduction to Philosophy*, which contains one of the most explicit and extensive analyses of science and its relation to philosophy in Heidegger's oeuvre. The fact that this analysis starts from the crisis Heidegger considers science to be in at the time, once again means this text lends itself very well for a comparison with Husserl, in this case with *The Crisis of the European Sciences*.

The final crucial step of this dissertation is granted by *The Fundamental Concepts of Metaphysics* and *Introduction to Metaphysics*; specifically their extensive treatment of the concept of "*phusis*", an original Greek understanding of nature that Heidegger appropriates in these texts. These two texts are of course far from the only places where Heidegger discusses the concept. The reason for these two texts is the connection of *phusis* to a collaboration between biology and phenomenology in *The Fundamental Concepts of Metaphysics*, and the extensive treatment of *phusis* in connection with the need for *polemos* in *Introduction to Metaphysics*.

There are some notable deviations from the specific timeframe outlined above, in the form of short excursions into different texts. Examples are my discussion of Heidegger's criticism of realism in the 1919 course *Towards the Definition of Philosophy*, and in the 1951-52 course *What Is Called Thinking?*, or his development of the notion of "care" in the early texts *Phenomenological Interpretations of Aristotle* and *Phenomenology of Religious Life*. The treatments of these texts mostly serve the purpose of showing the development of certain notions in Heidegger's oeuvre and providing some historical context. None of them receive the same treatment as the central texts outlined above.



Chapter 2

The Naturalistic Tendencies of Husserl's Phenomenology

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Abstract

In this chapter, I will examine Heidegger's claim that Husserl does not escape the designation "naturalism". This accusation is far from self-evident, especially since Husserl thinks of naturalism as one of the greatest philosophical errors. Heidegger's reason for claiming this is that he sees Husserl's philosophical project as being driven by a care for certainty. This means that despite Husserl's explicit refusal to understand consciousness or ideas in terms of nature, he fails to tackle the root of the problem, which is the definition of the human being as a rational animal. I will try to shed further light on Heidegger's accusation by first analyzing Husserl's criticism of naturalism and historicism in *Philosophy as Rigorous Science*. Following this, I will look at Heidegger's interpretation of Husserl's criticism as driven by a care about certainty in *Introduction to Phenomenological Research* and Heidegger's examination of the relation between human beings and the world in *History of the Concept of Time: Prolegomena*.

1. Introduction

The possibility of naturalizing phenomenology has been a hotly debated topic in recent years. Proponents of this idea emphasize phenomenology's potential to contribute to the cognitive sciences (e.g.: Petitot et al 1999; Wheeler 2012), but state that in order to make this contribution, phenomenology would have to be naturalized. Those who are hesitant about naturalizing phenomenology often stress that phenomenology is antithetical to naturalism e.g.: Moran 2013; Ratcliffe 2012), referring to authors Edmund Husserl and Martin Heidegger who fiercely oppose naturalism. However, the concept of "naturalism" is multi-dimensional and it is often not exactly clear what authors mean by it. So what does naturalism mean in this context? What do Husserl and Heidegger mean when they write about naturalism? In this chapter, I offer a close examination of Edmund Husserl's and Martin Heidegger's criticisms of "naturalism", focusing specifically on the different meanings of the concept for the two authors.

For Edmund Husserl, naturalism is one of the greatest philosophical atrocities.⁶ He considers it a threat to science, philosophy and genuine human values (Moran 2008, 402). Throughout his life, he had been concerned with refuting and criticizing naturalism, starting as early as the *Logical Investigations* and continuing all the way to

⁶ See Papineau (2023) for introductions to the multiple meanings of naturalism in contemporary philosophy. For the purposes of this chapter, I will just focus on the term "naturalism" as it is used by Husserl and Heidegger in their criticism.

the late *The Crisis of the European Sciences*. Husserl formulates one of the most explicit criticisms of naturalism in his 1911 essay *Philosophy as Rigorous Science*. In this essay, he names naturalism and historicism as the greatest threats to philosophy, if it ever wants to fulfill its potential of becoming a rigorous science (Husserl 2002, 252; Husserl 1987, 7).

In his course *Introduction to Phenomenological Research*, taught in the winter semester of 1923/1924, Martin Heidegger offers a surprising analysis of his former teacher's project. When asking what phenomenology ought to thematize, he first looks at the theme with which Husserl's phenomenology is occupied. The theme he finds in Husserl's phenomenology is consciousness, which leads him to investigate how consciousness has become the theme for phenomenology. Based on a reading of *Philosophy as Rigorous Science*, he then characterizes Husserl's philosophical project as being driven by a "care about already known knowledge" (Heidegger 2005a, 44; Heidegger 1994a, 60), which upon closer inspection shows itself to be a "care about certainty" (199; 258). According to Heidegger, Husserl unquestioningly adopts this care. Because of this preoccupation with certainty,⁷ actual phenomenological questions regarding human existence are never allowed to enter the stage in Husserl's philosophy. This finally leads Heidegger to designate Husserl's phenomenological project as "still naturalism" (59; 81).

This final accusation is not self-evident and Heidegger does not spend a lot of time explaining it in *Introduction to Phenomenological Research*. In what sense can we call Husserl a naturalist? A way to shed some light on this is by looking at *History of the Concept of Time: Prolegomena*, a course Heidegger gives a year after *Introduction to Phenomenological Research*. In this course, he offers an explanation of the relation between the anthropological definition of the human being as a rational animal, the interpretation of the world as nature and the understanding of theoretical knowing as the viable way of access to the world. An examination of this relation is helpful in order to understand what Heidegger means when he claims that Husserl does not escape naturalism.

In this chapter, I will examine both Husserl's criticism of naturalism, and Heidegger's allegation that Husserl does not escape the designation naturalism. To do this, I will first explain Husserl's criticism of both naturalism and historicism as he formulates

⁷ It is important to note that many consider Heidegger's description of Husserl's phenomenology as being purely concerned with certainty, to be unfair (e.g.: Overgaard 2004, 34). In this chapter I aim to examine if it is a fair description of the task of phenomenology as Husserl describes it within the context of *Philosophy as Rigorous Science*, without making broader claims about Husserl's different works.

it in *Philosophy as Rigorous Science*. Second, I will explain Heidegger's analysis of Husserl's phenomenology as motivated by "care about certainty" in *Introduction to Phenomenological Research*. Finally, I will focus on an evaluation of Heidegger's claim that Husserl's phenomenology does not escape naturalism, using his concepts of "rational animal", "knowledge" and "nature" in *History of the Concept of Time* as a way of understanding this accusation.

2. Naturalization of Ideas

In order to understand Husserl's criticism of naturalism, it is vital to first understand what he means by naturalism. For Husserl, naturalism is a consequence of the discovery of nature as a spatio-temporal unity bound by natural laws: "Naturalism is a consequence of the discovery of nature, of nature in the sense of a unity of spatiotemporal Being subject to exact laws of nature. Hence the naturalist [...] sees nothing but nature and first and foremost physical nature" (Husserl 2002, 253; Husserl 1987, 8).

The naturalist takes this spatio-temporal nature as the most fundamental level of reality, in terms of which everything should be explained. This means that anything psychical only exists in a secondary sense, totally dependent upon the physical: "Everything that is is either itself physical, belonging to the unitary nexus of physical nature, or it is indeed something psychical, but then something changeable that merely depends on the physical, at best a secondary, 'parallel accompanying fact'" (253-254, 9). So, naturalism demands that everything psychical is reduced to physical nature (Reynaert 2015, 8). It is with this reduction that Husserl takes issue. The reason for this is, as we shall see, strongly connected to Husserl's central concern here: making sure philosophy becomes a rigorous science. In order to attain this status, philosophy has to meet humanity's demand for "pure and absolute knowledge" (Husserl 2002, 250; Husserl 1987, 4). While Husserl praises naturalism for its inherent drive towards rigorous scientificity, he aims to show that precisely because it reduces everything to physical nature, it is fundamentally unable to meet the demand for absolute knowledge.

After this first characterization of naturalism, he further analyzes the naturalistic reduction by saying that there is a twofold naturalization which is at the heart of every consistent type of naturalism: naturalization of consciousness and naturalization of ideas: "What characterizes all forms of extreme and consistent naturalism, from popular materialism on down to the most recent sensation-monism

and energeticism, is, on the one hand, the *naturalization of consciousness*, including all intentionally immanent givens of consciousness, and, on the other hand, the naturalization of ideas and thus of all absolute ideals and norms" (254; 9). It is at this double naturalization of both consciousness and ideas that Husserl's criticism of naturalism in *Philosophy as Rigorous Science* is aimed. Accordingly, he develops his criticism along two lines to deal with both of these forms of naturalism. His criticism of the second of the two — naturalization of ideas — is not formulated for the first time in *Philosophy as Rigorous Science*. Rather, it is similar to the argument against psychologism that Husserl developed in the *Logical Investigations* (Moran 2008, 406).

This first, familiar line of criticism stresses that the naturalization of ideas "cancels itself out, without noticing it" (Husserl 2002, 254; Husserl 1987 9). The reason for this is the fact that the naturalist interprets the laws of thought as natural laws of thought (254; 9). An example of such a law of thought, which Husserl explicitly mentions in the *Logical Investigations*, is the principle of non-contradiction (Husserl 1973, 56; Husserl 1975, 74-75). For Husserl, on the one hand, this principle is an ideal law which structures our thinking (Moran 2008, 406). It is not a generalization of the way rational thinking happens in most people, but rather a normative principle that prescribes how we should think. For the naturalist, on the other hand, an idea such as the principle of non-contradiction is a description of the way normal human beings tend to think. The laws of logic are consequently treated as describing the way our psyche works, analogous to the way natural laws describe the working of nature.

The core of Husserl's criticism is that by naturalizing ideas in this way, naturalists are reducing the laws of logic to contingent, natural facts: it is a fact that we hold the non-contradiction principle true right now, but we might consider it to be false a hundred years from now. This is highly problematic, for by means of this claim, the naturalization of ideas terminates itself unknowingly. For how does the naturalist come to this conclusion? By employing exactly these laws of thinking. In other words: the naturalist is employing reason for the purpose of making truth scientifically known, while at the same time naturalizing reason itself. The naturalist thereby makes his own foundations into a contingent, natural fact, without even realizing it: "In his case, the countersense is not out in the open but is concealed from him because he naturalizes reason" (Husserl 2002, 255; Husserl 1987, 10). Husserl calls this the argument from consequences (255; 10).

3. Naturalization of Consciousness

However, precisely because the naturalist does not realize the absurdity of his situation, Husserl acknowledges that this line of argumentation has not been very effective (Husserl 2002, 255; Husserl 1987, 10). That is why he employs a new line of criticism, which is leveled against the naturalization of consciousness. He thinks this will be more effective, for this way of criticizing will also allow him to positively show that philosophy, if it wants to attain the status of a rigorous science, needs to focus on consciousness itself rather than reducing it to nature. This second line of criticism consists of two separate but interrelated arguments: an epistemological and an ontological argument.

The epistemological argument entails the idea that natural sciences are naïve with regard to their own assumptions: they regard nature as simply there and the things they want to investigate are posited as simply and unproblematically existing (Husserl 2002, 257; Husserl 1987, 13; Madison 2005). Naturalizing consciousness means explaining it in terms of nature. Husserl focuses his criticism on psychology here, stating that all existing psychology is operating within a naturalistic context. Even when psychology is solely aimed at occurrences within consciousness itself, it still treats consciousness as occurring within nature, meaning nature is always composited in every psychological judgement: “Every psychological judgment contains the existential positing of physical nature, whether explicitly or not” (Husserl 2002, 258; Husserl 1987, 14). This is problematic, for neither natural sciences nor psychology can answer the epistemological questions that come with such a positing of nature: “How experience as consciousness can give an object or hit it; how experiences can reciprocally legitimate or correct one another, and not only cancel one another out subjectively or reinforce one another subjectively; how a play of experiential-logical consciousness is to mean something objectively valid, something valid for physical things existing in and of themselves” (258; 14).

The list of epistemological questions that naturalism cannot account for goes on. The central problem here is that naturalism is unable to provide itself with a strong epistemological foundation. Naturalism treats consciousness as a natural occurrence without accounting for the question of how consciousness is able to relate to nature. Without explicitly mentioning the concept, it is at this point in the essay that Husserl introduces the idea of the “phenomenological reduction”. He states that in order to answer these epistemological questions, we need to abstain from positing nature: “It also becomes clear that if an epistemology is to retain its univocal sense, not only must every scientific supposition of nature remain principally excluded,

but also every prescientific supposition of the same, and therewith every statement that implies thetic existential positings of materialities with space, time, causality, etc." (259; 15). If we start from nature and try to interpret consciousness in terms of nature, we can never understand how consciousness can get at something objective. In order to understand that, we have to look at reality only insofar as it is "perceived, remembered, expected, pictorially presented, fantasied, identified, distinguished, believed, supposed, valued, etc." (259; 15). In other words, to get to the bottom of epistemological issues, we have to look at reality as a correlate of consciousness, because only in that way is it possible to understand the relation between consciousness and the world it is aimed at. In order to steer clear of these issues, any investigation of nature therefore first needs to focus on the essences of conscious states, which is completely the opposite of the naturalist strategy. This focusing on the essences of consciousness of course refers to Husserl's second, eidetic reduction.

Husserl's focus on the essence of consciousness brings us to the next step of his argument against naturalism, which is the ontological criticism of the naturalization of consciousness. The fundamental point of this argument is that consciousness is fundamentally different from nature and cannot be understood or investigated in the same way. Naturalizing consciousness therefore necessarily means misconstruing what consciousness really is.

In order to support this idea, Husserl first goes into more detail about what nature, as it is understood by the naturalist, really means. He states that "[s]olely the spatiotemporal world of bodies is nature in the pregnant sense" (267; 26). Nature consists of bodily existing beings that can be experienced by different subjects as being identical, i.e. the same object given in different perceptions. Every subject thus in principle has access to the same material things. They exist as part of the natural, spatiotemporal totality and are independent of our observations. These bodily existing beings can be experienced by many different subjects as being identical, i.e., the same object given in different perceptions. Every subject thus in principle has access to the same material things. They exist as part of the natural, spatiotemporal totality and are independent of our observations. "The same materialities (physical things, processes, etc.) lie before our eyes and can be determined by us all according to their 'nature'. However, their 'nature' means: Presenting themselves in experience in manifoldly changing 'subjective appearances', they nevertheless are present as temporal unities of enduring or changing qualities, and they are present as embedded in the nexus that combines them all, the nexus of the one world of bodies with its one space and its one time" (267; 27).

When we look at consciousness, it becomes clear that it exists in a fundamentally different way than nature. First of all, consciousness does not constitute one domain, like nature, in which everything psychical exists and can be intersubjectively accessed. Rather, the psychical is distributed among what Husserl metaphorically calls “monads” (269; 28), a term he borrows from Leibniz to express that my individual consciousness and psychical phenomena are only directly accessible to me. Furthermore psychical phenomena do not constitute a real unity and do not have real qualities or parts in a natural scientific sense (269; 28). Therefore, we also cannot experience the psychical in the same sense that we can experience the natural: “The psychical is, after all, not experienced as something that appears; it is “lived experience” and in fact lived experience seen in reflection; it appears as itself through itself, in an absolute flux, as a Now and already “fading away”, in a visible way sinking back into a having-been” (269; 29). Rather than experiencing objects with properties, psychical phenomena are given in lived experience and can then be made accessible by means of reflection. These phenomena themselves, however, never endure for longer than a moment and are thus only ever given as part of an endless stream of changing psychical phenomena. The psychical is thus essentially different from physical nature and cannot be studied in the same way. By reducing consciousness to nature, the actual essence of consciousness will remain fundamentally hidden. To investigate consciousness and psychical phenomena with the natural scientific method thus means to essentially misconstrue what consciousness is from the outset.

This ties back to the first argument against the naturalization of consciousness. Naturalism itself can never account for the epistemological problem of how our consciousness manages to relate to objects, because it fundamentally misconstrues consciousness. For that reason, it is naïve and can never lay claim to any form of absolute knowledge. The only sphere in which we can attain absolute knowledge has now revealed itself to be precisely the sphere of consciousness. By employing the phenomenological reduction and analyzing phenomena purely as they appear to our consciousness, looking for their essential traits, Husserl has claimed to have found a secure basis on which to erect a rigorously scientific system of absolute knowledge.

4. Historicism

After extensively criticizing naturalism, Husserl turns his gaze to another position that is gaining influence in his time, namely: historicism. In a way, he considers historicism to be even more dangerous than naturalism. The redeeming quality of naturalism is that it at least aspires to be rigorously scientific, albeit in a radically

misguided way. With historicism the problem is even more profound, in the sense that the idea of a rigorous science is altogether set aside as unattainable.

One of the specific targets Husserl has in mind when criticizing historicism is Wilhelm Dilthey, whom he cites extensively during the first part of his evaluation. The view he attributes to Dilthey and historicism is that historical consciousness teaches us that there can never be a universally valid theory. Theories are only valid under specific historical conditions and the ushering in of a new era brings with it a whole new range of such conditions. Husserl uses the following quote from Dilthey to substantiate his claims: "Thus the formation of historical consciousness destroys even more fundamentally than the overview of the conflict of the systems the belief in the universal validity of any one of the philosophies that have undertaken to express the world-nexus in a compelling way through a nexus of concepts" (Dilthey as quoted in Husserl 2002, 280; Husserl 1987, 43).⁸

The problems that such a historicist position runs into are very similar to the problem Husserl noted with regard to the naturalization of ideas. The consequences of both positions are that "one ends up with extreme skeptical subjectivism. The ideas 'truth,' 'theory,' 'science' would then, like all ideas, lose their absolute validity" (280; 43). But if such ideas lose their validity, on what grounds should we believe the historicist when he says that absolute validity does not exist? Is this not a validity claim as well? As with the naturalization of ideas, historicism is countersensical because it undermines the possibility of rational thinking, while making use of rational thinking in order to do this. Husserl therefore sketches the extreme skepticism this will lead to and then stresses that there is no need for him to repeat his arguments: "Perhaps the end result is that the logical principles of non-contradictoriness turn into their opposite. And furthermore all the sentences that we just expressed, and even the possibilities that we considered and claimed as validly existing, would have no validity in themselves. Etc. It is not necessary to continue along these lines and repeat discussions that have been presented elsewhere" (280; 43-44).

This leads Husserl to claim that the historicist at least has to concede that there is a distinction between "science as cultural appearance and science as system of valid theory" (280; 44). The question then is: can history tell us anything about the possibility of universal validity and the possibility of a scientific philosophy? In other

⁸ Original German quote: "So zerstört die Ausbildung des geschichtlichen Bewußtseins gründlicher noch als der Überblick über den Streit der Systeme den Glauben an die Allgemeingültigkeit irgendeiner der Philosophien, welche den Weltzusammenhang in zwingender Weise durch einen Zusammenhang von Begriffen auszusprechen unternommen haben" (Dilthey 1962, 77-78).

words: can we jump from a historical conclusion about the way sciences appear in cultures to conclusions on the possibility of science formulating a valid theory? According to Husserl, this is highly problematic: “Historical facts about development, even the most general facts about the kind of development of systems in general, may be reasons, even good reasons. But historical reasons can yield only historical consequences. To want either to justify or to refute ideas from facts is countersense — ex pumice aquam [to get water from a pumice stone], to use Kant’s quotation” (281; 44-45). The historical facts about science as cultural appearances thus tell us nothing about the existence of truth or validity. Husserl also illustrates it by making a comparison to mathematics: when examining the validity of a mathematical equation, the mathematician will not go to the historian to ask for advice. If an equation is valid, historical facts can do nothing to prove or disprove this equation. Rather, the battlefield on which the validity of equations is established is the battlefield of mathematics. The same goes for philosophy: “For it is clear that philosophical critique, too, insofar as it is actually to lay claim to validity, is philosophy and that its sense implies the ideal possibility of a systematic philosophy as rigorous science” (281-282; 45).

5. Care about Certainty

The next step will be to examine Heidegger’s interpretation of *Philosophy as Rigorous Science* as put forward in *Introduction to Phenomenological Research*. After starting his course by looking at the origin of phenomenology with an analysis of the Greek words *phainomenon* and *logos*,⁹ Heidegger turns to contemporary phenomenology in the second chapter, focusing on Husserl’s philosophy specifically. He starts out by paraphrasing what phenomenology is according to Husserl, which leads to an indication with regard to its theme: “[P]henomenology is the *descriptive eidetic science of transcendently pure consciousness*. This determination is important for us simply as an indication that *consciousness* is the theme examined in phenomenology. For us the question arises: ‘How does what is designated as consciousness come to enjoy the peculiar prerogative of providing the theme of a fundamental science such as phenomenology claims to be?’” (Heidegger 2005a, 35; Heidegger 1994a, 47). So it is consciousness in a specifically purified way that is the theme for Husserl’s phenomenology. But how and why does consciousness become the theme for phenomenology? In order to answer these central questions, Heidegger emphasizes that it is crucial to look at the type of care for which consciousness shows up as a theme.

⁹ For a detailed study of this part of the course, see Kisiel (1993, 276-281).

"Care" is an important Heideggerian notion that serves a particular purpose in *Introduction to Phenomenological Research*. In order to understand Heidegger's use of the term "care" here, it is helpful to take a short detour in order to contextualize this notion. We find an early version of the term in the 1920/21 course *Phenomenology of Religious Life* where he uses the term "concern" as a translation of the Latin "*curare*" (Heidegger 2010b, 153; Heidegger 1995a, 207), to designate human involvedness with its own existence. An explicit use of the notion of "care" is found in the 1921/22 course *Phenomenological Interpretations to Aristotle* where he writes: "Living, in its verbal meaning, is to be interpreted according to its relational sense as caring: to care about something; to live from [on the basis of] something, caring for it" (Heidegger 2001b, 68; Heidegger 1985b, 90). "Care" is used here to designate the way life is never isolated, but rather always involved in its environment.

Heidegger gives a clear and further developed determination of the notion in *History of the Concept of Time*: "*Care is the term for the being of Dasein pure and simple. It has the formal structure, an entity for which, intimately involved in its being-in-the-world, this very being is at issue*" (Heidegger 1985a, 294; Heidegger 1994b, 406). Here, care is explicitly designated as the being of Dasein; a being for which, involved in its world, its own being is always at stake. In *History of the Concept of Time*, Heidegger also links the concept of "care" to Dasein's temporality, as becomes clear in the following formulation of the overall, formal structure of care as: "*Dasein's being-ahead-of-itself in its always already being involved in something*" (294; 408).

Our relation to the world is thus always to be understood from the fact that our own being is always at issue for us. Heidegger makes clear that his notion of "care" is his version of Husserl's phenomenological notion of "intentionality"¹⁰, the idea that our consciousness is always directed at the world. Heidegger claims that while intentionality accurately describes the theoretical directedness of a consciousness to the world, care is meant to designate the broader involvedness of human beings in their world: "It could be shown from the phenomenon of care as the basic structure of Dasein that what phenomenology took to be intentionality and how it took it is fragmentary, a phenomenon regarded from the outside" (303; 420).

Two years later, in *Being and Time*, Heidegger elaborates on this notion of "care" as the fundamental way the human being is involved with itself and its world. Different manners of caring make that different things show up for the caring being. Important

¹⁰ "In his Summer Semester 1925 Course, *History of the Concept of Time, Prolegomena*, Heidegger replaces Edmund Husserl's concept of intentionality with the formal indication of care" (Denker 2000, 69).

for our considerations is when Heidegger says of care: “‘Theory’ and ‘practice’ are possibilities of Being for an entity whose Being must be defined as ‘care’” (Heidegger 1962, 238; Heidegger 1977, 257). Both our theoretical and practical comportments towards the world are thus to be understood in terms of care, stemming from a more primordial involvement with the world and with our own existence.¹¹

This brings us back to Heidegger’s investigation of the care at work in Husserl’s phenomenology. What type of care motivates Husserl’s phenomenology and in what way is our own being at stake in this care?

Since consciousness is the theme of Husserl’s investigation, the question of what care is at work in Husserl’s phenomenology comes down to the question: for what type of care does this consciousness show up as its theme? Before investigating this, Heidegger discusses a general characteristic of care. He first of all generally characterizes care as always “*taking care of something*” (Heidegger 2005a, 43; Heidegger 1994a, 57). Care is always aimed at something. If a purified consciousness is the entity with which Husserl’s phenomenology is concerned, the question is: what kind of care discloses consciousness as the entity cared for? This care is soon found to be concerned with theoretical knowing: “The focus dwells on instances of knowledge, specifically scientific instances that are designated in the sense stressed as consciousness-of-something: experiences of meaning, including meanings of assertions of theoretical thinking [...] The care consists in shaping the thematic field for *theoretical knowing*, just as it factually is as *science*; for science insofar as it emerges as a possible context of achievement in the *culture* and is laid claim to as the foundation of a culture grounded on science” (44; 59). The care for which consciousness shows up as the thematic field of investigation is thus care about knowledge. However, it is care about knowledge in a very specific way. The care at work in Husserl’s phenomenology is aimed at securing already existing knowledge, in such a way that secured knowledge can serve as a foundation for culture and existence: “The aim in *phenomenological research* is for this care about already known knowledge to reach a *basis in the matter* [*sachlichen Boden*], from which the *justifiability* of all knowing and cultural being can become genuine [*echt*]” (44; 60).

Looking at the opening sentence of *Philosophy as Rigorous Science*, where Husserl describes the task of rigorous scientific philosophy as securing pure and absolute knowledge with the goal of satisfying “the highest theoretical needs and enabl[ing], in an ethico-religious respect, a life governed by pure rational norms” (Husserl 2002,

¹¹ “Even where man appears to be preoccupied by theoretical pursuits, he remains governed by the fundamental imperative of the “care” of *Dasein*” (Grondin 1995, 51).

249; Husserl 1987, 3), makes it clear that this is indeed Husserl's concern. Husserl wants to find a level of absolute certainty, which can serve as the firm foundation for both all the other sciences and a fully rational society. His aim in criticizing both naturalism and historicism is to secure the possibility of certain knowledge, something he believes naturalism and historicism to be fundamentally incapable of. This being aimed at securing knowledge is then formulated by Heidegger as "care about already known knowledge" (Heidegger 2005a, 44; Heidegger 1994a, 60), which really is a "care about certainty" (199; 258).

6. The Scientific Tendency

The next step for Heidegger is to examine the care about certainty more closely by looking at the two theories it is meant to defend us against: naturalism and historicism. He takes a closer look at the criticism levelled against naturalism and historicism by Husserl in *Philosophy as Rigorous Science*, in order to get an even clearer picture as to what this care about certainty entails. For this purpose, Heidegger quotes Husserl saying that his critical method in *Philosophy as Rigorous Science* is a "clarification of the problems" (Husserl 2002, 256; Husserl 1987, 11) i.e., the problems of naturalism and historicism. As mentioned, naturalism is treated as a problem because it wants to find a secure basis for knowledge by means of an exact scientific treatment of consciousness, which is impossible, while historicism is a problem because it rejects the possibility of finding a secure base for knowledge. Husserl's attempt in *Philosophy as Rigorous Science* is to clarify these problems, but what does it mean for something to be posed as a problem?

Heidegger treats the posing of a problem in relation to asking a question. In both, something is interrogated; and in this interrogation, the interrogated being is co-posed. However, whereas in questioning there is the possibility of gaining actual insight into the interrogated entity, "[i]n posing a problem, much less time remains to investigate what is interrogated in itself" (Heidegger 2005a, 56; Heidegger 1994a, 77). The reason for this is that a problem is a question that needs to be answered in light of the task at hand. In other words: in posing a problem you are not so much interested in the interrogated entity itself, but rather in a way of explicating it that helps you with the task you set for yourself. The problem needs to be taken care of, because it stands in the way of this task. The tendency of the answer to the problem understood as a question, is therefore always already pre-decided in the posing of the problem: "Clarifying a problem means nothing other than getting a grip on what is interrogated and what is asked as a task and doing so in and with the question. That

is to say, *it means co-deciding on what is interrogated, the regard in question and the tendency of the answer*" (57; 78-79).

When it comes to tendencies of the answers to the posed questions, Heidegger distinguishes two possibilities. First of all there is the tendency of providing answers in the sense of "*valid propositions*" (55; 75) which can be added to "*the treasure trove of valid truths* and, as a so-called *result*, can be installed and arranged in a realm of objectively valid items" (55; 75). This is where Heidegger categorizes scientific propositions: "All scientific propositions, insofar as science is conceived as a system of objective propositions, are truths in this sense" (55; 75). The other, philosophical tendency of the answer is described by Heidegger as follows: "*to bring one to an entity as such*" (55; 76). This tendency is not aimed at formulating valid propositions, but rather at bringing itself "*into a specific basic relation to the entity interrogated*" (55; 76).

Posing a problem is thus always characterized by the first tendency of the answer. It is not interested in the entity as such, but in formulating a proposition about it that helps you with the task at hand. In Husserl's clarification of the problem of naturalism, the task at hand is to find a level of certainty where it is possible to formulate "*absolutely binding determinations*" (58; 80) which can serve as the foundation for science and a rational society. The entity that is interrogated in light of this task is consciousness. Naturalism is a problem because by naturalizing consciousness it blocks the way to the certainty that Husserl is looking for. The problem of naturalism thus needs to be clarified in order for the task of establishing a level of certain knowledge to be completed.

In order to complete this task, a purification of the subject-matter — i.e., consciousness — is needed, that tackles the problem of naturalism. Since naturalism with regard to consciousness entails reducing consciousness to nature, this purification necessary for the task at hand needs to achieve the following: "Consciousness must be purified of every admixture of positings of nature" (58; 79). What Heidegger identifies as purification here is exactly what Husserl achieves with his phenomenological reduction. Instead of understanding consciousness in terms of nature — which is what psychology is doing — Husserl suspends any belief in the natural world and treats nature only as a correlate of consciousness.

This first purification leaves Husserl with a "transcendentally pure consciousness" (58; 80), but he needs to take one more step in the purification process to actually reach the sought level of absolute certainty. This is achieved in his second purification, the eidetic purification (58; 80). Consciousness is now purified by

Husserl's phenomenology in order to serve as a secured foundation for knowledge. However, in spite of all this, according to Heidegger, Husserl does not really succeed in overcoming naturalism at all: "It is thus apparent what the decisive motives are from which the *care* springs, the care to *secure* and maintain *an absolute scientific status* in relation to the *transcendentally pure consciousness*. [...] The essential, scientifically decisive move within the scientific tendency is a move that Husserl makes as well. *Posing the problem in a purified way is, in spite of this, still naturalism*" (59; 80-81).

In what sense does Heidegger suggest that the scientific tendency is at work in Husserl's phenomenology? In the sense that Husserl is not at all interested in a basic relationship to the entity of consciousness. Rather, consciousness is only interrogated in light of the task at hand: establishing absolutely certain knowledge. Husserl is looking to formulate absolutely binding propositions and in this sense, the tendency at work in his philosophy is the scientific tendency towards valid propositions rather than the philosophical tendency towards establishing a basic relation to the interrogated entity.

7. The Neglect of Human Existence

It has now become clear that Heidegger claims that the care that motivates Husserl's phenomenology is driven by the inherently scientific tendency to formulate valid propositions. However, he also claims that this means that Husserl's phenomenology is "still naturalism" (59; 81). To clarify what he means with this claim, we will examine Heidegger's further analysis of the care about certainty, specifically focusing on what is neglected by it: human existence.

In order to further analyze what happens in the care at work in Husserl's phenomenology, Heidegger distinguishes the following characteristics of care about certainty: "back-flash" (*Rückschein*), "falling-prey" (*Verfallen*), "pre-constructing" (*Vowegbauen*), "ensnarement" (*Verfängnis*), "neglect" (*Versäumnis*) (61; 83). The character of neglect is especially important in order to understand Heidegger's criticism of Husserl, but to understand it we need to examine all these characteristics and their interrelation.

The characteristic of back-flash is meant to designate the way in which what care about certainty is aimed at is at work in the being of this care itself, which means that everything that enters into this care's field of vision is treated in the same manner. To illustrate this with an example: the natural scientist is concerned with nature, which

also means that everything that enters into his field of view is treated as nature. The next characteristic of falling-prey ties in closely with the first one, as it designates the care's unawareness of this back-flash. Heidegger characterizes this using the term "*nonexplicitness*" (61; 84), meaning that the care is so absorbed in its object of concern, that it is not aware of the fact that its object of concern is determined by the care itself. To go back to the example: the natural scientist is so absorbed in investigating nature, that he is not explicitly aware of the fact that he understands everything in terms of nature.

Over and against the nonexplicitness of falling-prey there is also a specific kind of explicitness which Heidegger calls pre-constructing. This characteristic consists of the fact that care pre-constructs a systematic program for itself, which formally decides the manner of investigation. In the case of the natural scientist this could be represented by the institutionalized scientific program. This construction of a systematic program further strengthens the characteristic of back-flash, because everything is encountered in accordance with the pre-constructed scientific program.

These three characteristics — of back-flash, falling prey and pre-constructing — form what Heidegger calls a phenomenal unity. Together they point at a "basic phenomenon" which is bound intimately with the character of care's existence, ensnarement: "I have in mind the *ensnarement*, the way that the care, insofar as it lives for the object of concern, is what it is precisely by virtue of the fact that *it ensnares itself in itself*. Thanks to this ensnaring of itself in itself, care comes to determine each and every thing from this standpoint" (62; 85). This ensnarement of care in itself brings with it a new phenomenon, that of neglect.¹² "Each care qua care neglects something" (62; 85). Since care is ensnared within itself, everything it is concerned with shows up in a way that corresponds to its own specific manner of investigation. For the care of the natural scientist, everything shows up as nature, but this also means that that which is not nature does not show up, or in other words, is neglected. Being neglected does not mean to be forgotten, but to be explicitly banished from ever entering the field of view.¹³

^{12.} For a detailed discussion and overview of the different meanings of the neglect Heidegger finds in different works by Husserl, see: (Hickerson 2009).

^{13.} "De zorg om erkende kennis gaat namelijk gepaard met een *verzuim*. Dit verzuim is niet iets wat van buitenaf nog aan de zorg wordt toegevoegd, maar iets wat wezenlijk tot de zorg om gekende kennis behoort" (Heeffer 2010, 96). My English translation: "Care about known knowledge is in fact accompanied by a *neglect*. This neglect is not something that is later added to the care from the outside, but rather something that essentially belongs to care about known knowledge."

So what does this mean when applied to Husserl's philosophy? It means that Husserl's project is ensnared in its own quest for certain knowledge to such an extent that the entity it takes as its subject matter — consciousness — is itself never really investigated in its being. Rather, it is always understood in terms of its suitability to the rigorous science Husserl has in mind. Heidegger formulates this clearly at the beginning of the final chapter of *Introduction to Phenomenological Research*: “[I]t comes *less than ever* to an *explicit inquiry* into the *character of consciousness’ being*. Instead all interest is diverted directly to forming a basic science and to considering the entity from the outset with a view to its suitability as the theme of this basic science. Being in the sense of *being a region for science* misplaces more than ever the possibility of letting the entity be encountered in its character of being” (208; 270).

This comes down to what Heidegger calls a “*mangling of phenomenological finds*” (208; 270). Rather than investigating the matters themselves — the phenomena as they show themselves — which is the promise of phenomenological research, Husserl's phenomenology is only interested in the matters insofar as they are able to fit his idea of a rigorous science¹⁴: “The phenomenological principle ‘To the matters themselves!’ has undergone a *quite definite interpretation*. ‘To the matters themselves’ means ‘to them insofar as they come into question as the theme of a science’” (211; 274). That Heidegger thinks Husserl fails to respect his own phenomenological motto of going back to the matters themselves can be further clarified by looking back at the two different tendencies towards an answer that Heidegger distinguishes. As we have seen, he places Husserl firmly on the side of the scientific tendency towards formulating valid propositions, and not on the side of the philosophical tendency that tries to establish a basic relation to the investigated entity. The philosophical tendency, for Heidegger, would entail going to the matters themselves, while the scientific tendency is more concerned with validity than with the actual matters under consideration.

What this means for consciousness is that as the subject matter for a care about certainty, it can only be understood as theoretical knowing. Rather than actually investigating the entity consciousness in its structures, it is always already understood as theoretical comportment: “[T]he entire critique does not take its leads from anything like a fundamental [*grundsätzlich*] structure of consciousness. Instead, it *takes its leads* from the class of experiences proper to *theoretical knowing*” (60; 82). Heidegger clarifies this further when he formulates his criticism of Husserl's notion

¹⁴ “Heidegger thus faults Husserl for infidelity to the phenomenological method due to a failure to bracket a certain kind of scientific and naturalistic preconception of what ‘to be’ means” (Dahlstrom 1994, 239). Dahlstrom proposes to understand Heidegger's accusation of naturalism in terms of an equation of being with presence, however he fails to clarify why such an equation deserves the moniker “naturalism”.

of “intentionality”: “It leads to this 1. with respect to intentionality insofar as this is always construed (less explicitly than implicitly) as specific theoretical behavior” (209; 271). Intentionality is taken as the defining characteristic of consciousness, but it is always already interpreted as a theoretical relation. The care about certainty is aimed at securing a basis for theoretical knowledge and in light of this, consciousness can only show itself as a theoretical way of relating to the world; as theoretical knowing.

What is neglected by this care should have become clear by now: it is consciousness itself in its being, or, more generally speaking: human existence. To put it the other way around: human existence is always already understood as consciousness and consciousness is understood as theoretical knowing. Since human existence is always already understood in this way, it is never radically investigated in Husserl’s philosophy.

This leads to the question: why is human existence neglected by Husserl’s care about certainty? Heidegger finds the answer in Husserl’s criticism of historicism. As mentioned above, Husserl takes historicism to be the claim that there can be no universal validity. He considers this problematic, first of all, because it leads — like the naturalization of ideas — to a radical skepticism. “It is thus evident that where, in the deciding arguments, care about already known knowledge battles against skepticism, it is bent on enabling itself a constant *flight in the face of existence itself*. It takes care to look to *validity* and to *disregard the possible prospect of an uncertain existence*” (71; 98). Care about certainty neglects existence because it is a flight from the possibility of an uncertain existence. If human existence would be thoroughly investigated and questioned, it might turn out that at its core, existence is uncertain. What this means is that Husserl’s quest for a firm foundation for both theoretical and practical life would be fundamentally unachievable, which is unacceptable for Husserl. Radically questioning our existence would mean confronting the possibility that such a foundation cannot be found, which is exactly why our existence needs to be necessarily neglected by a care about certainty.

8. Theoretical Knowing and Naturalism

To sum up what we have gathered so far: Heidegger characterizes Husserl’s philosophy as being driven by a care about certainty. This care contains the scientific tendency towards forming valid propositions and in doing so neglects human existence, in the sense that it always understands consciousness as purely theoretical knowing. Care about certainty in that sense constitutes a flight from our existence as possibly uncertain. The question that still remains to be answered is: why does

Heidegger characterize this as naturalistic? For even if Husserl is indeed driven by a flight from existence, why would we characterize this as naturalism? He is expressly opposed to reducing either consciousness or ideas to nature in any way, so what exactly is naturalistic about his philosophy? In *Introduction to Phenomenological Research*, this never really becomes clear. The accusation is made in the first half of the book and is never explicitly taken up or explained later on.

We might get an idea of what Heidegger meant if we take a look at the earlier mentioned course he gave two years after *Introduction to Phenomenological Research: History of the Concept of Time*. In the third chapter of the main part of this course, Heidegger investigates the world as that wherein Dasein — the human being — always already is. He stresses there that we always already find ourselves in a world and that this finding is not to be understood as “theoretical apprehension” (Heidegger 1985a, 168; Heidegger 1994b, 227). Rather, he claims that a theoretical relation to the world, knowing, is only possible on the basis of a more primary being-in-the-world: “Knowing is nothing but a mode of being-in-the-world; specifically, it is *not even a primary but a founded way of being-in-the-world*” (164; 222). An extensive reading of Heidegger's notions of “worldhood” and “being-in-the-world” is beyond the scope of this dissertation, but what is important in this context is his characterization of the notion of “nature” in relation to the notion “knowing”: “The more the initially experienced world *is deprived of its worldhood* (‘unworlded,’ as we shall later put it), that is, the more the initially experienced world becomes mere nature; the more we discover in it its mere naturality, for example, in terms of the objectivity of physics; the more cognitive comportment discovers in this way, then all the more does knowing itself become as such the proper way to disclose and to discover” (168; 227).

Nature is thus characterized as the “*unworlded*’ world” (Heidegger 1985a, 168; Heidegger 1994b, 227) that is discovered by cognitive comportment. This is not the most primary way in which we experience the world, but rather a secondary discovery made by the theoretical attitude (Dahlstrom 2010, 401). The more theoretical knowing discovers nature in this way, the more theoretical knowing is viewed as the only valid way of access to the world. This link between nature and theoretical knowing is important and is made more explicit in a passage where Heidegger discusses Descartes’ philosophy:

But when we make some fundamental inquiries into this kind of determination of the world, we see clearly, especially from Descartes, that the being of the world is always characterized relative to particular kinds of experience and capacities of apprehension-sensation, imagination, intellect — which have themselves arisen in the context of a particular characterization of man,

namely, in the context of the familiar anthropological definition *homo animal rationale*. A particular biological and anthropological interpretation favors certain potential kinds of apprehension of the world and these decide on what is accessible in the world in its being and thus on how the being of the world is itself determined. (183; 248)

This passage provides the key to understanding Heidegger's accusation of naturalism. We need to distinguish three elements here: the human being, the world and the man-world relation. Heidegger describes a complex relation between these three elements. This starts with a definition of the human being as the rational animal. This anthropological definition then determines the favored kind of apprehension, which for a rational being is a knowing apprehension. The relation between human and world is thus determined as a knowledge-relation. This type of relation discovers the world as nature, by which Heidegger means "specifically mathematical space" (235; 324). Once the world is discovered by knowing as nature, the more knowing investigates nature, the more knowing is viewed as the valid way of access to the world.

Starting from the determination of the human being as a rational being, a positive feedback-loop is thus constituted between the way the world is regarded and the way our apprehension of the world is regarded. The more our knowing comportment interprets the world as nature, the more this knowing comportment is seen as the only viable way of access to the world, which in turn makes this interpretation of the world as nature more absolute, etc. While Heidegger does not explicitly name it here, we can see what this positive feedback-loop will finally result in: the naturalization of the human being itself. While the human being initially stands outside of the loop as a rational animal, the growing success of the interpretation of the world as nature will inevitably lead to the attempt to include humans in this interpretation as well.

We can now begin to understand why Heidegger accuses Husserl of not really escaping naturalism. What Husserl is doing in tackling the problem of naturalism is symptom control, without getting to the actual root of the problem. Husserl argues against the naturalization of consciousness and ideas, but in doing so implicitly accepts the picture of the human being as a rational being. As we have seen, Husserl neglects the question of human existence, instead always implicitly interpreting the human being as consciousness where the essence of consciousness is theoretical knowing. Because of this, while Husserl might reject the naturalization of ideas and consciousness, the characterization of the world as nature¹⁵ — being the object for

¹⁵. Overgaard (2003) shows that Heidegger (1999) criticizes Husserl for claiming that natural attributes such as spatial extension in fact constitute the fundamental layer of any object.

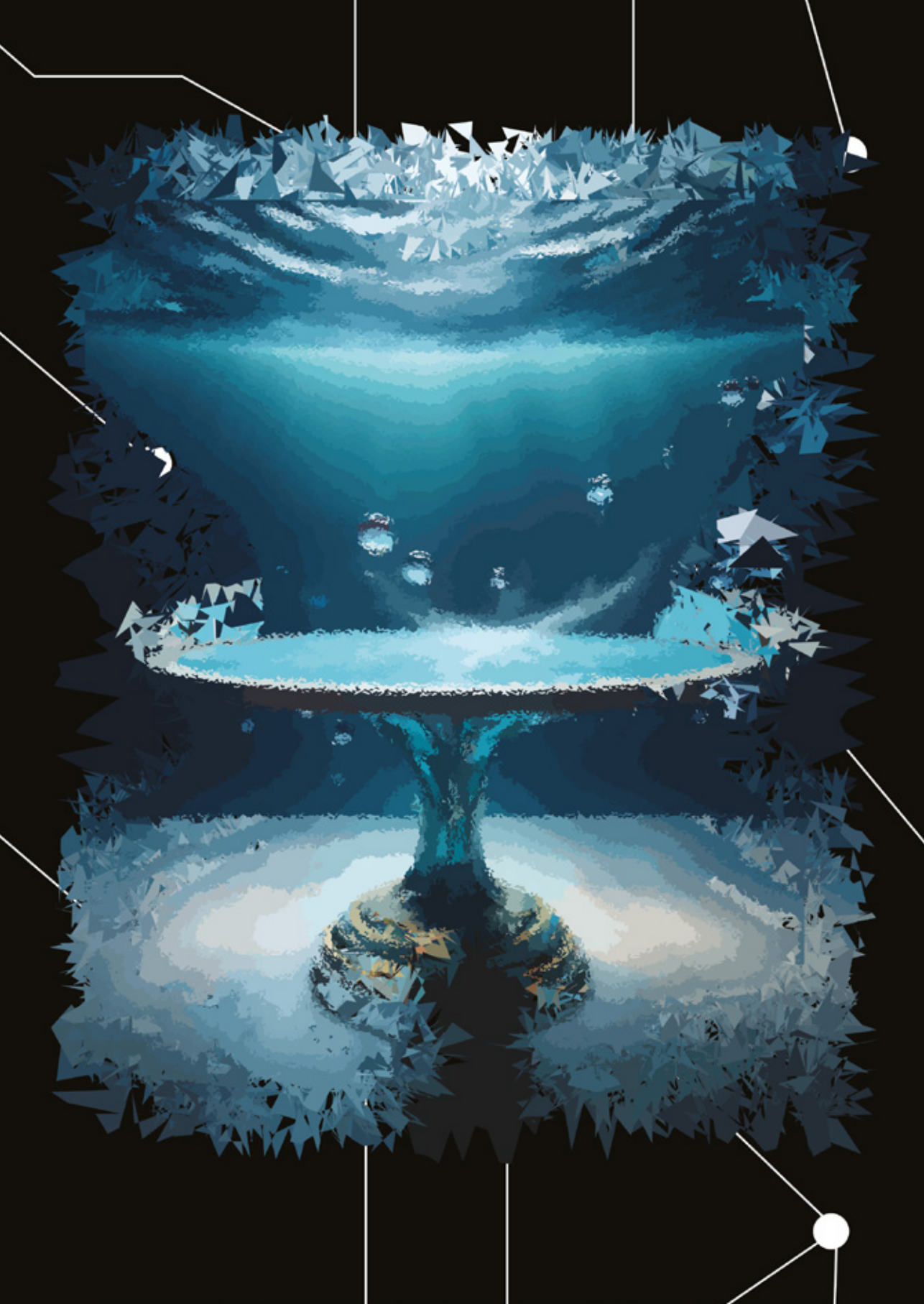
theoretical knowing — and the feedback-loop between knowing and nature remains intact. Rather than overcoming naturalism, Husserl radicalizes its tendencies by unquestioningly absolutizing the relation between human beings and the world as a knowledge-relation between a rational animal and nature.

9. Conclusion

To sum up, we have seen that Husserl regards naturalism and historicism as the two most dangerous threats against his idea of philosophy as rigorous science. Naturalism first of all constitutes a naturalization of ideas, which is countersensical because it terminates itself. It also constitutes a naturalization of consciousness which entails an epistemological and an ontological problem. The epistemological problem with naturalizing consciousness is that any science that attempts this naively assumes the existence of nature, an assumption which it cannot account for, meaning that it lacks foundation. Ontologically, the naturalization of consciousness is also problematic, since the phenomena of consciousness do not present themselves as intersubjectively accessible, spatiotemporal unities but as momentary parts of the constantly changing stream of my consciousness. Historicism, finally, was found to be problematic, first of all because it — like the naturalization of ideas — terminates itself, and second of all because in its rejection of absolute validity it constitutes an impossible jump from the realm of historical facts to the realm of absolute validity.

Furthermore, we have seen that Heidegger interprets Husserl's philosophy as being driven by a care about certainty, meaning that the goal of Husserl's investigation was to secure the possibility of certain knowledge and absolute validity, to serve as a foundation for both science and society. Heidegger shows how Husserl is driven by this task and never really investigates, even neglects, the actual entity under consideration: the human being. Rather than investigating it he implicitly understands it as consciousness and its relation to the world as a specifically theoretical comportment. Heidegger further shows how such an understanding of the human being as a rational being leads to a positive feedback-loop between knowing as the proper way of access to the world, and an interpretation of the world as nature. This is why Heidegger characterizes Husserl's philosophical project as still naturalism. Naturalism for Heidegger is the reduction of our being-in-the-world to a purely theoretical comportment. By criticizing the naturalistic symptoms of naturalizing consciousness and ideas, but leaving intact the naturalistic root of understanding the human being as a rational being, Husserl does not succeed in overcoming naturalism.

Central in this discussion is the difference between what the two authors mean by naturalism. For Husserl, naturalism is the reduction of everything psychical to spatio-temporal nature. For Heidegger, naturalism is the reduction of human being-in-the-world to a purely theoretical comportment. These distinctions are important to keep in mind for contemporary discussions about naturalism, like the discussion about naturalizing phenomenology. For in both the claim that phenomenology can be naturalized and the claim that phenomenology is fundamentally anti-naturalistic, it is important to understand what the notion of “naturalism” means in the context of the specific phenomenological authors under discussion.



Chapter 3

Husserl and Heidegger on Galileo's mathematization of nature and the crisis of the sciences

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Abstract

The sciences are in a state of crisis. Due to factors like hyperspecialization and an all too naive and uncritical faith in their own method, the sciences have lost sight of their initial goal. The idea that sciences are in a state of crisis can of course famously be found in Edmund Husserl's *The Crisis of European Sciences and Transcendental Phenomenology*. What is less well-known, however, is that Martin Heidegger also discusses and analyzes a crisis of the sciences in his 1928/29 lecture course *Introduction to Philosophy*. There are interesting similarities between the nature of the crisis the two thinkers observe, but key differences when it comes to the relation between science and philosophy and the question of whether or not the crisis can be resolved. The aim of this chapter will be to provide a thorough comparative analysis of Husserl's and Heidegger's accounts of the crisis, the role of Galileo's mathematization of nature in their analyses, and what this means for their ideas concerning the relation between science and philosophy. The goal of this analysis is to provide some conceptual clarity regarding the prospect of naturalizing phenomenology.

1. Introduction

In order to understand what it means to naturalize phenomenology it is vital to understand the notions of “science” and “nature.” Interestingly, two of phenomenology's founding fathers—Edmund Husserl and Martin Heidegger—both wrote about a crisis of the sciences that could be traced back to Galileo Galilei's mathematization of nature. This idea of a crisis of the sciences can famously be found in Husserl's *The Crisis of European Sciences and Transcendental Phenomenology* (1970; 1976). Heidegger's discussion and analysis of a crisis of the sciences in his 1928/1929 course *Introduction to Philosophy* (2024; 2001a) is less well-known. There are interesting similarities between the analyses of the crisis the two thinkers observe, but key differences when it comes to the relation between science and philosophy resulting from their observations.

One of the goals of Husserl's *Crisis* is to identify the original meaning and value of science, by investigating the historical transformation it underwent in modern times. He traces this transformation back to Galileo Galilei's mathematization of nature. The goal of Heidegger's *Introduction to Philosophy* is to come to an understanding of philosophy by comparing it to science, worldview and history.¹⁶ In order to be able to

^{16.} Heidegger never actually gets as far as the third comparison, between science and history. His analysis of Kant's concept of “world” in the comparison between philosophy and worldview takes up so much time that he does not succeed in taking the final step towards history.

compare the two, Heidegger suggests we first need a better understanding of science. He attempts to understand the essence of science by starting from a threefold crisis that he observes in contemporary science. Like Husserl, he finds the root of the crisis in Galileo.

Husserl's and Heidegger's analyses of Galileo are of crucial importance in order to understand their differing attitudes towards the crises of the sciences. Both thinkers agree that in discovering mathematized nature, Galileo is at the same time covering something up. For Husserl, what is covered up by Galileo is a realm of original evidences. For Heidegger, what is covered up is the *Halt-losigkeit* of human existence (234; 337). This means that for Husserl, the crisis of the sciences can essentially be resolved if the scientific impetus is directed towards those original evidences, while for Heidegger, the crisis is inherent to the sciences and cannot be resolved.

The fact that both thinkers observe a crisis in the sciences of their times and the fact that their analyses of this crisis and its solution overlap and differ in interesting ways, calls for a comparative analysis on Husserl's and Heidegger's ideas concerning this crisis and its possible solution. Comparisons between Husserl and Heidegger on related issues have been made, but these comparisons never take this idea of the crisis of the sciences as a focal point, instead comparing Husserl's *Crisis* to Heidegger's later philosophy of technology.¹⁷ Especially considering the discussion of naturalizing phenomenology, an analysis of one of Heidegger's most comprehensive texts on science and its relation to philosophy is invaluable. As it stands, however, a thorough comparative analysis of Husserl's and Heidegger's stance on the crisis of the sciences based on the *Crisis* and the *Introduction* is absent in the reception so far.

The aim of this chapter is to fill that gap and provide a thorough comparative analysis of Husserl's and Heidegger's crisis of the sciences and the relation between science and philosophy. The goal of this analysis is to offer an indirect contribution to the philosophical conversation about the prospect of naturalizing phenomenology, not by directly participating in the debate, but rather by examining the notions of "nature" and "science" in two of phenomenology's central thinkers. By closely analyzing their reasons for being critical of Galileo's mathematization of nature, the difference in emphasis in their criticisms, as well as what they consider to be the appropriate relation between science and philosophy, I hope to provide some conceptual clarity regarding the prospect of naturalizing phenomenology.

¹⁷ See for example: Van Mazijk (2019).

In this chapter, I will first analyze Husserl's conception of the crisis of science, his analysis of Galileo's mathematization of nature and his proposed solution to the crisis. Second, I will focus on Heidegger's conception of the crisis of science, his analysis of Galileo and the reason he considers the crisis to be inherent to the sciences. Third, I will compare the two positions and tie the gained insights to the issue of naturalizing phenomenology.

2. Husserl and the Crisis

In part one of the *Crisis*, Husserl makes clear that by saying there is a crisis in the sciences, he does not mean to call into question the accomplishment of the existing scientific disciplines, both natural and human. Rather, the crisis Husserl is talking about is connected to “that of the general lament about the crisis of our culture and the role here ascribed to the sciences” (Husserl 1970, 4; Husserl 1976, 3). He identifies an exclusive focus on the positive sciences in the second half of the nineteenth century and with that “an indifferent turning-away from the questions which are decisive for a genuine humanity” (6; 3-4). The positive sciences exclude questions concerning human freedom and the meaning of our existence, instead turning to mere facts. This leads to a situation in which the sciences are unable to answer the most burning and fundamental human questions. As Husserl famously puts it: “In our vital need—so we are told—this science has nothing to say to us” (6; 4).

This was not always the case. Husserl describes how in ancient times, people lived according to a philosophical mode of existence: “feely giving oneself, one's whole life, its rule through pure reason or through philosophy” (8; 5). This freedom is first of all theoretical: it frees one from the shackles of prejudice and mythology and allows one to acquire universal knowledge about how the world really is. This theoretical autonomy is followed by what Husserl calls “practical autonomy” (8; 6), meaning that “man should be changed ethically [but that] the whole human surrounding world, the political and social existence of mankind, must be fashioned anew through free reason, through the insights of a universal philosophy” (8; 6).

From this, the first aspect of what Husserl means by a crisis of the sciences becomes clear. Initially, the ideal of science carried with it practical implications as well. To lead an existence in accordance with reason not only means to live a life in which you practice theory, but a life in which your ethico-political and existential decisions are based on the same rational deliberations. In an age where sciences are merely

concerned with facts and no longer with values and meaning, this part that originally belonged to the idea of science gets lost.

Aside from being connected to practical questions, the sciences were originally connected to each other as well. This idea was retained in the modern era, as explained by Husserl referring to Descartes and using the Cartesian image of a tree: “Sciences in the plural, all those sciences ever to be established or already under construction, are but dependent branches of the One Philosophy” (8; 6). The positivistic sciences that exist nowadays are therefore no more than branches from this so-called “One Philosophy”. That is why Husserl refers to the concept of “positivistic science” as a “*residual concept*” (9; 6). What gets left behind by such a residual concept of “science” are questions concerning values, ethical actions and the possibility of knowledge, to repeat a couple of Husserl’s examples (9; 7).

Two things follow from this. First, Husserl restates the severing of the connection between ethico-political and existential questions on the one hand and science on the other. Second, the severing of the sciences from one another becomes clear. When the sciences are all branches on this big tree called philosophy, the sciences are all connected to each other. When they no longer see themselves as part of the same tree, however, sciences become separated from each other, and it is no longer clear how the insights of one scientific discipline should matter to the other. This severing is most prevalent when looking at the difference between the human sciences and the natural sciences. While the insights of two sciences might not relate to each other directly, they are still indirectly related because of their basis in the fundamental issues and their directedness towards the same goal.

This severing also leads to a third aspect of the crisis, which Husserl formulates as follows: “a crisis which does not encroach upon the theoretical and practical successes of the special sciences; yet it shakes to the foundations the whole meaning of their truth” (12; 10). Since the positivistic sciences no longer see themselves as branches on the tree of philosophy, their relation to truth becomes obscured. For the question of what makes something true and in what sense scientific insights can be considered true is essentially a philosophical question that science cannot and does not deal with.

Finally, Husserl states that the aforementioned crisis, is a crisis that has an existential impact on all of what he calls “European humanity”: “Thus the crisis of philosophy implies the crisis of all modern sciences as members of the philosophical universe: at first a latent, then a more and more prominent crisis of European humanity itself in respect to the total meaningfulness of its cultural life, its total ‘*Existenz*’” (12; 10).

Husserl connects this existential impact of the crisis to a loss of faith in reason. Reason constitutes the true being of mankind, which does not mean that Husserl sees reason as something every human being naturally has, but more as a task, a struggle, or a goal that we set for ourselves.

In the final paragraph of part one of the *Crisis*, Husserl states that it is necessary to “reflect back, in a thorough *historical* and *critical* fashion, in order to provide, *before all decisions*, for a radical self-understanding” (17; 16). The historical reflection Husserl undertakes in part two of the *Crisis* has the goal of uncovering the initial impetus of philosophical thinking: what philosophy has been aimed at (17; 16). A crucial part of this critical-historical investigation is to understand how the initial goal of philosophy and science was transformed, leading to the current crisis of the sciences: “The first thing we must do is understand the fundamental transformation of the idea, the task of universal philosophy which took place at the beginning of the modern age when the ancient idea was taken over” (21; 18).

Husserl traces the root of this transformation back to Galileo’s mathematization of nature. The ninth paragraph of the crisis is a detailed examination of the meaning of this mathematization of nature, that Husserl undertakes by reconstructing “the train of thought which motivated it” (23; 20). He starts this reconstruction by stating that “[p]rescientifically, in everyday sense-experience, the world is given in a subjectively relative way” (23; 20). Everyone experiences the world from their own standpoint, causing the world to be given to each of us in differing appearances. Despite the discrepancies between our experiences however, we do not generally believe that “because of this, there are many worlds” (23; 20). We tend to believe there is something objective underlying our subjective experiences, and Husserl describes how for Galileo, it was completely obvious that pure geometry and mathematics accurately describe this objective world underlying our subjective experiences. What was involved in this obviousness and how did Galileo motivate this idea of mathematical knowledge of nature?

Husserl states that in our everyday life, we experience bodies. These bodies, however, are of course not the ideal bodies of geometry, but actually existing, empirical bodies. So how do we get from these empirical bodies to the ideal bodies of geometry? We can vary the shapes of bodies in our imagination, however: “Fantasy can transform sensible shapes only into other sensible shapes” (25; 22). So, by just varying shapes in our imagination, we can never arrive at the pure bodies of geometry. However, these empirical shapes can be perfected, and this process of perfecting was originally connected to practical interests. A straight line can always be straighter, for example

when you are designing a square tabletop. However, perfection itself can never be attained: we will never be able to design a tabletop with perfectly straight sides. Husserl writes: "Hence we always have an open horizon of *conceivable* improvement to be further pursued" (25; 23).

Due to this process of perfection, *limit shapes* arise as that towards which the process of perfection tends. These limit shapes constitute the move from the realm of the practical-empirical to the realm of pure geometry, for by the activity of pure thinking, one can determine these limit shapes and construct new ones. Once determined and constructed, these limit shapes become "acquired tools that can be used habitually and can always be applied to something new" (26; 23). By using these tools in the "geometrical world of ideal objects" (27; 24), one can achieve what can never be achieved in the empirical world: exactness (27; 24). This means that when it comes to these ideal shapes, it is possible to determine them in their absolute identity.

This was the state of the art in the mature geometry that was already established by the time Galileo took up the discipline. Since it was already established, Galileo did not feel the need "to go into the manner in which the accomplishment of idealization originally arose" (29; 26). Rather, Galileo took up the project of geometry and applied it to physics, based on the idea that geometry establishes "an identical nonrelative truth" (29; 27), overcoming "the relativity of subjective interpretations" (29; 27). However, in this application to physics, Galileo encountered a problem. For while geometry deals with abstract limit-shapes, concrete empirical shapes are given to us as a plenum, filled in with sense-qualities like "color, sound, smell and the like" (30; 27). In order to fully idealize the concretely existing empirical world the sense qualities that go along with the embodied things in the world have to be mathematized.

The first thing Husserl notes about this task, is that as opposed to shapes, these sense qualities cannot be directly mathematized. Indirect mathematization is thus required, and the only reason this is considered a possibility is because "in each case of real bodies, factual shapes require factual plena and vice versa" (35; 34). So while it is possible to abstractly separate shape and plenum, concretely they are always tied together. Furthermore, Husserl stresses that we nowadays find this indirect mathematization of sensible qualities to be self-evident and unquestionable. He illustrates this with the following example: "What we experienced, in prescientific life, as colors, tones, warmth, and weight belonging to the things themselves and experienced causally as a body's radiation of warmth which makes adjacent bodies warm, and the like, indicates in terms of physics, of course, tone-vibrations, warmth-vibrations, i.e., pure events in the world of shapes" (36; 35). For us, this way of describing sensory

qualities in terms of measurable quantities that correspond to the world of shapes, is indeed self-evident. However, for Galileo, this could not have been self-evident, since his concept of “physics” is what initiated this self-evidence. Husserl notes that even though the Pythagoreans already observed the “the functional dependency of the pitch of a tone on the length of a string set vibrating” (37; 36), it was not until the renaissance that the idea of a universal application of pure mathematics—and with that the co-mathematization of sense qualities—got a real foothold.

Husserl describes Galileo's undertaking here in terms of a double idealization of the world. On the one hand there is the co-idealization of the plenum in each concrete case of the application of pure mathematics to empirically given nature. This gives rise to an idea of universal inductivity of the intuitively given world (38-39; 37-38). On the other hand there was Galileo's attempt to systematize and secure the idea of a universal, exact causality which “precedes and guides all induction of particular causalities” (39; 38). This double idealization secured the possibility of the indirect mathematization of sensible qualities in a purely theoretical way, while the question of how the natural sciences should actually proceed here was considered by Galileo to be a question of scientific praxis, not of systematic consideration.¹⁸ This makes Galileo's idea of natural science a hypothesis, but in a very peculiar way: “It is the peculiar essence of natural science, it is a priori its way of being, to be unendingly hypothetical and unendingly verified” (42; 41).

The “decisive accomplishment” of natural science thus envisioned, is the formulation of formulae, with which the scientist: “possesses, in advance, the practically desired prediction of what is to be expected with empirical certainty in the intuitively given world of concretely actual life, in which mathematics is merely a special [form of] praxis” (43; 42).

This explains, firstly, how acquiring these formulae became of particular interest for the natural scientist, and also how some of them “were misled into taking these formulae and their formula-meaning for the true being of nature itself” (44; 43). This idea of “formula-meaning” is further explained by Husserl in terms of the “arithmetization of geometry” (44; 44), in which the connection between the numbers and the shapes they are meant to signify recedes to the background, finally leading to a “completely universal “formalization”” (45; 44) in which the original meaning (Sinn) of geometry is lost. The result is akin to Leibniz' *mathesis universalis* (45; 45): a universal formal logic that deals with the empty formal meanings of “something-in-general” (45; 45)

^{18.} For a concrete example of how the process of idealization works in scientific practice, see: Garrison (1986).

and categorizes these somethings-in-general in specific manifolds. Geometry is thus reduced to a set of technical rules, while “the *original* thinking that genuinely gives meaning to this technical process and truth to the correct results [...] is excluded” (46; 46). The technical process is completely devoid of the original meaning of geometry, in the sense that it is not related anymore to the actual world, to the actual, concrete shapes from which we started. The discoveries of a natural science that is construed upon this basis can thus be said to pertain to an entirely separate world: “All the discoveries of the old as well as the new physics are discoveries in the formula-world which is coordinated, so to speak, with nature” (48; 48).

In this process, what fundamentally happened, according to Husserl, is that geometry lost sight of the actual world of our experiences: “[T]he surreptitious substitution of the mathematically substructured world of idealities for the only real world, the one that is actually given through perception, that is ever experienced and experienceable—our everyday life-world” (48-49; 49). This is a problem, because this everyday life-world is what provides geometry and the entirety of Galileo's project with its meaning. Husserl therefore calls it a “fateful omission” on Galileo's part that he did not “inquire back into the original meaning-giving achievement” (49; 49). Such an inquiry would look for the ultimate meaning of scientific achievements in the goal it has in our life, in the life-world. For the life-world is the place from which all scientific endeavors start and the only place in which their results can mean something: “Man (including the natural scientist), living in this world, could put all his practical and theoretical questions only to it—could refer in his theories only to it, in its open, endless horizons of things unknown” (50; 50).

This life-world, Husserl stresses, is the world of spacetime, the world in which we practically live, the world in which we bodily exist, and the world in which we find concrete, bodily shapes. What we do not find in this world are geometrical idealities. Even though Husserl realizes that this may sound trivial, he considers it important because it shows that the life-world continues to exist as it does, unaffected by Galileo's geometry. Rather than directly changing or affecting the life-world, what we actually do with this geometrical and natural-scientific mathematization is that “we measure the life-world [...] for a well-fitting *garb of ideas*, that of the so-called objectively scientific truths” (51; 51). This garb of ideas dresses the life-world up as “objectively actual and true” (51; 51) nature and makes us confuse the mere method of geometrical and natural-scientific mathematization for *true being*. Or, as David Carr puts it: “*to be is to be measurable*” (Carr 1970, 334). The focus rested solely on the garb of ideas itself, while the meaning of its constituting ideas, formulae and theories was never a part of the scientific investigation. It is for this reason that Husserl calls

Galileo a “a discovering and a concealing genius [*entdeckender und verdeckender Genius*]” (Husserl 1970, 52; Husserl 1976, 53), who discovers mathematical nature, but in the same act conceals the life-world.¹⁹

It is exactly this shift of attention to this idea garb of mathematized nature, away from the life-world, that explains the basis of the fourfold crisis of the sciences. For ethico-political and existential questions are relevant in the life-world, not in mathematized nature. The same goes for the questions of the human sciences. This shift of attention also explains the obscured relation to truth, for since science lost track of its original meaning, it is not clear in what meaningful sense scientific findings and results can be thought of as true (or untrue). And finally, science's inability to relate to the aforementioned question causes a loss of faith in reason.

For Husserl, there is a clear solution to the crisis of the sciences understood as the severing between the idealized world of natural science and the life-world. This solution rests on the basis of the idea that these two worlds are not fundamentally separate, that “the intentional focus of scientific activity is the everyday world” (Rouse 1987, 225). Or, as Husserl himself puts it: “When science poses and answers questions, these are from the start, and hence from then on, questions resting upon the ground of, and addressed to, the elements of this pregiven world in which science and every other life-praxis is engaged” (Husserl 1970, 121; Husserl 1976, 124).

So, science always starts from the life-world. Geometry took the actual concrete shapes we encounter in the life-world as its starting point. But even natural scientists today, who in their scientific practice might investigate highly idealized worlds, still do this in laboratories, which they share with fellow researchers, etc. In other words: science does not only historically start from the life-world: scientific practice starts from the life-world every day. Husserl writes: “objective theory in its logical sense [...] is rooted, grounded in the life-world, in the original self-evidences belonging to it” (129-130; 132). What is therefore needed according to Husserl, in order to repair the severing between the life-world and the world of the sciences, is a science of the life-world (123-135; 126-138), a way to uncover these original self-evidences of the life-world. Husserl also explains this in terms of two different sort of truths: “[O]n the one side, everyday practical situational truths, relative, to be sure, but, as we have

¹⁹ For a criticism of this idea of the separation between life-world and the world of the sciences, see: Ihde (2010). Ihde argues that by failing to focus on mediating technologies, Husserl creates the dichotomy he describes. This criticism is countered by Wiltzsche (2017). Wiltzsche argues that Ihde overlooks that “the decisive move in Galileo's reasoning is the leap from experimentally obtained data to an ideal limiting case which is found nowhere in the domain of intuitable things” (Wiltzsche 2017, 171).

already emphasized, exactly what praxis, in its particular projects, seeks and needs; on the other side there are scientific truths, and their grounding leads back precisely to the situational truths" (132;135).

A science of the life-world can thus be said to serve multiple connected purposes. Since science always starts from the life-world, both historically and practically, a scientific investigation of the life-world repairs the severed connection between the life-world and the world of the sciences. Furthermore, an investigation of the life-world can retrace scientific truths back to the more fundamental situational truths. By uncovering and investigating the situational truths of the life-world and their relation to scientific truths, science's relation to truth becomes unobscured. The goal of this becomes clear: "In relation to this, finally, arises the idea of a universal science encompassing all possible knowledge in its infinity, the bold guiding idea of the modern period. If we have made this clear to ourselves, then obviously an explicit elucidation of the objective validity and of the whole task of science requires that we first inquire back into the pregiven world" (121-122; 124).

For Husserl, a science of the life-world is a first step back in the direction of a universal science. It uncovers what was covered up by Galileo. For Husserl, Galileo's natural science essentially buries the life-world under its mathematized realm of idealities. He values the impetus of modern science, to try to rationally uncover the world. Galileo's fatal flaw is that he did not reflect back on the meaning of the geometry that was handed down to him by the Greeks. For the original meaning of this geometry lay exactly in its applicability to the life-world. Galileo is thus a "concealing genius" in a double sense: he covered up the historical origin of geometry and with that covered up the life-world.

3. Heidegger and the Crisis

We now turn to Heidegger's conception of the same crisis. Heidegger treats the subject of the crisis of the sciences in his 1928/1929 lecture course *Introduction to Philosophy*. In this course, he attempts to find the meaning of philosophy by distinguishing it from science. However, in order to do this, he first tries to establish the essence of science. In a classic example of hermeneutic reflection, he proposes to find this essence by examining a threefold crisis that he considers to exist in the sciences of his time. This threefold crisis gives him the guiding ideas needed to get closer to the essence of science. The crisis consists of the following three points: a crisis in the relation between science and individual existence, a crisis in the relation

between science and historical and social existence, and a crisis of the inner essential structure of science (Heidegger 2024, 21; Heidegger 2001a, 27).

To illustrate the crisis between science and individual existence, Heidegger points to the dissatisfaction with academic science that came to fruition after World War I, but that had already been slumbering before 1914, when he was still a student (22; 27-28). He describes the dissatisfaction in the following way: “We sensed an ossification in the activity of academic science, and together with this ossification, a specialization [...] that concealed an impotence behind it, the inability still to convey the primary and original ontological content of the science in a straightforward manner that spoke directly to existence” (22; 28).

The keywords in this fragment are impotence (*Ohnmacht*), ossification (*Erstarrung*) and specialization (*Spezialisierung*). The combination of specialization and ossification makes the sciences impotent to relate to individual existence. Heidegger further explains this by referring to the ideal of *Bildung*. According to the classical idea of *Bildung*, my scientific education at a university should help me, as an individual, to better understand myself, the world around me and my relation to the world around me. An ideal that flourished at the beginning of modernity, when the promise of a unified science and of becoming a *homo universalis* could at least potentially be fulfilled. Due to the intellectual division of labor and the hyperspecialization of the individual sciences, the ideal of a unified science made place for a fragmented landscape. Within this fragmented landscape, it is no longer clear for me, as an individual studying these sciences, what these sciences have to say about my existence, or my relation to the world around me. Thus, specialization causes a specific form of rigidity, meaning that despite its advancements, it is no longer clear how these advancements relate to the lived reality of individual existence. Their hyperspecialization thus makes the sciences impotent to relate to individual existence. The crisis that Heidegger refers to here clearly relates to Husserl's points regarding the severing between scientific and existential questions, and the severing of scientific disciplines from one another.

What Heidegger takes from this, is that apparently there is a relation between science and *Dasein*. This means that, according to Heidegger, the essence of science thus needs to be situated and understood in connection to human *Dasein* (24; 30).

The second part of the crisis—the crisis between science and historical and social existence—is similar to the crisis between science and individual existence. Heidegger again invokes the idea of *Bildung* to illustrate this point. Here, the focus is not on the function of *Bildung* for the individual, but the function of *Bildung* for

society. With its specialization, science has not only become impotent to relate to individual existence, but likewise and for similar reasons, to cultural existence. Due to its specialization, the meaning or relevance of science for our culture and society is no longer clear. This crisis is similar to what Husserl calls the severing of scientific and ethico-political questions.

This crisis becomes visible in the tendency to popularize scientific insights, which according to Heidegger is a tendency that stems from science itself (24; 31) and has the goal to decrease the remoteness of science from life (25; 32). In other words: the tendency to popularization stems from scientists themselves feeling this crisis, seeing that science is in need and therefore somehow needs to be remedied (25; 31). This need is that science's practical character, its meaning for culture and society, is no longer clear.

Heidegger sees this tendency to popularization as being led by serious motives, but essentially calls it a violation of science's essence (25; 32). This misunderstanding comes down to the fact, that in popularizing science, we equate science with its results: "All popularization of science [...] is a violation of its essence, because it fails to understand that science should never be equated with its results, results that are then passed from hand to hand in some concoction or other" (25; 32). The underlying problem with equating science with its results, is that it overlooks a fundamental aspect of science: that science in itself is already practical (26; 33). This is not some accidental feature of science, but like its connection to individual existence, belongs to its essence. So here, Heidegger has found his second guiding idea. Science should not be understood as purely theoretical, but as inherently practical.

The third and final part of the crisis is a crisis of the inner essential structure of science. Referring to mathematics, as well as to biology and physics, Heidegger states that it belongs to science to be able to experience a crisis of foundations (27; 35). What is interesting to him, is that in spite of what one would expect on the basis of the term "crisis of foundations", such a crisis does not cause a scientific field to collapse. Rather, more often than not, such crises cause a field to flourish. How is that possible?

In order to understand this, Heidegger points out the peculiar situation, that no science is able to determine itself: The question of the essence of mathematics is not itself a mathematical question (29; 38). This is in stark contrast to philosophy, of which Heidegger said earlier in the course that it not only can, but has to determine itself (14; 15). Because science cannot do this, it experiences its own limits in a foundational crisis, it experiences that it precisely cannot determine itself. What Heidegger points to here, is similar to what Husserl calls science's obscured relation to truth.

What leads Heidegger to the third and final guiding idea: science's finiteness. Each individual science has specific limits when it comes to its questions, limits that it experiences in a foundational crisis. Like the relation to the individual and its practical nature, these limits, their meaning and the finiteness that they signify should be taken as central to science if we are to correctly understand its essence.

Heidegger continues his investigation of the essence of science from the commonplace idea that science has a relation to truth. Traditionally, since Aristotle, the location of truth is thought to be the sentence. The working definition of science Heidegger therefore proposes to use is: "the unity of the coherent grounding of a set of true propositions" (35; 48). But in what way, and what does "truth" mean here? Of course, it is well known that Heidegger rejects the idea of truth as correspondence (*adequatio*), as well as rejecting the idea of truth being primarily located in the sentence. He instead proposes to understand truth as unconcealment (*aletheia*).²⁰ He takes the same approach here in the investigation of the connection between science and truth. What does this different conception of truth mean for the working definition of science as a foundational unity of true sentences?

In order to answer this question, Heidegger focusses on the difference between scientific and prescientific truth. The difference is that in science, the unconcealment of beings happens explicitly for the sake of this unconcealment itself (125; 179). In other words: science is theoretical, it is explicitly aimed at truth, at uncovering beings. What Heidegger is looking for, is the specific original act by which our relation to beings changes from a practical, to a merely theoretical one (125; 179).

He describes this change to a merely contemplative attitude by means of an example. In agriculture we have a practical relation to the land, in which certain features are discovered. When working with a plough, the soil shows itself to have a certain resistance. The plough therefore needs to have a certain hardness in order to be able to penetrate the soil. This relation between resistance and counter-resistance does not itself explicitly become a theme in agriculture, but it does play an important role in this practical context (126; 181).

Things show themselves in specific ways in our handling of them, giving rise to a familiarity with them. This familiarity is characterized by Heidegger in the following way: "As a rule, matters stand in such and such a way with these things" (126; 181). Here, "as a rule" (*In der Regel*) in German) literally means "usually", but by phrasing it this way, Heidegger also refers to the fact that there are rules at work here. When we

²⁰. For a thorough examination of truth as *aletheia*, see: (Campbell 2001).

focus on these rules themselves without looking at the practical context in which they normally play a role, we can see that the rules hold for every material thing and fall under more general laws (126; 181).

What happens in this change from the practical to the theoretical? Things reveal themselves in a different way. Where before, they revealed themselves as agricultural soil, houses or bridges, now they reveal themselves as material bodies (128; 184). But not only what they are is revealed in a different way, but *how* they are is also different. Beings no longer show themselves as at hand for practical usage, but merely as material bodies that are present (128; 184). Beings are thus redefined and, in this redefinition, reveal themselves as nature. Importantly: we are not dealing with new or different beings, but rather: the being of these beings reveals itself in a different way.

This is where Galileo enters the stage. Heidegger treats Galileo as the paradigmatic example of this change in which the being of beings reveals itself in a different way. Galileo's most important insight, according to Heidegger, is that he saw that in order to experimentally examine nature, you first need to have a conception of nature that underlies all your experiments. In other words: you need to fixate nature in a specific way in order to make it experimentally examinable in the first place. Galileo fixates nature in the following way: "[A] nexus of bodies in motion, of beings whose fundamental character lies in their spatial and temporal extension, where motion is nothing else than change of place in time. By fundamentally determining nature in this way, the manifold of beings is made directly homogenous" (130; 187). Galileo's defining move is to make sure that prior to its actual investigation, the being of beings is already understood as nature, as a homogeneous collection of moving, extended objects. It is because of that move, that science becomes mathematical. Only based on a pre-understanding of being that makes beings essentially calculable, can mathematics turn out to be the only right method of investigation.

This understanding of the being of beings as nature precedes any experimental research. Any natural scientific question is preceded by this specific outline of nature. It is striking, however, that even though this preceding outline of nature is the condition of possibility for any type of natural scientific investigation, it never becomes the subject of natural scientific questioning itself (136; 195). Heidegger further describes what happens in this process as follows: "a field of beings is delimited, demarcated" (136; 196). In the demarcation of the field of physics, a preceding decision is made regarding what does and what does not count as nature. This alludes to the guiding idea Heidegger took from the third crisis, namely the idea that science is fundamentally finite. Field-demarcation essentially carries within it

the idea of a limit. In this field-demarcation, beings first show themselves as merely available, as what Heidegger calls “*positum*” (137; 197).

Heidegger repeats here, as became clear from his analysis thus far, that science does not first enable a relation to beings. Rather, science establishes itself based on an already existing relation to beings. Beings thus already have to be available in a way, in order for science to be able to grasp them in their mere availability. This grasping is the original act that Heidegger was looking for, the act of field-demarcation that foregoes any actual scientific research.

In the final chapter of the first part of the *Introduction*, Heidegger connects science with the ideas of transcendence and the ontological difference. In this chapter, he puts our pre-theoretical understanding of being at the basis of this projecting act of field-demarcation (139; 200). This pre-theoretical understanding of being underlies all our comportments towards the world. And while this pre-theoretical understanding is not itself explicitly ontological, but rather pre-ontological, it is the condition for the possibility for explicitly grasping being and asking ontological questions. Heidegger calls the field-demarcating projection of science an intermediate stage between pre-ontological understanding of being and explicit ontological understanding (140; 201). So even if this field-delimiting projection is not an explicit grasping of being itself, there is still an understanding of being at work in it. Prior to all our dealings with beings, we have always already gone beyond them. This going beyond beings in the direction of being is what Heidegger calls “transcendence” (144; 206-207).

Transcendence, meant in this way, is part of human existence. The relation between science and transcendence is important, because science needs a transcending move in order to demarcate its field of enquiry (147; 212). However, the transcending move and understanding of being are never itself an explicit part of science. This is also where we arrive at the difference between science and philosophy. In science, the transcending move is always implicit. “The relative lucidity of scientific knowledge of beings is surrounded by the imposing darkness of the understanding of being. For even in the ontological projection that occurs with the grounding and development, and generally in the history of science, being is indeed understood and delimited in a certain way but not apprehended, that is, not expressly comprehended conceptually as being” (148; 213). This is where the three characteristics of science circle back for the third time: it belongs to individual existence insofar as it depends on transcendence, it is activity because the projective transcendent act is an inherent part of it, and it is finite because being itself is never available to it. Philosophy, on the contrary, exists in making this transcending move explicit (148; 213).

For Heidegger, the relation between philosophy and science, and the possible resolution of the crisis of the sciences, becomes clear in his further elucidation of the notion of “transcendence.” Near the end of the second half of the course, in which he deals with the notion of “worldview”, Heidegger gets back to—and expands on—this notion. Here, he talks about “transcendence” in terms of his well-known understanding of human existence as being-in-the-world. It turns out that the determination of transcendence as understanding of being did not disclose the full picture. A further investigation into the meaning of being-in-the-world will help getting a better grasp at the full meaning of transcendence.

Being-in-the-world means that the being which is in the world is not indifferent with respect to its own being. We exist, Heidegger writes, for the sake of ourselves and because of this we are always confronted with our own possibilities. This gives us the first hint that understanding of being is not a harmless, neutral onlooking (226; 325). What is at stake in our understanding of being is our being-positing in the world, in which our own being is presented to us as a task. To underline what is at stake in this being posited, Heidegger further describes this in terms of our being disclosed to both other beings and ourselves. (226; 326).

At this point, Heidegger stresses that even describing transcendence in terms of being disclosed to other beings, still sounds too indifferent (228; 328). He tries to adjust this by stating that Dasein is not merely revealed to other beings, but is in the midst of beings, in the sense of being ruled over by these beings. He then expresses this in a peculiar way: “Dasein is corporeal, a living body and life: it does not have nature simply or only as an object of contemplation, rather, it is nature” (228; 328). A few lines later he clarifies what exactly he means by nature in this sense: “We are here concerned with a fundamentally broader and more originary concept of nature: *natura, nasci*, of its own accord, something that Dasein, as a free self, does not have power over” (228; 329). Nature, meant in this sense, is something that we always already are, and exist in the midst of, but that we have no power over.

What this implies, is that no Dasein chooses its own existence, nor can it say of itself that it exists necessarily. That means, that our existence is contingent, that we could just as well not have existed at all. Every Dasein relates to this fact of our possible non-existence in one way or another and in that sense we all relate to nothingness (231; 332). But Dasein's relation to this nothingness goes deeper than the mere insight of Dasein's powerlessness regarding the fact of its own existence. It pervades our relations with objects, others and ourselves, in the sense that we are always scattered among these

relations. We must make decisions on where we place our focus, because we cannot do everything. Every decision cuts off specific possibilities.

What this finally alludes to, according to Heidegger, is the lack of hold (*Halt-losigkeit*²¹) of Dasein (234; 337). This means that our existence is contingent, without external reason, and there is no laid out path for us. By making certain decisions we are providing ourselves with a basis, a hold on things, but we can only do this because we fundamentally lack those. Any of these decisions that we make, constitutes an understanding of being, in which the being of the beings is preliminarily understood in a certain way. However, we can never fundamentally escape the nothingness that lies at the origin of our existence (236; 340). Heidegger does not explicitly tie these insights back to the idea of science. But based on what we have discussed so far, it is possible to connect the dots. For Heidegger, science is a way to conceal the lack of hold, ground or basis that characterizes human existence. By fixating nature in a specific, ordered, homogeneous way, we cover up the fact that to exist as a human being means to be thrown in the midst of beings over which we have no control; to be at the mercy of the beings we find ourselves surrounded by. Heidegger writes: “Finding oneself is taken as something that Dasein does not have power over, that it fails to master, and that remains as an essential burden on itself, one that it can never be rid of so long as it exists, that it can only forget, so as thereby to confirm it all the more emphatically” (229; 330).

Science can accordingly be seen as a way of forgetting this essential burden. Philosophy cannot remedy this by becoming a science, because philosophy as an explicit performance of the transcending movement of human existence, precisely constitutes a recognition of the baselessness of human existence. So even though Heidegger agrees with Husserl that science starts from the world of everyday experience, the problem for Heidegger is not so much that science covers up this everyday world. For Heidegger, the whole scientific impetus of Galileo—which Husserl values to a high degree—is suspect, because it essentially consists in a forgetting, in a covering up of the baselessness of our existence.

²¹ The term “*Halt-losigkeit*” is translated into English as “lack of hold”. This translation clearly denotes a lack of control or grip, but misses another important meaning of the terms “*Haltlos*” and “*Haltlosigkeit*”, which in German also mean: baselessness, in the sense of, for example: baseless accusations. I will therefore refer to the original German term rather than to the English translation.

4. Science and Nature

So here we arrive at the crucial difference between the way Husserl and Heidegger evaluate the crisis of the sciences. For Husserl, the crisis is principally a solvable one. By means of a science of the life-world, the life-world itself is uncovered and the gap between the world of the sciences and the life-world is bridged. This is connected to the fact that for Husserl, a universal science that connects situational truths to scientific truths, finally revealing the entire truth about the world, is something we can attain and should strive for as scientists and philosophers. For Heidegger, the crisis is inherent to the sciences and therefore cannot be solved. Since our existence is characterized by *Haltlosigkeit*, and the whole project of science is aimed at covering up *Haltlosigkeit*, science will always be estranged from both our individual, and historical and social existence. The internal crisis of the sciences is inherent to science as well, because this crisis essentially refers to sciences being confronted with their own limitations, which are inherent to any science due to the act of field-demarcation necessary to establish a field of investigation.

What does this all mean for the possibility of naturalizing phenomenology? There are several conclusions we can reach from what was established. Any notion of “naturalism” that has a Galilean definition as its corresponding notion of “nature” is problematic and irreconcilable with philosophy as both Husserl and Heidegger envision it. For Husserl, a collaboration between science and phenomenology is very much wanted, albeit not in the form of any kind of scientism or anything like a strong ontological naturalism. Importantly, for Husserl, science and philosophy are similar enterprises, driven by the same scientific impetus of rationally uncovering the world. An alternative notion of “nature” that fits well with Husserl's proposal of philosophy as a science of the life-world, is that of liberal naturalism (De Caro and Macarthur 2022). Liberal naturalism's identification of nature with Husserl's concept of “life-world” means that naturalism and phenomenology are very closely connected. However, in order to fully evaluate this connection, more work needs to be done in clearly demarcating the supernatural that liberal naturalism is meant to rule out (2). It also begs the question whether naturalized phenomenology understood in terms of the liberal naturalist's idea of nature actually naturalizes phenomenology in any meaningful way.

Heidegger provides an alternative in his more fundamental conception of nature as that which we are, which always precedes us and which we have no power over. This new conception of nature is not worked out in any further detail here, but this is taken up in other works from around the same time. The formulations Heidegger

uses in his sparse conception of nature in the *Introduction to Philosophy* fit closely with his conception of nature as *phusis*. This notion of “*phusis*” and the possibility of fruitful collaboration between phenomenology and science resulting from it will be expanded upon in chapter five of this dissertation.

What could possibly stand in the way of such a collaboration, is the picture that Heidegger paints here of science as an enterprise that is essentially aimed at covering up or forgetting this conception of nature. From this vantage point, a fruitful collaboration between science and philosophy is hard to envision, all the more because the two disciplines are so essentially different that Heidegger calls the notion of a “scientific philosophy” “nonsensical” (Heidegger 2024, 154; Heidegger 1994b, 221). Still, Heidegger also speaks of a “necessary connection of science to philosophy” (156; 225), and holds that a “fruitful, reciprocal determination” (156-157; 225) between the two disciplines is possible if the essential differences between them is recognized. Heidegger does not elaborate further on what he understands by this possible mutual determination, but this remark in combination with his overall analysis leads to the question if science and phenomenology cannot work together best when phenomenology is not naturalized at all, but when the differences between the two disciplines and their approaches are cherished instead of pushed aside.

5. Conclusion

In conclusion, Husserl and Heidegger both agree that the sciences of their time are in a state of crisis. According to Husserl the crisis consists in a severing of the connection between ethico-political and existential questions on the one hand and science on the other, a severing of the sciences from one another, an obscured relation to truth, and the existential impact of the loss of faith in reason. Husserl traces this crisis back to Galileo's mathematization of nature. According to Husserl's analysis, Galileo was a concealing genius, who took up and expanded on the existing project of geometry in his time, thereby covering up the origin of this discipline in the life-world, essentially burrowing the life-world under a garb of ideas. This crisis can be solved by means of a science of the life- world, which uncovers said life-world and reinstates the relation between the life-world and the scientific domain.

For Heidegger, the crisis of the sciences consists of a crisis of the internal structure of science, a crisis in the relation between science and historical and social existence, and a crisis in the relation between science and individual existence. Like Husserl, Heidegger traces this crisis back to Galileo. According to Heidegger, Galileo's

defining move was to preliminarily understand being in terms of nature. This move is a transcending move, whereby the being of beings is always already understood. This transcending is part of human existence: we are thrown in the midst of beings over which we have no control or power. Our existence is characterized by a lack of hold, we do not choose our existence and there is no reason for it. Science is a way to cover up this baselessness. Therefore, following Heidegger's line of thought, the crisis is inherent to the sciences.

From both a Husserlian and Heideggerian perspective, the conceivability of a naturalized phenomenology hinges on the exact definitions of "nature" and "science" that accompany the notion of "naturalism." Any understanding of naturalism as physicalism, scientism or both is clearly at odds with some of the central tenets of both of their philosophies. The notions of "science" and "nature" accompanying the notion of "naturalism" thus need to be critically examined and revised in order to arrive at a naturalized phenomenology that phenomenology's founding fathers would be pleased with.



Chapter 4

A Heideggerian Perspective on Realism

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Abstract

In spite of Heidegger's sometimes overtly antithetical relation to realism, recent literature finds close connections between his philosophy and various realist positions. This chapter aims to look at two influential realist positions and consider its relation to Heidegger's remarks on both what is immediately given to experience, and the relation between the human being and its world. Both of these realist positions—Dreyfus' robust realism and Harman's speculative realism—define themselves in terms of the independence of relations from human experience. With the help of Hans Jonas' theory of the meaning of metabolism, I will hold that Heidegger's own interpretation of his notion of "care" indeed places an all too restrictive emphasis on the human-world relation, which unjustly excludes other living beings. However, while this means that animal-world relations—or even amoeba-world relations—should indeed be placed on the same level as human-world relations, I see no evidence in Heidegger that suggests the need to broaden the scope further to include object-object relations.

1. Introduction

Phenomenology and realism are a difficult couple. We can see this in the transcendental idealism of Husserl, and in Heidegger's assertion that even though he wants to position himself outside of the realism-idealism dichotomy, idealism is the more sensible of the two positions (Heidegger 1962, 251; Heidegger 1977, 275). Despite the mostly antagonistic role realism plays in Heidegger's philosophy, recent years have seen a multitude of realist interpretations of Heidegger's work. The most famous one of these being Hubert Dreyfus' understanding of Heidegger as a robust realist regarding the entities of natural science (Dreyfus 2001), and Graham Harman's take on Heidegger's analysis of tool-being as a starting point for his own speculative realist position (Harman 2002; Harman 2011).

The goal of this chapter is to come to an understanding of the operative notion of "nature" in Heidegger's philosophy. If Dreyfus is right, and Heidegger is a robust realist with regard to the entities of natural sciences, this has profound implications for the relation between naturalism and Heideggerian phenomenology. The same goes, as we shall see, for Harman's interpretation of Heidegger's tool analysis as a precursory speculative realist position. To reach this goal, I will evaluate the compatibility between these forms of realism and Heideggerian thought. In order to do this, I will first shortly explain Dreyfus' interpretation of Heidegger's robust realism regarding the entities of natural science. I will show how this position

can be seen as a version of what Harman calls “undermining” (Harman 2011, 8) and that Harman’s criticism of this position is very similar to a critical strain in Heidegger’s thought.

Continuing from the similarity in their criticism of the undermining move of scientific realism, I will then further explore the compatibility of Harman’s position and that of Heidegger, by first explaining Harman’s version of speculative realism as he puts it forward in *The Quadruple Object* (2011), focusing on one of its most essential traits, namely: that all relations are equally real. After that, I will explain Heidegger’s difficult relation to this reading of the notion of “realism”, mainly focusing on three texts: *Being and Time* (1962; 1977) *History of the Concept of Time: Prolegomena* (1985; 1994b) and *The Fundamental Concepts of Metaphysics: World–Finitude–Solitude* (1995b; 1983a). I will explain how the notion of “care” casts doubt on a thoroughly realist reading of Heidegger, because of its focus on human-world relations. Finally, I will criticize Heidegger’s notion of “care” by relating it to Hans Jonas’ explanation of the metabolizing organism in his work *The Phenomenon of Life: Toward a Philosophical Biology* (2001), thereby calling into question Heidegger’s idea that only humans have relations their surrounding world.

2. Heidegger’s Realism

In his 2001 paper on Heidegger’s robust realism, Dreyfus defines robust realism as a position that defends the following independence claim: “Science has long claimed to discover relations among the natural kinds in the universe that exist independently of our minds and ways of coping” (Dreyfus 2001, 109). This definition of realism in terms of mind-independent relations between natural kinds is important, because as we shall see later on, Harman defines his realism in a similar manner.

Dreyfus distinguishes his position from the position that understands Heidegger as a deflationary realist. Deflationary realists take issue with the Cartesian picture of the human beings as a mind directed towards the world and replaces it with a picture of human beings that are inextricably interwoven with things and people in the world. This picture emphasizes the interconnectedness of things and our practices, making positions that either hold their strict independence, or require one to be dependent on the other to be nonsensical. Thus, we arrive, in Dreyfus words: “at a deflationary view, that repudiates both metaphysical realism and transcendental idealism” (Dreyfus 2001, 160). The deflationary realist can accept scientific claims as long as they do not ascribe to one of these two positions.

According to Dreyfus, Heidegger adheres to this deflationary realist view when it comes to phenomena of everydayness, but holds a different view when it comes to the entities discovered by natural science. Dreyfus shows this by pointing to the distinction between *Vorhandenheit* and *Zuhandenheit*. We normally encounter tools as *zuhanden*. In situations of extreme equipmental breakdown things no longer function as they should and we discover them as merely *vorhanden*, that is, as having no relation to our everyday activities and as underlying our everyday equipment all along. The most radical experience of the *Vorhandenheit* of things is given in the fundamental mood of anxiety. Dreyfus refers to *What is Metaphysics*, where Heidegger writes that the nihilation caused by anxiety “manifests these beings in their full but heretofore concealed strangeness as what is radically other” (Heidegger 1998, 90; Heidegger 1967, 11). He connects this with Heidegger’s characterization of nature as the “*unworlded*’ world” in *History of the Concept of Time* (Heidegger 1985a, 168; Heidegger 1994b, 227) to conclude that in a situation of extreme breakdown, we can experience nature as independent from—and underlying our—everyday practices. The only thing that is missing for a truly robust realist account of scientific entities in Heidegger’s philosophy, Dreyfus argues, is an account of how the meaningless beings revealed in an extreme breakdown can serve as data for science. This missing piece would seem crucial, for it carries the entire argumentative load for showing why Heidegger’s notion of the “*unworlded*’ world”—or the *Vorhandenheit* of tools experienced in situations of equipmental breakdown—coincides with nature as it is laid bare by the natural sciences.

Interestingly, the type of realism that Dreyfus here ascribes to Heidegger, is starkly different in kind from the realism Harman is developing in *The Quadruple Object*. While Dreyfus builds his case for a Heideggerian robust realism on situations of breakdown showing scientific nature as something *underlying* our everyday practices, Harman rather wants to focus on the reality of objects themselves and avoid any move towards a so-called underlying, basic, more fundamental layer of reality; a move he calls undermining and which he describes as follows: “All of the dogs, candles and snowflakes we observe are built of something more basic, and this deeper reality is the proper subject matter for philosophy” (Harman 2011, 8). The opposite move, overmining, only considers objects to be important “insofar as they are manifested to the mind” (11). Harman gives the example of an apple, which in accordance with this view would not have a separate individual reality, but is something like “a collective nickname for a series of discrete qualities habitually linked together: red, sweet, cold, hard, solid, juicy. What exists are individual impressions” (11).

As we have seen, for Dreyfus, the fact that Heidegger points to a layer of reality beyond the objects of our everyday concern, is what makes him a realist. For Harman, this move undermines the reality of these objects themselves and is therefore antithetical to real realism. I will demonstrate that Heidegger agrees with Harman's assertion.

Interestingly, we see Heidegger making a similar case to Harman in both his very early, 1919 War Emergency Semester course *The Idea of Philosophy and the Problem of Worldview* and his 1951-52 course *What Is Called Thinking?*

In the War Emergency course, Heidegger famously explores the experience of a lectern, and asks what is primarily given in this experience. In his depiction of a critical realist position, what is given to us, are sensations, and these sensations are held to be caused by the external world. Hence, the following picture arises: "The sense organs give rise to sensations only when they are stimulated from outside, as effects of external causes. Physics provides additional crucial information: brown is not really in the lectern; the sensory qualities, colours, tones, etc., are in their nature subjective. Only the movements of various wavelengths in the ether are objectively real" (Heidegger 2000b, 68; Heidegger 1987, 81). According to the critical realist, with the help of the natural sciences, only the movements of various wavelengths are really there. The object itself, the lectern, is only given to me as a sum of sensations, which are caused by these various wavelengths. In Harman's terms, the realist both undermines and overmines the lectern at the same time, favoring sensations given to my sense organs (overmining) that are supposedly caused by wavelengths in the ether (undermining).

Opposing the critical realist line of reasoning—and very much in line with Harman's focus on objects—Heidegger gives the following, lucid description of what he considers to actually happen when we experience a lectern.

I see the lectern at which I am to speak. You see the lectern, from which you are to be addressed, and from where I have spoken to you previously. In pure experience there is no 'founding' interconnection, as if I first of all see intersecting brown surfaces, which then reveal themselves to me as a box, then a desk, then as an academic lecturing desk, a lectern, so that I attach lecternhood to the box like a label. All that is simply bad and misguided interpretation, diversion from a pure seeing into the experience. I see the lectern in one fell swoop, so to speak, and not in isolation, but as adjusted a bit too high for me. I see—and immediately so—a book lying upon it as annoying to me (a book, not a

collection of layered pages with black marks stern upon them), I see the lectern in an orientation, an illumination, a background. (60; 71)

He later explicitly adds, that it is the lectern, and not some sensory quality, that is immediately given to me: “The lectern is given to me immediately in the lived experience of it. I see it as such, I do not see sensations and sense data” (71; 85). Hence it becomes clear that Heidegger rejects the undermining move of the tandem of realism and science pointing to a more fundamental layer of reality that supposedly underlies the world of my experience. He rather wants to focus on the object of the lectern as an everyday object that is immediately given to me in pure experience.

We find a similar story in *What Is Called Thinking?*, more than thirty years later. Here, Heidegger thinks through what happens when we stand face-to-face with a tree in bloom. How can we understand what happens in this experience? After criticizing the idealist position that considers the tree to only be something in our brain or in our soul²², he turns to the alleged common-sense position of physical science. What does our perception of the tree look like from that position? “For we shall forfeit everything before we know it, once the sciences of physics, physiology, and psychology, not to forget scientific philosophy, display the panoply of their documents and proofs to explain to us that what we see and accept is properly not a tree but in reality a void, thinly sprinkled with electric charges here and there that race hither and yon at enormous speeds” (Heidegger 1967, 43; Heidegger 2002, 45-46). So here, Heidegger states, the tree itself is not really there according to these sciences. What really exists is void and tiny particles, not the tree in bloom in the meadow as I am experiencing it now. In Harman’s terminology, these sciences undermine the actual tree in favor of the underlying reality of a void, thinly sprinkled with electric charges. Heidegger then asks, rhetorically: “Whence do the sciences—which necessarily are always in the dark about the origin of their own nature—derive the authority to pronounce such verdicts” (43; 46)?

The task that Heidegger sets for thinking, contrasted with the scientific understanding on display above, is also similar to Harman’s call to objects as the right focus for philosophy. He writes: “When we think through what this is, that a tree in bloom presents itself to us so that we can come and stand face-to-face with it, the thing that matters first and foremost, and finally, is not to drop the tree in bloom, but for once let it stand where it stands” (44; 46). What I take from these two examples, is first of all, that there is a strong strain of critical resistance to the robust

²². A position that is very similar to what Graham calls “overmining”, the other side of the coin of undermining that is equally unable to grasp the object itself.

realist position Dreyfus' ascribes to Heidegger in Heidegger's thinking. Second, that this critical strain in Heidegger's thinking shows striking similarities with Harman's criticism of undermining objects in favor of some underlying reality. This leads to the question of whether realism as defined by Harman is compatible with Heidegger's thinking.

In Harman's realism, objects take central stage. Instead of undermining objects in favor of some deeper, ultimate layer of reality, or overmining them in favor of perceivable qualities, Harman defines objects by their "autonomous reality" (Harman, 2011, 19). Autonomous reality here means, in Harman's words: "emerging as something above their pieces, while also partly withholding themselves from relations with other entities" (Harman, 2011, 19).

Objects are independent realities that are irreducible to either deeper, more fundamental layers of reality, or their relation to other objects. However, even though objects cannot be reduced to their relations, Harman does place great emphasis on these relations. Specifically, he rejects the restrictive Kantian priority of the human-world relation above all other types of relations. He writes: "Rejecting the post-Kantian obsession with a single relational gap between people and objects, I hold that the interaction between cotton and fire belongs on the same footing as human interaction with both cotton and fire" (Harman, 2011, 6).

So, to believe in an independent reality turns out not to be enough in order to qualify as a realist, at least not as an interesting one. Harman therefore proposes a so-called litmus test in order to separate the realist wheat from the chaff: "[N]o philosophy does justice to the world unless it treats all relations as equally relations, which means translations or distortions. Inanimate collisions must be treated in exactly the same way as human perceptions, even if the latter are obviously more *complicated* forms of relation" (46). While Harman recognizes that Heidegger himself never critically examined the Kantian focus on human-world relations, he considers Heidegger's position to be ultimately compatible with a real realism, that is, a realism that places relations between objects on the same level as relations between human beings and objects.

In what follows, I will examine Heidegger's critical stance towards realism and his reasons for adopting this stance. The central notion in this examination is the notion of "care", which I will relate to Jonas' notion of "metabolism."

3. In-being and Care

Heidegger explicitly deals with both object-object relations and his stance towards realism in the third chapter of the first division of *History of the Concept of Time* (1985a; 1994b), a course he taught in Marburg in the summer semester of 1925, which contains many of the ideas that would be come to fruition in *Being and Time* (1965; 1977). In this third chapter, Heidegger investigates the world as that *wherein* Dasein—the human being—always already is. Before going into detail about this notion of “world”, he first investigates what we mean with this in-being: “[I]t designates the kind of being of an entity which is ‘in’ another, the relation of something ‘in’ something. When we try to give intuitive demonstration to this ‘in,’ [...] we give examples like the water ‘in’ the glass, the clothes ‘in’ the closet, the desk ‘in’ the classroom (Heidegger 1985a, 157; Heidegger 1994b, 211-212).”

If this is how we understand in-being, then humans being in-the-world becomes a trivial occasion. I, a human being, am in my office, the office is in Nijmegen, Nijmegen is in the Netherlands, the Netherlands is in Europe, Europe is in the world. In-being here is understood as a type of spatial containment. Is this the way to understand human being in-the-world? The short answer is: no. This spatial determination is not the type of relation Heidegger is trying to describe when he says that human beings are always in-the-world: “But ‘in-being’ as a structure of the being of Dasein, of the entity which I am in each instance, does not refer to this being-in-one-another, ‘being-in’ as a spatial containment of entities which takes place in the form of an occurrence” (158; 212).

Rather, with a typical Heideggerian analysis of the etymology of the word “in”, he comes to the conclusion that in-being originally means being familiar with, being at home with, dwelling. That is how he wants to use the term when he considers human beings to always already be in-the-world. “Being as in-being and ‘I am’ means dwelling with..., and ‘in’ primarily does not signify anything spatial at all but means primarily a *being familiar with*” (158; 213). This notion of “in-being” is crucial to Heidegger, because it sheds some much needed light on the human-world relation. For a long time, knowing was seen as the most primary form of human-world relation, causing all kinds of epistemological problems. According to Heidegger, these epistemological problems and the two most common ways of answering those problems are all due to a lack of attention to the phenomenon of in-being: “The so-called epistemological positions of *idealism* and *realism* and their varieties and mixtures are all possible only on the basis of a lack of clarity of the phenomenon of in-being” (166; 224-225).

Without delving any further into Heidegger's explication of worldhood, we can already see here that he apparently thinks the human-world relation is a special kind of relation. Humans are in-the-world in a different way than water is in a glass. However, this does not necessarily mean that objects cannot also have relations to each other, which may be different in kind, but still on the same footing as human-world relations.

His stance towards object-object relations becomes clearer later in the chapter, in a paragraph on spatiality. In this paragraph, he wants to analyze the everyday spatiality of our surroundings. The fundamental concept here is "remotion" (*Entfernung*). For Heidegger, "remotion" is the basic notion of "spatiality", from which all others are derived. And it quickly becomes clear that objects are only remote in relation to us: "[Remotion] refers rather to the temporally particular nearness or remotion of the chair or window to *me*. Only on the basis of this primary remotion, that the chair, insofar as it is there in a worldly way, as such is removed from me, as such has a possible nearness and distance to me, only on this account is it possible for the chair to be remote from the window" (225; 309). This amounts to saying that the chair has a certain spatial relation to me and the window has a spatial relation to me as well. Only in that light, from *my* perspective, can the chair and the window have a relation to each other. The chair can be too close to the window because the afternoon sun shines right in my eyes when I sit there reading a book, or too far away from the window for me to effectively spy on people passing by. The chair and window in themselves cannot in the same sense be said to close to—or remote from—each other.

A similar example can be found in Heidegger's analysis of in-being in *Being and Time*. Similar to the above example, Heidegger takes the example of a table and a chair, and how in ordinary language we tend to describe relations between objects in terms of saying: the table is standing by the door, or the chair touching the wall. He writes: "Taken strictly, 'touching' is never what we are talking about in such cases, not because accurate examination will eventually establish that there is a space between the chair and the wall, but because in principle the chair can never touch the wall, even if the space between them should be equal to zero [...] When two entities are present-at-hand within the world, and furthermore are worldless in themselves, they can never 'touch' each other, nor can either of them 'be' 'alongside' the other" (Heidegger 1962, 81-82; Heidegger 1977, 74). Two worldless, present-at-hand entities can never touch, or be remote from one another. Only from my standpoint, as a being that is fundamentally in-the-world, is it possible to make such an assertion. Relations between the chair and the window or the table and the wall only exist from

my perspective. The worldless beings themselves have no relation to each other. We will come back to this notion of “worldlessness” later on.

At the core of the special emphasis Heidegger places on the human-world relation is the notion of “care”, a notion at the center of a lot of Heidegger’s earlier texts and lecture courses. This notion was already introduced and explained extensively in chapter 2 of this dissertation. To quickly summarize these findings: We find one of the earliest explicit mentions of the term in the course *Phenomenological Interpretations of Aristotle* (2001b; 1985b). There he uses the term here to designate the way life is never isolated, but rather always involved in its environment. Hence, Heidegger relates care to living, not to being human specifically. We will come back to this point. In *History of the Concept of Time*, Heidegger gives a more restrictive determination of the notion of “care”: “Care is the term for the being of Dasein pure and simple. It has the formal structure, an entity for which, intimately involved in its being-in- the-world, this very being is at issue” (Heidegger 1985a, 294; Heidegger 1994b, 406). Here, care is no longer just linked to the being of living beings generally, but more specifically designated as the being of Dasein. Care, meant in this way, specifies that our relation to the world around us should always be understood in combination with the fact that our own being is always at issue for us.

Heidegger further explains this, when he writes: “Its own being is the issue for Dasein: This first presupposes that in this Dasein there is something like a *being out for something*. Dasein is out for its own being; it is out for its own being in order ‘to be’ this being” (294; 407). What this being out for itself means, is that Dasein has to anticipate itself and its needs in its relation to the world. In that sense, care means Dasein is always ahead of itself in a world in which it is intimately involved. Therefore, Heidegger formulates the formal structure of care as: “Dasein’s being-ahead-of-itself in its always already being involved in something” (294; 407). This structure is of course a temporal one. Out for its own being, Dasein is always already involved in the world with a past and certain existing structures, and has to anticipate its needs in the future.

The notion of “care” Heidegger invokes here is meant to replace the notion “intentionality” (Denker 2000, 69). As extensively discussed in chapter 2 of this dissertation, care is claimed by Heidegger to give a broader and richer account of our relation to the world than the notion of “intentionality”, which is only able to capture our theoretical comportment.

So, to sum up: for Heidegger, human beings are always in a relation of intimate involvement with their surroundings. They are not simply in-the-world like water

is in a glass, but rather they dwell in meaningful surroundings, where objects can be frightening or useful, chairs can be close or far away from tables and the others that I meet are always also involved in their own worlds. The ontological structure underlying this involvement is care. As beings whose being is an issue for themselves, human beings always have to be involved with their surroundings, being ahead of themselves.

4. Animals

4

Based on the *History of the Concept of Time*, we can see that Heidegger indeed prioritizes human-world relations over object-object relations. We stumbled upon an ambiguity when it comes to living beings, however. For while the fully developed notion of “care” specifically designates the being of human beings, the earlier version of the notion from his Aristotle-lecture also includes life.

To get a clearer idea of Heidegger’s stance on animals, we will take a look at his most explicit analysis of animal life, which he conducts in *The Fundamental Concepts of Metaphysics*, a course he teaches in the winter semester of 1929/30. In this course, he recognizes that elucidating the concept of “world” has always been a central aim in his philosophy. He then announces that in this lecture he is going to try a different path towards clarifying the concept of “world”, namely a comparative examination of the way three different kinds of beings relate to the world. More precisely, he will analyze the concept of “world” by comparing the following three theses: “[1.] the stone (material object) is *worldless*; [2.] the animal is *poor in world*; [3.] man is *world-forming*” (Heidegger 1995b, 177; Heidegger 1983a; 263).

Heidegger first deals with the second thesis—that the animal is poor in world—since this appears to be the most difficult one. The reason for this is that the world-poverty of the animal seems to be somewhere in-between the world-formation of man and the worldlessness of the stone, because “[w]ith the *animal* we find a *having of world* and a *not-having of world*” (268; 390). What exactly is the difference between the way the animal and the stone relate to the world? And what is the difference between the way the animal and the human being relate to the world?

The contrast between the world-poverty of the animal and the worldlessness of the stone is clarified by Heidegger by means of an example of a lizard and a stone. If a stone is lying on a path somewhere, it has no relation to this path: the stone will not notice it if you pick it up and throw it in a pond or take it home, it has no access

at all to the world surrounding it. We saw something similar in the example of the table and the wall having no relation to each other due to them both being worldless, present-at-hand entities in *Being and Time*. However, this is different when it comes to animals. When a lizard is basking in the sun on top of a rock, it does not do so by chance: “The lizard basking in the sun on its warm stone does not merely crop up in the world. It has sought out this stone and is accustomed to doing so. If we now remove the lizard from its stone, it does not simply lie wherever we have put it but starts looking for its stone again, irrespective of whether or not it actually finds it” (197; 291). So, whereas the rock has no access to the other beings surrounding it at all, the lizard does seem to have some kind of access to other beings, as shown by the fact that it explicitly seeks out the rock to sit on and tries to find it again when it is thrown off. This makes the way the lizard relates to other beings seem similar to the way human beings relate to other beings, so what exactly is the difference between the world-poverty of the animal and the world-forming of the human being?

Animal behavior is explained by Heidegger in terms of drives. Animals are driven towards such things as food and shelter, and because of these drives they have access to the objects in their environment that allow them to fulfill the needs that they are driven towards. To go back to the example of the lizard, because it is a cold-blooded animal, it has a drive to warm up in the morning. Since stones become very warm when lying in the sun, the stone allows it to fulfill this need and therefore the lizard has access to the stone. The drives of the animals lock into these parts of the environment that are relevant for the drive. These relevant parts of the animal's environment therefore provoke the animal's behavior, creating what Heidegger calls a “disinhibiting ring” (255; 370-371) around the animal. What this means is that the animal is always surrounded by an environment in which it knows its way around, because the only objects that show up for the animal are objects that are relevant to its drives. It is because of this that Heidegger says that these objects disinhibit the animal's behavior. So for example, the stone disinhibits the lizard to lie on it, meaning that the stone is normally unavailable to the lizard, until the time comes when his drives urge him to seek it out, for example because it needs the stone in order to warm up.

So the animal clearly has some manner of access to things other than itself. Yet, Heidegger maintains, the animal is never related to the world *as world*, or to other things *as beings*: “[...] the animal is related to other things. *Related to other things—although these things are not manifest as beings*” (253-254; 369). Because of the fact that it is the lizard's drive to become warm that gives him access to the stone in the first place, the stone is only ever available to him as a source of heat, never as a being of the type of a stone. Likewise, the rabbit is never available to the fox as another

animal, but rather only as a predator and in the same way the rabbit is only a prey to the fox. If the fox and the rabbit would not have this hunter-predator relationship, neither would lock into the drives of the other, making them unavailable to each other. So this means: “The animal certainly has access to... and indeed to something that actually is. But this is something that *only we* are capable of experiencing and having manifest *as beings*” (269; 390).

As mentioned the animal only has access to the things it needs at that moment. The lizard will only ever encounter anything when it serves a purpose for him in his current state. So it will encounter the stone as a source of heat when it needs to warm up in the morning, as a possible shelter when it is being chased by predators or as an obstacle when it needs to get to the other side of it. The lizard, however, will never recognize that it is in fact encountering the same stone in all these different situations: it has no access to the stone as such. Therefore: “the animal [...] precisely does *not* stand alongside man and precisely has *no* world” (269; 391). This does not mean that the animal has the same kind of relation to world as the stone, because the drives that characterize the animal constitute a kind of openness that the stone lacks altogether, which marks a fundamental difference between the animal and the stone. World-poverty is thus defined by Heidegger as a: “*not-having of world in the having of openness for whatever disinhibits*” (270; 392).

So it is clear that for Heidegger, the stone does not have any sort of relation to the road on which it is lying, or the lizard that is resting upon it. However, the “world-poverty” of the animal remains a somewhat unclear notion. What does it mean for the animal to be incapable of considering the world *as* world or beings *as* beings? For on the one hand, the animal has to have access to the world as world in some sense, or it would not be able to meaningfully interact with it at all. On the other hand, as we have seen in the explication of the notion of “care”, in their involvement with the world, human beings also primordially anticipate themselves and their needs. Is that really that different from animal behavior? Harman recognizes the difficulties of Heidegger’s position here when he writes: “Obviously the animal must in some crude sense encounter world “as” world, or it would be the same sort of thing as a stone. But the human is supposed to possess a higher form of the as-structure, and the philosopher an even higher form of the “as” than the average human. [...] Never does [Heidegger] succeed in developing this rather abstract schema into a theory capable of accounting for diverse entities of various sorts” (Harman 2011, 59).

With the notion of “world-poverty”, Heidegger seems to suggest an essential difference between humans and animals. However, based on Heidegger’s explanation

of care in *History of the Concept of Time*, there actually seems to be equally little reason to exclude animals or even any other living being from this notion. Heidegger's earlier mentioned formulation of the notion of "care" in the Aristotle lecture, seems to be the most consistent one in that sense. To elucidate this point, we will take a look at Hans Jonas' analysis of animal life and the meaning of metabolism.

In his essay "Is God a Mathematician?", part of his book *The Phenomenon of Life*, Jonas employs the following thought experiment: When a fully mathematical, materialist God looks at an organism, what would they see? One thing becomes immediately very obvious, namely that there is a difference between the organism and other natural objects with regard to the notion of "identity." We say of this rock that it is and remains *this* rock because its material makeup remains more or less the same throughout time. We therefore say its identity is a material identity. The living being, however, is a metabolizing being, which means we should think of its identity in different terms: "In this remarkable mode of being, the material parts of which the organism consists at a given instant are to the penetrating observer only temporary, passing contents whose joint material identity does not coincide with the identity of the whole which they enter and leave, and which sustains its own identity by the very act of foreign matter passing through its spatial system, the living *form*" (Jonas 2001, 75-76).

In the process of metabolism, the organism exchanges matter with its environment, through eating, drinking, breathing, excreting, etc. and with that constantly renews its physical makeup. It needs to do this to remain alive. We say of this living being that it remains *this* specific living being, not because it consists of the same matter, but because it remains alive over a period of time. A good example of a dramatic change in physical makeup is the metamorphosis from tadpole to frog, or from a caterpillar to a butterfly. Even though the animal almost completely changes on the material level, we still say that it is the same being, because it retains the same living form over a certain period of time. Its identity is connected with its form of being alive; it enjoys a formal rather than physical identity.

What the mathematical God would see when they look at an organism, would be akin to a wave. A form that is retained by different material particles, a formal entity passively undergoing the changes of its physical components. However, says Jonas, we are living beings ourselves and therefore have insight knowledge of what it is like to be alive. From this perspective, we can see that the mathematical God would completely miss the point of being alive: "the mathematical God in his homogeneous analytical view misses the point of life itself: its being self-centered individuality,

being for itself and in contraposition to all the rest of the world, with an essential boundary dividing “inside” and “outside”—notwithstanding, nay, on the very basis of the actual exchange” (79).

Based on this general characterization, Jonas sketches the organism in terms of four characteristics that define organic beings, of which the first is the most important and the rest is derived from this one. These characteristics are: needful freedom, world, the dimension of inwardness and the time horizon.

The most important, essential characteristic of an organism is that it stands in a dialectical relation of needful freedom towards matter. The identity of the organism is not dependent upon material identity, so in a certain sense, it enjoys a freedom from matter. The organism is able to change its physical makeup, without loss of its form; being alive. But, says Jonas, “Its ‘can’ is a ‘must’” (83). In order to stay alive, the organism constantly *has* to change its physical makeup; if it stops doing that, it will die. The organism needs to eat, drink and excrete in order to stay alive. Thus we can see that the freedom from matter also brings about a certain dependence from matter. The organism therefore stands in a relation of needful freedom to matter.

The second characteristic is that of world. In order to provide itself with the matter needed to stay alive, the organism has got to have a certain access to the world around it, because that is where it finds its food. The metabolic need for matter therefore opens up a world and makes the organism transcend itself towards this world. This transcendence to the world is always imbued with some sense of selfness or inwardness, the third characteristic. This inwardness is an expression of the fact that every organism is concerned with its own being. In order to continue its existence, the organism must stay alive and in order to stay alive it must satisfy its need for food, and feel frustration when its quest for food fails. It therefore needs a self that feels this satisfaction and frustration. The last characteristic is the possession of a time horizon. As mentioned above, the organism transcends itself towards the world. Apart from a spatial horizon, however, the organism also opens up a temporal horizon. The dependence on matter brings about needs that need to be fulfilled in the future. The self-absorbedness of the organism is focused on continuation of existence through time. The organism transcends itself outwards in space and forwards in time.

These four characteristics tie in close with Heidegger’s explanation of care in the *History of the Concept of Time*. The characteristic of needful freedom ties in with the fact that the caring being’s relation to the world is always a being out for something,

it needs something from the world. The characteristic of world ties in with the fact that as a being out for something, the caring being is always already involved in something, namely in the world. The characteristic of inwardness ties in with the idea that for a caring being its own being is at issue for itself, while the final structure of the time horizon ties in with the final formulation of the caring being as a being-ahead-of-itself in its already being involved in.

Based on Jonas' interpretation of metabolism, there is no essential difference between humans and animals, or between humans and any living beings. For Jonas, the mentioned characteristics hold for humans, as well as animals, plants and amoeba's. The difference between the way an amoeba relates to its surroundings and the way a human being relates to its surroundings, is a difference in degree, not a difference in kind. The essential difference for Jonas and Heidegger is between living beings and non-living beings. Living beings relate to their world because they need to in order to remain alive. Their caring, metabolizing existence constantly pushes them outwards and onwards, looking for the necessary materials to keep on living, and fleeing from threats and dangers. On the one hand, the lizard relates to the stone, because it needs the stone for warmth. If it does not do this, it ceases to exist. On the other hand, the stone does not relate to the lizard because it does not need to. Its identity being physical instead of formal, the stone does not relate to the lizard because it does not need anything from the lizard.

5. Conclusion

In conclusion, we have seen that Dreyfus interprets Heidegger as holding a position of robust realism concerning the entities of natural sciences. Dreyfus points to Heidegger's analyses of extreme breakdown—both in the sense of equipmental breakdown and the total breakdown constituted by anxiety—as situations in which the world of everyday objects and tools recedes in order to show a glimpse of the underlying “real” world. It is precisely with this notion of “underlying” that Heidegger and Harman both take issue. As opposed to a reduction of the world of our experience to some allegedly more fundamental layer of reality, they propose to give everyday objects center stage in philosophy.

After highlighting the similarities in their criticism of this specific kind of realism, we turned to an investigation as to whether or not the kind of realism Harman is proposing is compatible with Heidegger's thinking. Harman proposes a litmus test for a philosophical position to qualify as real realism. This boils down to the

question of whether or not the philosophical position in question treats object-object relations and human-world relations as equally real. We have seen that Heidegger prioritizes human-world relations, stating that our relation to our surroundings is fundamentally different from the relation of water to a glass. This prioritization shines through in Heidegger's notion of "care", which designates the specifically human way of relating to the world around us as a meaningful whole that matters to us in a variety of ways.

However, already at the very start, an ambiguity crept in with regard to this notion of "care." For could the same things Heidegger is ascribing to the human being here not also be said about every living being? We have seen that in his earliest work which includes the notion of "care", Heidegger did use it to designate the way of being of all living beings. However, in his most explicit elucidation of animal life, Heidegger creates a distinction between the world-formation of humans and world-poverty of animals, thereby implicitly excluding animals from this notion of "care."

By looking at Jonas' analysis of the organism, we have seen that this exclusion of animals from the notion of "care" seems to be questionable. All living beings—including humans as well as animals, plants and even amoeba—have a meaningful relation to the world around them, which they need in order to remain alive. So, while Heidegger's philosophy, upon closer inspection, broadens the scope a bit beyond the priority of the human-world relation, it still does not qualify as a real realist position in Harman's sense.



Chapter 5

Nature as *Physis*. Towards a Hermeneutical Relation between Science and Phenomenology

Abstract

In this chapter I will explore Heidegger's understanding of nature as *phusis* as a candidate for a phenomenological understanding of nature that is helpful to the debate concerning naturalizing phenomenology. I will argue that Heidegger's notion of "*phusis*" opens the possibility of a hermeneutic relation between phenomenology and science. I will show how this notion of "*phusis*" is both a good fit with—and enhancement of—the idea of a phenomenologized nature, which has been popularized in the wake of the naturalizing phenomenology debate. I will highlight the added value of Heidegger's notion of "*phusis*" to the discussion by giving two concrete examples of the way phenomenology and science can enlighten one another.

1. Introduction

There is an interesting opposition at the heart of the debate concerning the possibility of naturalizing phenomenology (Petitot et al. 1999). On the one hand, the aim of naturalizing phenomenology makes sense from the perspective—and history—of phenomenology. It makes sense to try to bring together phenomenology and sciences like cognitive or neuroscience, since all of them seem to be aimed at roughly the same subject matter: human consciousness or experience. A collaboration between phenomenology and (other) sciences that study human consciousness also seems to be in line with Brentano's (1982, 1-10) ideas concerning the interplay between descriptive and genetic psychology, as well as with Husserl's general ideas concerning the desirability of scientific disciplines to regard themselves as "dependent branches of the One Philosophy" (Husserl 1970, 8; Husserl 1976, 6). On the other hand, however, making phenomenology compatible with naturalism is antithetical to phenomenology's basic tenets of resisting the naturalization of consciousness and ideas (Husserl 2002, 253-278; Husserl 1987, 8-41).

The conflict revolves around the exact meaning of "naturalism", the definition of which is highly dependent on how we understand the related notion of "nature." Recently, different voices in this debate have engaged with the question: What exactly is—or should be—the operative idea of nature in a naturalized phenomenology (Schewel 2013; Gallagher 2018, Reynolds et al. 2018, Wheeler and Clavel Vázquez 2018, Giannotta and Pisano 2022)? The guiding idea leading to the call to phenomenologize nature is that the debates and oppositions concerning naturalizing phenomenology will remain unresolved as long as we continue clinging to "the classic conception of physical reality or nature" (Gallagher 2018, 126). The main problem around which

the debates and oppositions are centered concerns—roughly speaking—the enduring incommensurability of this so-called classic conception of nature as it is understood by science, and the subject as it is understood in phenomenology. Therefore, the framework for a collaboration between phenomenology and science changes from naturalizing phenomenology to “rethinking nature” (Gallagher 2018, 131) or “phenomenologizing nature” (Schewel 2013), meaning “to ask if there are other views of nature that prove adequate to (Husserlian) phenomenology’s insights without engaging in an equally egregious falsification of science” (507). The relation between nature and subjectivity thus stands at the center of this discussion, for as I have shown in the second chapter of this dissertation, the way we think about nature constitutes the way we think about the subject and its relation to nature.

In this chapter I will not take Husserl’s insights as a starting point, but rather explore Martin Heidegger’s notion of “nature” as “φύσις” (from now on: *phusis*) as a view of nature that fits with phenomenology understood as the study of human subjectivity through lived experience. I will argue that this understanding of nature provides an opening for a fruitful collaboration between science and phenomenology. Furthermore, I will argue that this proposal enhances the existing proposals, in that it allows for a hermeneutical relation between science and phenomenology, meaning that science and phenomenology are mutually involved in a circular process of understanding, engaging in a back-and-forth motion whereby both fields can inform and transform one another.

For this purpose, this chapter is divided into four main sections. The first section highlights two recent proposals for collaborations between phenomenology and science—specifically in the form of Michael Wheeler’s minimal naturalism and Shaun Gallagher’s rethinking of nature. The second section is devoted to an analysis of nature as *phusis* as put forward by Heidegger in *Introduction to Metaphysics* (2000a; 1983b) and *The Fundamental Concepts of Metaphysics: World–Finitude–Solitude* (1995b; 1983a), two of the earliest mentions of the concept of “*phusis*” in Heidegger’s oeuvre. The third section will focus on the way Heidegger envisions the collaboration between science and philosophy resulting from his notion of “*phusis*” in *The Fundamental Concepts of Metaphysics*. The fourth and final section will enhance this point by providing a concrete example of a mutually beneficial collaboration between phenomenology and science.

2. Minimal Naturalism and Rethinking Nature

The debate concerning the possibility of naturalizing phenomenology classically concerns the exact shape of the relation between phenomenology and science, and the question of what it means for a philosophical method to inform a positive scientific research programme. How do we conceptualize this relation? Which rules and restrictions (if any) are needed in order for phenomenology to make contributions to positive scientific research?

One clear answer to these questions is posed by Michael Wheeler, who holds that in order for such a collaboration to be fruitful, phenomenology should adhere to some basic form of naturalism which he—referring to the *Harry Potter* books—calls the “*Muggle Constraint*” (Wheeler 2005, 4). In an essay on the possibility of integrating concepts from Martin Heidegger’s philosophy into cognitive science, he explains this in terms of the need for philosophy to be continuous with empirical science. Essentially, this comes down to a basic form of naturalism that places the following constraint on philosophy: “the naturalist about some phenomenon X [...] holds that the science related to X places constraints on our philosophical theorizing about X” (Wheeler 2012, 178).

Wheeler recognizes that phenomenology and science are aimed at “different *kinds* of understanding” (182) and holds the key question to be answered on the way towards a naturalistic Heideggerian phenomenology to be the question concerning the relation between these two modes of understanding. He wants to steer clear of a reductive, scientific account of that relation, whereby philosophical understanding should be reduced to scientific understanding. At the same time, however, he considers there to be no good reason to think of the two forms of understanding as completely independent from each other. Rather, he holds philosophical and scientific understanding to “standardly engage in a process of mutual constraint and influence” (185). This means that the two forms of understanding can inform each other, and we should never expect “good philosophy to capitulate to bad science” (191). However, the earlier mentioned “*Muggle Constraint*” does mean that this mutual influence is limited by what Wheeler calls a form of minimal naturalism, which comes down to the following: “[I]f there is a genuine clash between philosophy and empirical science (in the sense that philosophy demands the presence of some entity, state, or process which is judged to be inconsistent with empirical science), then it’s philosophy and not science that must ultimately concede, through withdrawal or revision of its claims” (191).

Wheeler’s minimal naturalism allows him to paint a convincing picture of the different ways phenomenological understanding “could be reshaped in the light of

cognitive-scientific research” (192). However, his position does not allow him to paint an equally convincing picture of how phenomenological understanding could reshape cognitive-scientific research. The furthest he gets in this direction is by admitting that there are limits to what a cognitive science of Dasein could uncover, meaning that phenomenological research might delve into reaches of existence that are simply unexplored or unexplorable by science. This constraint, however, is not seen by Wheeler as a challenge to his minimal naturalism: “So, with continuity understood in terms of consistency, the fact that there are principled limits on what cognitive science might explain is no longer a threat to naturalism” (192). We can concede that the limits of what is scientifically explainable are not necessarily opposed to minimal naturalism. However, this does leave open the question of whether the way phenomenological research delves into reaches of existence unexplorable by science could genuinely reform science, instead of being merely irrelevant to it.

Critics, like Matthew Ratcliffe (2012, 135-156) who engages with Wheeler’s ideas in the same volume, can agree with Wheeler’s premise of mutual influence of phenomenological and scientific understanding; there seem to be very few (if any) philosophers who hold that the two types of understanding have no bearing on each other whatsoever. The problem lies with the one-way constraint of minimal naturalism, which is held by critics to be inconsistent with the transcendental aspects of Heidegger’s philosophy. Ratcliffe describes the problem from a Heideggerian perspective in the following way: “[T]his would amount to placing unwarranted faith in the deliverances of an inherited set of epistemic practices and assumptions, which are oblivious to their own contingency. They are equally oblivious to the fact that their intelligibility depends upon a more fundamental sense of world, an explicit understanding of which demands a quite different form of (phenomenological) enquiry” (2012, 144).

The elucidation of Dasein as Heidegger attempts it in *Being and Time* (1962; 1977), for example, takes place on a more fundamental level than the level a science like cognitive science is operating on. Following from this, for science to place constraints on phenomenological elucidation is a nonsensical idea that runs directly contrary to the basic tenets of phenomenology. The existential analytic Heidegger is fundamentally prior to any positive scientific theory about the human being. Ratcliffe quotes the following passage from *Being and Time* to substantiate his claims: “The existential analytic of Dasein comes *before* any psychology or anthropology, and certainly before any biology” (Heidegger 1962, 71; Heidegger 1977, 60).

So here we are left with two directly antithetical views concerning the relation between phenomenology and science. According to Wheeler’s minimal naturalism,

phenomenology can contribute to science, but can never actually reform it, while according to Ratcliffe's criticism, only phenomenology as a transcendental method of investigation can reform science, but never the other way around.

Another major voice in the debate concerning naturalizing phenomenology is Shaun Gallagher. In his 2003 article, Gallagher introduces his method of front-loaded phenomenology as a view of a "phenomenologically enlightened experimental science" (Gallagher 2003, 7). In a 2013 book chapter, Gallagher places his proposal of front-loaded phenomenology within the context of a naturalized phenomenology. He stresses that he wants to steer clear of a reductionist version of naturalism, according to which phenomenology would have to accept "assumptions of cognitive science concerning issues like computationalism and representation" (Gallagher 2013, 74). This reductionist version of naturalism is consistent with Wheeler's minimal naturalism, in that phenomenology would have to accept the entities, states or processes put forward by the current state of the science it is collaborating with. Gallagher proposes a version of naturalized phenomenology that allows for mutual enlightenment: "[T]he introduction of phenomenology into cognitive science has critically challenged the basic assumptions of cognitive science, including computationalism, and indeed the very concepts of nature and naturalism" (74).

We get a hint of what a new, phenomenologically inspired concepts of "nature" and "naturalism" might look like at the very end of the chapter, when Gallagher quotes Dan Zahavi saying: "To naturalize phenomenology might simply be a question of letting phenomenology engage in a fruitful exchange and collaboration with empirical science" (Zahavi 2010, 8). This seems circular, as now, a naturalized phenomenology is both regarded as a condition for the possibility of a fruitful collaboration between science and phenomenology, and a description of this collaboration. In reference to Merleau-Ponty, Gallagher ends the chapter by saying that we need to pursue "the truth of naturalism" and that this would entail "a redefined naturalism that correlates with a redefined phenomenology" (Gallagher 2013, 89).

Gallagher follows up on this challenge of redefining naturalism in his 2018 article "Rethinking Nature: Phenomenology and a Nonreductionist Cognitive Science". In this article, he faces the resistance that attempts to naturalize phenomenology have met. The resistance from the side of phenomenology takes the shape of the criticism formulated by Ratcliffe to Wheeler's proposal. From the side of science, Gallagher formulates the resistance as follows: "phenomenology, understood as an account of first-person experience, is ultimately reducible to cognitive neuroscientific explanation" (Gallagher 2018, 125). If we already start from the idea

that phenomenology needs to be naturalized in order to be worthwhile for science, does that not mean that any phenomenological account is ultimately better explained in terms of scientific data?

Both of these resistances concern the relation between nature and subjectivity, for “broadly speaking the naturalistic project is committed to understanding consciousness as part of *nature*” (Moran 2013, 89). This is clearly visible in the positions outlined above. The naturalistic constraint as formulated by Wheeler commits phenomenology to the picture of nature posited by science, in the sense that it has to accept any “entity, state, or process” (Wheeler 2012, 191) put forward by it. From the side of phenomenology, Ratcliffe argues that Heidegger’s analytic of *Dasein* is ontologically prior to science’s picture of nature, rendering it unclear why Heidegger’s understanding of *Dasein* should fit with this picture of nature. From the side of the sciences, if Wheeler’s story is to be accepted, it is not clear why any phenomenological account of subjectivity—like Heidegger’s account of *Dasein*—should tell us anything about the human being above and beyond what science already tells us. The resulting picture from the side of science is a reductionist one in the following sense: “science can’t accept interpretation as providing knowledge of human affairs if it can’t at least in principle be absorbed into, perhaps even reduced to, neuroscience” (Rosenberg 2014, 41). In both of the resistances outlined above, it is not clear if, how and where phenomenology’s ideas concerning subjectivity fit into the positive scientific picture of nature.

In order to circumnavigate these issues, Gallagher opts for a redefinition of nature that includes rather than excludes subjectivity. He contrasts this with the classical scientific concept of “nature”, which he sees reflected in the writings of Descartes and Galileo, and includes the following assumptions: “(a) that a complete description of the world is deterministic, and (b) ‘objectivity means describing reality as it is independently of man,’ namely, in abstract theoretical, and sometimes geometrical or mathematical terms” (126).

This classical conception of nature is hence defined as a deterministic realm, the description of which should be objective, meaning that the natural sciences should describe nature as it exists independently from human onlookers. As long as this is the idea of nature operative in the project of naturalizing phenomenology, Gallagher argues, the resistances that the project has met over the three decades since its inception cannot be overcome. He furthermore points to the idiosyncrasies this conception of nature creates, especially when it comes to the cognitive sciences, or any other science where subjects are the “objects” under investigation. He

summarizes these as follows: “It’s not just the subjective constraints found on the side of the working scientist that are at issue; in addition, the object that is being studied is not an object per se, but a subject, and, moreover, a subject that does not live in the scientific (idealized) world, but in the life-world; a subject that does not, in a primary fashion, treat the world as a world of objects, but rather as a world of affordances” (128). Nature understood as objectivity is investigated by finding the smallest particles out of which it is built up and understanding how it is built up (129). The problem is that this does not work with either human beings, or any other living beings. Analysis in terms of elementary particles does not work here because the “objects” under investigation display characteristics—organic form in the case of the living being, subjectivity in the case of the human being—that these elementary particles cannot account for.

The solution to this situation is to formulate a concept of “nature” that includes subjectivity. Gallagher finds support in principle for such a conception from the side of science as well as from the side of phenomenology. On the side of science, he refers to Bohr’s remarks concerning the phenomenal nature of objective descriptions (Bohr 1935, 148). On the side of phenomenology, he cites Merleau-Ponty’s notion of “nature” in terms of flesh, “where nature is not independent from the perceiver or the agent” (Gallagher 2019, 130). He sees this idea reflected in the terms *affordance* and *situation*, both of which occupy a space between the objective and the subjective. The resulting idea of nature is fundamentally relational: “This relational nature, irreducible to either brain or object, is the nature that science needs to explain. This concept of nature goes together with the idea that the phenomena to be explained are irreducible” (131). Nature as it is in itself is thus held to be relational in an irreducible way. Any scientific explanation of nature *partes extra partes* is thus a way to make sense of this underlying, primordial kind of nature, not an exposure of nature as it is in itself.

While this idea of a relational primordial nature is promising, some more fleshing out seems to be required here. Specifically, I want to focus on the question of how exactly this new conception of nature would help in reshaping the relation between phenomenology and science. In what follows, I will investigate Heidegger’s understanding of nature as “*phusis*”, and argue that this notion can be seen as a concretization of the relational nature that Gallagher has in mind, that allows for mutually reformative, hermeneutic collaborations between phenomenology and science.

3. Nature as *Phusis*

The Greek concept of “*phusis*” plays a central role throughout Heidegger’s oeuvre. Starting in the 1922 untranslated lecture course *Phänomenologische Interpretationen Ausgewählter Abhandlungen des Aristoteles zur Ontologie und Logik* (Heidegger 2005b), the concept keeps showing up in his readings of Greek thinkers like Aristotle (1998; 2002), Plato (1997), Heraclitus (2018), Parmenides (1992) and Anaximander (2010a), but also features in texts that are not explicitly aimed at a reading of Greek philosophers, like *The Principle of Reason* (1991), *Contributions to Philosophy* (2012), *The Fundamental Concepts of Metaphysics* (1995b; 1983a) and *Introduction to Metaphysics* (2000a; 1983b). Broadly speaking, Heidegger employs the concept of “*phusis*” to look for a way of thinking about nature that is more primordial than the conception of nature put forward by modern natural sciences. He therefore warns us to not conflate the Greek understanding of *phusis* with our contemporary understanding of nature, and rather defines *phusis* as “the self-forming prevailing of beings as a whole” (Heidegger 1995b, 25; Heidegger 1983a, 38) or “Being itself, by virtue of which beings first become and remain observable” (Heidegger 2000a, 15; Heidegger 1983b, 17).

In what follows, I will focus on Heidegger’s analysis of the concept of “*phusis*” in two specific texts, namely *The Fundamental Concepts of Metaphysics* and *Introduction to Metaphysics*. The former because of the collaboration between phenomenology and biology that the analysis of *phusis* results in later on in the text, shedding some light on the question of how such a reconceptualization of nature allows for a mutually beneficial relation between science and phenomenology. The latter because the depth of the analysis of the concept of “*phusis*” in this text allows for a thorough understanding of what is at stake in Heidegger’s understanding of it. With a combined reading of the role of *phusis* in these two texts, I hope to show how Heidegger’s version of a “phenomenologized nature” fits with Gallagher’s, while at the same time providing a more detailed account of how this reconceptualized nature leads to an interplay between science and phenomenology.

The elucidation of the understanding of nature as *phusis* in *The Fundamental Concepts of Metaphysics* takes place as part of an analysis of the word “metaphysics” in the introduction section of the lecture course. Here, Heidegger states that “*phusis*” is commonly understood as the Greek word for what we now understand as “nature”, and connects it to the Latin *natura–nasci*, meaning: “to be born, to arise, to grow” (Heidegger 1995b, 25; Heidegger 1983a, 38). This notion of growing is central to the Greek understanding of *phusis*, but it should be understood as broader than the organic growing of plants and animals. Heidegger rather proposes to understand

growing “as occurring in the midst of, and permeated by, the changing of the seasons, in the midst of the alternation of day and night, in the midst of the wandering of the stars, of storms and weather and the raging of the elements. Growing is all this taken together as one” (25; 38). As Bruce Foltz notes: “Phusis did not originally designate the merely ‘physical’ or even just one realm of entities as opposed to another” (Foltz 1995, 13).

In *Introduction to Metaphysics*, Heidegger also connects the Greek notion of “*phusis*” to the Latin *natura*, but immediately makes it clear that with this translation, some of the original Greek meaning and “naming force” [*Nennkraft*] (Heidegger 2000a, 15, Heidegger 1983b, 16) is lost. He therefore proposes to further investigate the root of the original Greek meaning. He describes this as follows: “Now what does the word *phusis* say? It says what emerges from itself (for example, the emergence, the blossoming, of a rose), the unfolding that opens itself up, the coming-into-appearance in such unfolding, and holding itself and persisting in appearance—in short, the emerging-abiding sway” (15; 16). “*Phusis*”, thus understood, is a concept that encompasses certain phenomena that we would still count as natural today. Examples given by Heidegger include “the rising of the sun”, “the surging of the sea”, “the growth of plants”, “the coming forth of animals and human beings from the womb” (15; 16). However, the concept ranges far wider than what we understand by nature. As Heidegger puts it, the term originally designates “both heaven and earth, both the stone and the plant, both the animal and the human, and human history as the work of humans and Gods” (16; 17). “*Phusis*”, to put it differently, is the Greek word for Being itself “by virtue of which beings first become and remain observable” (15; 17).

In *The Fundamental Concepts of Metaphysics*, Heidegger similarly stresses that *Phusis* designates nature in a way that goes beyond both the understanding of nature “as the object of natural science” (Heidegger 1995b, 26; Heidegger 1983a, 39) and nature “in a broad pre-scientific sense” (26; 39). The problem with both these ways of understanding nature is that they place nature opposite to humankind. By understanding nature as *phusis*, Heidegger emphasizes a conception of nature that does not place nature opposite to humankind, but rather understands the Greek relation to *phusis* as seeing it as something: “immediately entwined with things in himself and in those who are like him” (26; 39). Heidegger names life events such as “procreation, birth, childhood, maturing, aging, death” (26; 39) as examples of how nature as self-forming prevailing of beings as a whole takes shape in the life of the human being. Like in *Introduction to Metaphysics*, Heidegger here also stresses that these natural occurrences within ourselves should not be understood as merely biological processes, but as belonging to *phusis* as the general prevailing of being “which comprehends within itself human fate and its history” (26; 39). Nature as

phusis hence does not refer to a specific being, or domain of beings. It concerns both entities that we would consider natural in the modern sense of the word, such as the blossoming of a flower or the rising and setting of the sun. But it also concerns human beings in their historicity, understood as encompassing “the “context of living”, extending from birth to death, not as a succession of experiences in time, but as the care that happens “between” (in the sense of uniting) the thrownness of its birth and anticipation of its death” (Dahlstrom 2013, 97).

This shows that *phusis* does not designate something that stands separate from human beings, that we can influence and control. Rather, *phusis* is a sense of nature that we have no power over, but that is present everywhere, both as a part of us and around us. These remarks are a first clue that the understanding of nature Heidegger is aiming at is indeed a relational understanding of nature. It is precisely this “primordial relationality of Dasein and nature” (Bubbio 2018, p. 190) that is lost in our modern conception of nature.

Since nature—understood this way—is both that which surrounds me and that which I am, to be a human being means to always relate to nature in one way or another. Heidegger thus says that to be human means to have “always already spoken out about φύσις, about the prevailing whole to which he himself belongs”²³ (Heidegger 1995b, 26; Heidegger 1983a, 39–40). To have spoken out about something in Greek is called λόγος (from now on: *logos*). Insofar as man exists among beings, and to be man means to always already have spoken out about beings, it likewise belongs to beings to be spoken out about by man. Here, we see Heidegger pointing for the first time to the intimate relation between *phusis* and *logos*. What happens in this *logos* is characterized by Heidegger as a revealing. He writes: “In the λόγος the prevailing of beings becomes revealed, becomes manifest” (27; 41). To speak out about beings means to take them out of concealment, also pointing to the idea that beings in themselves tend towards concealment. In order to speak out about it, one has to listen to what things have to say (28; 42), which is the business of the philosophers. Hence, Heidegger reaches the following conclusion about the connection between *phusis*, *logos* and philosophy: “philosophy is meditation upon the prevailing of beings, upon φύσις, in order to speak out about φύσις in the λόγος” (28; 42).

In *Introduction to Metaphysics*, Heidegger expands upon this idea. He further clarifies the notion of “*phusis*” in his treatment of the grammar and etymology of being, concluding in the following characterization of the Greek understanding of being:

²³ Original German: “immer schon über die φύσις, über das waltende Ganze, dazu er selbst gehört, ausgesprochen[.]” (Heidegger 1983a, 39–40).

“Something comes to presence. It stands in itself and thus puts itself forth. It is. For the Greeks, ‘Being’ fundamentally means presence” (Heidegger 2000a, 64; Heidegger 1983b, 65). From this characterization, Heidegger returns to *phusis*, claiming that this elucidation helps us to better understand what was at stake in the Greek understanding of Being as *phusis*. Heidegger here returns to his notion of “*phusis*” as an emergent, self-uprising sway. This sway is here characterized as a “coming-to-presence” (64; 65) or as stepping forth from unconcealment (*aletheia*), that is always paired with a struggle, *polemos*²⁴. It is in this struggle with the self-unfolding sway that philosophers, poets, and statesmen bring Being into articulation. Heidegger details this process as follows: “Struggle first projects and develops the un-heard and un-thought. This struggle is then sustained by the creators, by the poets, thinkers and statesmen. Against the overwhelming sway, they throw the counterweight of their work and capture in this work the world that is thereby opened up. With these works, the sway, *phusis*, first comes to a stand in what comes to presence. Beings as such now first come into being” (65; 66).

This coming into being only truly endures as long as the struggle endures. When the struggle ceases, beings “become objects, whether for observing (view, picture) or for making, as the fabricated, the object of calculation” (66; 67). In the struggle between the self-emerging beings and the struggling that attempts to capture these beings, world is formed. When this struggle stops, the beings that came into unconcealment due to the struggle are now at anyone’s disposal, but the being of these beings is no longer given. In this case, nature comes to be seen as “a special domain, as distinguished from art and from everything that can be produced and regulated according to plan” (66; 67). *Phusis* thus loses its sense of self-arising from concealment, and its meaning gets relegated to a specific domain among others.

Similar to the analysis in *The Fundamental Concepts of Metaphysics* we saw above, Heidegger here further explains what happens in this struggle by connecting the notions of “*phusis*” and “*logos*.” His aim here is to investigate the “originary inner unity” (130; 131) of these concepts. To understand this, Heidegger asserts, we need to understand *logos* in the way the ancient Greeks understood it. Similar to how we should not equate *phusis* with our contemporary understanding of nature, so we should not equate *logos* with our contemporary understanding of logic, or rational

²⁴ The concept of “*polemos*” in Heidegger’s thinking has been a topic of controversy. His use of the term “*polemos*” and his translation of it to the German “*Kampf*” is held to be an example of how his national socialist sympathies bleed through in his philosophy. The relevant sense in which I understand the concept here is far removed from politics: as a necessary struggle against the overwhelming sway of nature. For a detailed analysis of the political implications of Heidegger’s use of *polemos* see: (Fried 2008).

thinking. For the Greeks, *logos* meant “the word, discourse”, but even more originary: “laying one thing next to another, bringing them together as one—in short, gathering; but at the same time, the one is contrasted with the other” (131; 132).

Heidegger demonstrates the inner unity between *phusis* and *logos*—the latter in accordance with the former quote understood as “the relation of one thing to another” (132; 133)—with the use of fragments from Heraclitus and Parmenides. From these, Heidegger takes the following: “*Logos* here does not mean sense, or word, or doctrine, and certainly not “the sense of a doctrine”, but instead, the originally gathering gatheredness that constantly holds sway in itself” (135; 136). Our relation to *logos* is characterized by Heidegger in an ambiguous way—based on his reading of Heraclitus—as being “absently present” (138), meaning we exist constantly amid *logos*, but are unable to really take hold of it. Heidegger explains this in terms of our relation to Being: “Human beings continually have to do with Being, and yet it is alien to them. They have to do with Being inasmuch as they constantly relate to beings, but it is alien to them inasmuch as they turn away from Being, because they do not grasp it at all [weil sie es gar nicht fassen]; instead, they believe that beings are only beings and nothing further” (138; 139). Most human beings do not take hold of *logos*. The inability to take hold of *logos* is understood here as an inability to grasp the being of beings. There are two categories of human beings that are truly capable of grasping *logos*: poets and thinkers (141; 141). However later, in reference to passages from Parmenides, Heidegger comes to the following conclusion: “Apprehension [Vernehmung] belongs to *phusis*; the sway of *phusis* shares its sway with apprehension” (148; 147).

How can we make sense of this apparent contradiction? For if we take Heidegger’s equation of *phusis* and being seriously, then the conclusion is that on the one hand, *phusis* is something that we stand in a relation of absent presence to—having to do with it without really grasping it—while on the other hand, apprehension belongs to the very core of *phusis* itself. In order to make sense of this, we need to return to the notion of “struggle.” Apprehension belongs to *phusis* insofar as the counterweight of the work of “creators, poets, thinkers and statesmen” is necessary in order to make the overwhelming sway of *phusis* come to a standstill, in the form of an understanding specific type of beings that are present. When the struggle ends, the beings gained through the struggle are now at anyone’s disposal, but their being recedes back into concealment.

So, where does this leave us with regard to the question of whether *phusis* presents us with an alternative conception of nature that is workable for those who want phenomenology and science to cooperate? A commentator like David

Storey claims that nature is framed here as “radical alterity, an altogether strange and incomprehensible kind of being that can only be described metaphorically, aesthetically, and poetically” (Storey 2015, 78). Based on this reading, Heidegger’s understanding of nature seems to be explicitly anti-scientific and does not hold much hope at all for thinking about a collaboration between phenomenology and science. However, this is not the only way to read Heidegger’s remarks about *phusis*. For as we have seen, Heidegger considers both poets *and* thinkers to be truly capable of grasping *logos*. The inherent relational aspects emphasized in Heidegger’s analysis here already show that it is problematic to consider *phusis* as radical alterity. We see a more fruitful interpretation in Susan Schoenbohm’s commentary on *Introduction to Metaphysics*. They write the following: “[N]o matter how much human beings might like to be able to represent things as permanent in language, and to ‘count on’ things, this is not possible, because of the temporal, eventful character of *phusis*. *Phusis*, in an original sense, prevents—does not allow—such a familiarity but remains strange, withdrawing from familiarity so that human Dasein is urged again and anew into the question of itself, of its meaning—which it always ‘is’” (Schoenbohm 2001, 159).

This quote emphasizes the need for continual struggle with the self-unfolding sway of *phusis*. If we consider the struggle to be over at any moment because we have found the answers we need, the being of the beings uncovered becomes obscured again while the beings themselves become trivial, banal, at everyone’s disposal. The notion of “*phusis*” itself therefore does not designate some mysterious layer of nature that theoretical thinking is unable to penetrate. Rather, the notion of “*phusis*”—similar to Gallagher’s understanding of a phenomenologized nature—is fundamentally relational in the sense that it includes human existence. Rather than anti-scientific, Heidegger’s understanding of nature as *phusis* is itself non-scientific, but in such a way that includes the possibility of a scientific understanding of nature. However, this scientific understanding of nature is not a privileged way of understanding such that it would uncover nature as it truly is, but rather one possible relation among a wide range of possible relationships with nature.

Importantly, the notion of “*phusis*” calls for a continuation of the struggle, letting ourselves be urged to question again and anew. The struggle brings the overwhelming sway of *phusis* to a standstill in the form of a specific interpretation of the being of beings, but as soon as the struggle ends, being recedes back into concealment and only the beings remain. The question of whether or not this specific interpretation is actually tailored to the matter under investigation, can no longer be asked. This is where the opening of a fruitful collaboration between philosophy and the sciences can be found.

4. Phenomenology and Zoology

Following his analysis of *phusis* in *The Fundamental Concepts of Metaphysics*, Heidegger concretely envisions a collaboration between science and phenomenology. This comes in the form of an interplay between zoology and phenomenology regarding an interpretation of animal life. The focus on this particular science is exemplary for a threefold reason. First, according to Gallagher, the living being is one example—together with the human being—that shows the limits of the old, objective idea of nature, because an analysis of nature *partes extra partes* cannot make the organic form intelligible. A second reason, which is closely connected to the first, is one of Heidegger's reasons to concern himself with zoology. As we shall see, Heidegger states that physics and chemistry have long since had a monopoly on our understanding of the living being, but he sees a tendency within biology itself to fight back against this monopoly. In other words: biology was working within the standstill of *phusis* caused by the former struggle of physics and chemistry, but is now looking to engage in a struggle of its own. Third, the issue at stake in phenomenologizing nature is the relation between nature and subjectivity. Since in the previous chapter, I have aimed to show the lack of an essential difference between humans and living beings, the core question surrounding the specific subject matter of zoology hits at the heart of the phenomenologizing nature debate. I will come back to this point at the end of this chapter.

According to Heidegger, collaboration between phenomenology and zoology is possible, even necessary when it comes to determining the essence of animality. He famously establishes the essence of animals as follows: “*the animal is poor in world*” (Heidegger 1995b, 186; Heidegger 1983a, 274). However, any statement that concerns the essence of animals, finds itself in a peculiar relation to the science of zoology: “Where does the proposition ‘the animal is poor in world’ come from? We can answer once again that it derives from zoology, since this is the science that deals with animals. But precisely because zoology deals with animals this proposition cannot be a result of zoological investigation; rather, it must be its *presupposition*. For this presupposition ultimately involves an *antecedent determination* of what belongs in general to the *essence of the animal*, that is, a delimitation of the field within which any positive investigation of animals must move” (186; 275).

So, it would seem that any statement of essence would have to be formulated before positive scientific investigation can even start, and thus independent of any results derived from said investigation. For a question concerning the essence of a specific type of being serves as the delimitation of the field of the science investigating that

type of being. Without a coherent statement about the essence of animality, how does the zoologist know what to investigate? However, we can turn this question around as well. Without any positive scientific research data into a specific type of being, what ground do we have for formulating a statement concerning the essence of the being in question? The resulting situation is a circular one: “Thus it is that we find ourselves in a circle” (187; 276), and that is exactly the way Heidegger envisions the relation between phenomenology and science, which comes to expression when he writes: “The proposition [the animal is poor in world] does not derive from zoology, but it cannot be elucidated independently of zoology either” (187; 275).

There thus is a circularity at play here that consists in the fact that statements such as “the animal is poor in world” are derived from a specific field of science—in this case zoology—while such a thesis at the same time, insofar as it is a statement concerning essence, first delineates and determines the specific domain of the science in question. In this specific example: the thesis that animals are poor in world can only be gained by studying animals, but studying animals is only possible on the basis of a delineation of animality, which is exactly what the thesis accomplishes. This circularity is not necessarily a problem. In fact for Heidegger, it of course lies at the very heart of his hermeneutical philosophical questioning to proceed in a circular manner. In *Being and Time*, Heidegger explains this circular questioning in the following manner:

It is not to be reduced to the level of a vicious circle, or even of a circle which is merely tolerated. In the circle is hidden a positive possibility of the most primordial kind of knowing, and we genuinely grasp this possibility only when we have understood that our first, last, and constant task in interpreting is never to allow our fore-having, fore-sight, and fore-conception to be presented to us by fancies and popular conceptions, but rather to make the scientific theme secure by working out these fore-structures in terms of the things themselves. (Heidegger 1962, 195; Heidegger 1977, 203)

This circular method of questioning thus brings us closer to the things themselves by explicating the fore-structures we are working with in a specific investigation. The circular involvement of phenomenology and zoology in this case does warrant a further elucidation of the specific kind of relation between the two disciplines in question. An elucidation that, according to Heidegger “will be valid for the relationship between philosophy and all the sciences” (Heidegger 1995b, 188; Heidegger 1983a, 277).

Heidegger starts this elucidation by pointing at the historical character of science in general. Sciences are historical insofar as their domain and their own understanding of their subject matter is subjected to change. The possibility of genuine reform first depends on leading researchers who display an “original solidarity with the most elementary content of their fields” (189; 279). Second, it depends on the existence of a context which recognizes the importance of this unity and which allows the leading researchers who shape this unity to flourish (190; 279). The combination of these two factors creates “an inner readiness for communal cooperation” (190; 279). In this regard, we find ourselves in “a favorable situation” (188; 277) when it comes to questions concerning zoology, since there is a tendency “to restore autonomy to ‘life’, as the *specific manner of being pertaining to animal and plant*” (188; 277). Heidegger sees this in terms of a broader trend that shows biology’s willingness “to defend itself against the tyranny of physics and chemistry” (188; 277-278). This formulation in terms of a defense against tyranny, harkens back to the idea of a struggle, providing a counterweight to the overwhelming sway of *phusis*. When the struggle ceases, the question concerning the meaning of the beings of beings gets neglected.

Thus, the rising tendency in the biology of Heidegger’s time to reclaim the question of being is a continuation of the struggle, framed by him as a revolt against the monopoly of physics and chemistry on our understanding of the domain of nature. The opposite tendency, to frame biological questions as questions that are in fact questions of physics or chemistry, is to further the neglect of the question concerning the meaning of living beings, a further rigidification of the results of a struggle that has long since ceased. Heidegger writes: “The task confronting biology as a science is to develop an entirely new projection of the objects of its inquiry” (188; 278). A couple of lines down, he says this task comes down to the following: “to liberate ourselves from the mechanistic conception of life” (189; 278). Biology as a science should thus secure a whole new domain of investigation that is different from the domain of nature understood by physics and chemistry, different in that the being of the beings under consideration is understood in a fundamentally different way. This, in turn, can only be achieved as long as the struggle with nature understood as *phusis* is continued.

This picture opens up the possibility of a circular interplay between positive scientific research and phenomenology. Sciences provide empirical data but can only do so based on a delineation of the specific domain of the science in question. Of course, science cannot—and does not—wait for phenomenology to provide this delineation, so it proceeds in a provisional manner. All sciences move within an implicit pre-understanding that philosophical thinking is supposed to articulate conceptually. As

Heidegger puts it in *Being and Time*: “Scientific research accomplishes, roughly and naïvely, the demarcation and initial fixing of the areas of subject matter” (Heidegger 1962, 29; Heidegger 1977, 12). This leads to the question: on what ground does this “rough and naïve” demarcation proceed? Heidegger’s answer: “The basic structures of any such area have already been worked out after a fashion in our pre-scientific ways of experiencing and interpreting that domain of Being in which the area of subject-matter is itself confined. The ‘basic concepts’ which thus arise remain our proximal clues for disclosing this area concretely for the first time” (29; 12).

So, science accomplishes this initial fixing of its subject matter based on pre-scientific experience, which gives us the basic concepts needed to delineate the domain of the science in question. Meanwhile, phenomenological research investigates precisely this pre-scientific experience and the fundamental concepts that arise from it, in accordance with the specific ways of existence of beings in the domain in question. With that, it helps to delineate more clearly—or revise the delineation—of the domain. But the interplay here is not just a one-way street, for the empirical data provided by the sciences are then used in order to back-up, correct or reinforce the fundamental concepts in question, steering the work of the phenomenologist. Meanwhile phenomenology uses this empirical data in order to continue the struggle by asking questions about the fundamental concepts at play in them and, correspondingly, the delineation of the domain of investigation.

The result of Heidegger’s interpretation of *physis* thus gives space for a circular, hermeneutical way of investigating, in which phenomenology and science both take their leave from a pre-scientific conception of a certain domain. I call this way of investigating hermeneutical, because scientific and phenomenological research are engaged in a continual, mutual, circular exposition of an initial pre-scientific understanding. In this circular exposition, positive scientific research is aimed at the parts in the form of empirical data, and phenomenology is aimed at the whole in the form of the understanding of the being of the beings within the domain in question. With the help of the notion of “*physis*” we can see that the boundaries in any scientific domain are not set in stone, but constantly have to be defined and revised by a combined effort of science and phenomenology. This leaves open the possibility of understanding nature in a multitude of different ways, instead of having to accept a specific picture of nature as it is envisioned in a specific scientific discipline at a specific point in time.

In the next section, I will illustrate the hermeneutical interplay between phenomenology and science by looking at Heidegger’s analysis of the distinction between organism and machine. First, I will show how Heidegger backs up his phenomenological claim

regarding the relation between an organism and its capacity with the use of empirical evidence taken from the work of biologist Jakob von Uexküll. Second, I will show how we can better understand the scope of Heidegger's analysis by relating it to this empirical evidence.

5. An Interplay Between Phenomenology and Science

Heidegger's thesis concerning the world-poverty of the animal thus turns into a scientifico-phenomenological investigation of the essential features of life. He starts this investigation by noting that the common way to define the living being is "in terms of the organic as opposed to the inorganic" (212; 311). This leads Heidegger to formulate a first fundamental thesis concerning the nature of life: "everything that lives is an organism" (212; 311). This allows Heidegger to rephrase the question concerning the nature of life, in terms of what it means for something to be an organism. The first answer to this question is: "something which possesses organs" (213; 312). However, since 'organ' derives from the Greek *ὄργανο*—translating to "*Werkzeug*, a working instrument" (213; 312)—this makes the organism nothing more than a complex of instruments. Following German biologists Wilhelm Roux, Heidegger asks the question: "how is the organism to be distinguished from a machine?" (213; 312).

Heidegger's answer to this question starts with an analysis of the relation between three central types of beings: equipment (*Zeug*), instrument (*Werkzeug*) and machine. The similarity between these three types of beings lies in the fact that they are only what they are in a specific context. They are all beings with the ontological characteristic of being "something for..." (214; 314). This points to a relation with human beings first of all, who made the equipment, instrument or machine in light of a certain serviceability, i.e.: purpose. Second, this points to a relation with other pieces of equipment, or instruments or other machines. For example: a pen can only be what it is in light of both pieces of paper and human beings with a desire to write down grocery lists.

Despite this similarity, the three categories are still very much distinct. Heidegger names some examples to show this: a pen is a piece of equipment for writing, but not an instrument nor a machine. A hammer is both equipment and instrument, but not a machine. A motorbike is a machine, but not an instrument (214; 314). This is important, because Roux' question concerning the distinction between organism and machine hinged on the idea that the organism was a complex of instruments. The above distinction is meant to show that even if organs are comparable to instruments,

this in itself is not sufficient to show that organisms are machines. Heidegger adds that a machine is not necessarily a complex instrument. “It is not the complexity of the structure which is decisive for the machine-like character of a piece of equipment, but rather the autonomous functioning of a structure designed for specific dynamic operations” (215; 315). The characteristic of a machine is not that it is composed or complex, but that its parts can independently execute certain motion programs.

This leads Heidegger to the next question to be answered: “to what extent is the organ not an instrument?” (218; 319). The example he chooses is the eye, of which he says: “the eye [...] is for seeing with” (218; 319). This being “for seeing” is not some accidental feature of the eye, but belongs to its essence. This being “something for...” was also a characteristic that was attributed to equipment, so does that make the organ similar to a piece of equipment? Is the eye ‘for seeing’ in the same way the hammer is “for hammering”? The answer is negative, and the difference lies in the way an organ and an instrument are serviceable. Serviceability in an instrument takes the form of readiness “which makes it *suitable* and usable for something” (220; 322). Serviceability in an organ takes the form of capacity, but in a peculiar way, for strictly speaking “[i]t is not the organ which has a capacity but the *organism which has capacities*” (221; 324). This also means that the capacity precedes the organ, or as Heidegger puts it “[i]t is the capability which procures organs for itself” (222; 324). Here, Heidegger makes a distinction between the capability as a potentiality for being of an organism, that is actualized in the growing of certain organs, and the readiness of equipment. The core of the differences lies in the fact that “the organism itself produces organs and thus also produces itself, in contrast to equipment which must always be produced through another” (222; 325).

This thesis concerning the relation between capability and organ needs empirical back-up from the side of science, according to Heidegger. In order to provide this, he refers concrete biological research, in this case: a study concerning “the lower and tiny so-called *unicellular* protoplasmic creatures like amoeba and infusoria” (223; 326-327), conducted by Jakob von Uexküll (1926). The point Heidegger makes is that these creatures have no predefined shape and—being unicellular—no predefined organs. Rather, they have temporary organs that can change depending on which function is necessary. In the words of Von Uexküll, quoted by Heidegger, this causes the infusoria to have: “an aperture which first becomes a mouth, then a stomach, then an intestine and finally an anal tract” (1926, 98). Thus, Heidegger has the necessary empirical back-up for his thesis: “This conclusively shows that the capacities for feeding and for digesting are *prior to the organs in each case*” (Heidegger 1995b, 224; Heidegger 1983a, 327).

This relation between capability and organ points to a fundamental involvement between the organism and its organs. It means that an organ can only be used as an organ when it belongs to an organism (221; 323), while this specific kind of belonging to something else is not part of the being of an instrument. The relation between an organism and its organs is thus a circular one: the organism can only be understood by means of its organs, which in turn are realizations of capacities of the organism. Thus, what this results in on the one hand is that Von Uexküll's study of unicellular creatures serves as the concrete empirical back-up for Heidegger's thesis concerning the circular relation between an organism and its organs. This picture of the nature of organic reality is only able to come up because it was preceded by an openness concerning the being of the beings in the domain. The materialistic, mechanistic picture of nature is only able to view an organism as a machine, where different parts constitute different functions that allow the organism to perform certain functions. This hermeneutic interplay between empirical parts and a new ontological understanding of the whole was made possible entirely by a continuation of the overwhelming, self-unfolding sway of *phusis*. Only a new ontological understanding of the domain of organic life allows the empirical data concerning the amoeba to signify a circular causality of organs and organism. At the same time, this new ontological understanding of the domain of biology itself of course depends on the empirical data concerning concrete and specific organisms.

Furthermore, we can also see this circularity leading to a new understanding of what Heidegger is saying here about the essence of animality. Viewed in this light, Von Uexküll's empirical research brings us to a new understanding of Heidegger's phenomenological claims. To make this concrete: viewed through the lens of Von Uexküll's study, the description of the circular causality between organism and organs, brings Heidegger close Maturana's and Varela's definition of the living being as an autopoietic system, which is also ruled over by an interdependency between the system and its components (Maturana and Varela 1980, 9). This is important, because a theory like autopoiesis aims to present a picture of organic reality that is continuous, meaning: all living beings are inherently governed by the same set of rules, there is no special place for human beings. This would also render Heidegger's understanding of organic life coherent with Jonas' understanding, as claimed in the previous chapter of this dissertation. This understanding stands in stark contrast to the criticism of anthropocentrism that is often leveled at his determination of the animal being poor in world (see e.g.: Tanzer 2015; Tonner 2011; Harman 2011). This example shows, albeit in a tentative way, the manner in which empirical data can be used to alter our understanding of phenomenological findings.

The two examples in this section highlight the possibility of an interplay between phenomenology and science, where on the level of phenomenology, the determination of the essence of organic life and what it means to be an organism is at stake, in close cooperation with positive research that investigates organic reality. The phenomenological investigation into the basic concepts that delineate the domain of the science in question, in this case biology, allows the empirical data to turn up in new ways. Specifically, by not at the outset understanding organic reality in terms of physics or chemistry but in terms of circular, interdependent systems, the example of Von Uexküll's unicellular lifeform could be understood as an example of a capacity preceding the organ, providing the necessary back-up for the phenomenological claim. Furthermore, Von Uexküll's study also shows the possibility of a different, non-anthropocentric interpretation of Heidegger's phenomenological findings.

6. Conclusion

How does the type of collaboration outlined above relate to the earlier mentioned proposals of minimal naturalism and phenomenologizing nature? To start with minimal naturalism: the glaring problem from the perspective of nature as *phusis* is the one-way constraint placed on phenomenology by positive scientific research. This means that phenomenology cannot genuinely influence a domain in the sense of revising fundamental concepts, because any genuine revision would likely demand "the presence of some entity, state, or process which is judged to be inconsistent with empirical science" (Wheeler 2012, 191), which means that phenomenology would have to concede and revise its claims. This proposal does not really allow phenomenology to influence science. Rather, phenomenology becomes a tool in the toolbox of the positive scientist; a tool that is useful only insofar as it supports current scientific research.

On the other hand, Ratcliffe's criticism levelled against Wheeler's minimal naturalism is equally problematic, in that what follows from it is that phenomenology could never be revised by science. This way of thinking about the relation between phenomenology and science still thinks of the relation in terms of one-way constraints, but places them in the other direction. If phenomenology only places one-way constraints on science and does not allow revision of its basic concepts on the basis of new empirical data, there is also no real collaboration between the two disciplines in question.

Importantly, minimal naturalism really only allows for collaboration on an ontic level, rather than an ontological level. That is: phenomenology is only used here as a

way to enhance, enrich or inform positive scientific research, the latter in the form of experiments or surveys. However, on the ontological level, the level where it really matters, there is no real room for phenomenology to engage in the struggle that is necessary to keep rigidification at bay, that is able to hold open the question of how the being of the beings in a certain domain should be understood and with that, the way the domain itself should be delineated. This struggle comes in the form of a continuing questioning and re-evaluation of the basic concepts from pre-scientific experience that form the foundation for positive scientific research. When there is no real room for these concepts to be challenged, and for science to let itself be transformed and pulled along into the renewed questioning awakened by the struggle of phenomenologists, then there is no genuine collaboration between science and phenomenology.

As I hope to have demonstrated, Heidegger's understanding of nature as *phusis* fits well with Gallagher's proposal for a phenomenologized nature. Both allow for a truly reciprocal relation between science and phenomenology. Gallagher's focus on understanding primordial nature in a relational is close to Heidegger's understanding of *phusis* and *logos* belonging together. Heidegger's notion of "*phusis*" allows for a more concrete hermeneutical relation between phenomenology and science, in which both disciplines can genuinely influence and reform one another. In this hermeneutical relation, phenomenological analysis helps to define or redefine the way a domain of scientific investigation is delineated, while the empirical data provided by the sciences to back-up, revise or reinforce the fundamental concepts of phenomenology. Both enterprises start from our pre-scientific, everyday understanding of the world, and should be engaged in a mutual effort to clarify and explicate the pre-scientific basic concepts that form their starting point. This process can and should never end, for only as long as we continue struggling, continue questioning again and anew, do we remain open to the multitude of ways in which nature can show itself.

Furthermore, both Heidegger's *phusis* and Gallagher's phenomenologized nature designate nature in a fundamentally relational way. The resulting understanding of nature is no longer at odds with the idea of subjectivity, because *phusis* and *logos* always go hand in hand, to speak with Heidegger. Any understanding of nature is the result of human beings throwing their counterweight against the overwhelming sway. This means that even in the objective, classical conception of nature that technically excludes subjectivity, the subject is implied in the sense that this specific standstill of *phusis* was the result of a struggle of the human subject.

Finally, the way of thinking about science, phenomenology and nature outlined in this chapter, if followed consequently, closes off the possibility of ever arriving at a

“theory of everything”. Some commentators have argued that a Heideggerian way of thinking would therefore necessarily lead us to an understanding of nature where only the poet or the mystic can say something meaningful about nature (e.g. Storey 2015, 78). To the contrary, I hold that Heidegger’s interpretation of *phusis* gives space for a circular, hermeneutical way of investigating, in which philosophy and the sciences can join hands in a combined effort to understand nature in a multitude of different ways. This may never lead to a “theory of everything” but that is no reason to leave the study of nature to poets and mystics alone.



Chapter 6

Conclusion

In this dissertation, I have investigated Heidegger's stance on—and criticism of—naturalism. The approach I have taken is to understand both Heidegger's philosophy and naturalism in a relational sense. For the concept of “naturalism”, this meant investigating the notions of “science” and “nature” that underlie the methodological and ontological claims of naturalism, respectively. For Heidegger, this meant investigating the way his criticism of naturalism and his stance on science and phenomenology are related to Husserl's ideas on the same topics, and investigating his stance on nature in relation to contemporary discussions regarding realism and naturalizing phenomenology. By following this approach, I have attempted to do justice to the complex relations that constitute both Heidegger and the concept of “naturalism.”

The research question formulated in the introduction of this dissertation is: How can Heidegger's stance on naturalism help us to better understand the possibilities and challenges inherent in the project of naturalizing phenomenology? I have broken this main question down into the following four sub-questions, in order to investigate the essential elements needed in order to formulate an answer to the main question: 1) What is the relation between Husserl's and Heidegger's criticism of naturalism? 2) What is the relation between phenomenology and science Husserl and Heidegger envision? 3) Can Heidegger be regarded as a realist with regard to the entities of natural science? 4) Is there a viable alternative conception of nature that can be formulated on the basis of Heidegger's philosophy?

By means of discussing these four sub-questions in the four foregoing chapters, I have aimed to come to a clear understanding of Heidegger's stance on “naturalism”, “nature” and “science.” A proper understanding of these concepts was vital to providing an answer to the research question. Over the course of this dissertation, I have shown that Heidegger opens up a new perspective on the possible collaboration between phenomenology and science by radicalizing Husserl's criticism of naturalism. Furthermore, I have shown that this new perspective is worth exploring, because it is not hampered by the classical conception of nature (as explained in chapter 5). Heidegger's radicalized criticism and his rejection of the classical conception of nature clearly highlight the crucial problem in the debate concerning naturalizing phenomenology. The problem is that the debate has been stuck in a conversation about methodology, while the real conversation is ontological. In this dissertation, I have aimed to genuinely have this ontological conversation by means of taking seriously the fourth strategy of naturalizing phenomenology as highlighted in the seminal 1999 volume: “generalizing the concept of ‘nature’ in such a way as to include processes involving a phenomenalization of physical objectivity” (Petitot

et al. 1999, 68-69). This has required me to step away from the well-trodden path of investigating the possibility of naturalizing Husserlian phenomenology, instead focusing on the way Heideggerian phenomenology can add to this discussion.

A first step towards having this ontological conversation consists in rethinking the relation between science and phenomenology. Paradoxically, considering the two fields to be engaged in fundamentally different kinds of activities rather than engaged in one rigorously scientific mutual project, opens up the possibility of genuine collaboration. Heidegger understands science to be positive research that takes place within a research domain. He characterizes research domains as fields that are delimited based on a specific understanding of the being of beings. However, positive research is itself ontic, meaning that it investigates beings, but not this prior understanding of the being of the beings under consideration. Rather, it needs a foregoing disclosure of the scientific domain that is itself not part of the positive scientific research. To give a broadly formulated example: the natural scientist investigates natural entities, but the question: “what is nature?” is not a question that the natural scientist can answer, at least not without stepping outside of the bounds of natural science. Rather, foregoing decisions are needed regarding questions such as: what counts as nature and what does not? How is the domain of nature delineated? What is the being of natural entities? These questions fall outside of the scope of science itself, meaning that any positive science is unable to reflect on the act of field delimitation that opens up its scientific domain, or the understanding of being on which the delimitation is based.

Phenomenology is aimed at exactly the type of understanding that falls outside of the scope of science. By reflecting on the way the field is delimited and the being of the beings within that field is understood, phenomenology can have a relation of genuinely transformative collaboration with science. The same holds going the other way around: the results of the positive scientific investigation of the beings within that field matter to the phenomenological investigation into the field-delimitation and corresponding understanding of being.

The second and most crucial step on the way to having the ontological conversation is to let go of the classical scientific conception of nature. Any possibility of a genuine mutually transformative collaboration comes to a grinding halt if we take a specific field-delimitation and the understanding of the being of beings within that field to designate the most fundamental layer of reality, or reality as it really is. This is exactly the move that Wheeler suggests with his minimal naturalism, stating that science constrains philosophical theorizing, but never the other way around

(Wheeler 2012, 178). The most perplexing problem that arises from this is the place of human subjectivity within this classical conception of nature *partes extra partes*. Understanding nature as *phusis*, as the emerging-abiding sway (Heidegger 2000a, 15, Heidegger 1983b, 16), means understanding “nature” as a relational concept, in which human existence is always already implied. This understanding of nature as the self-unfolding, emerging sway of beings that thinkers, poets and statesmen have to throw their counterweight against in order for it to come to a standstill—that is, an understanding of the being of the beings—fits very well with the understanding of the relation between science and phenomenology outlined above. The creation of a standstill is this act of field-delimitation. Science proceeds by investigating the beings that are brought to a standstill, while the act itself and the understanding of being fall outside of their scope. The goal of philosophers is to question again and anew, lest the understanding of being becomes stale and what is at stake in a specific understanding of being gets lost in the productivity of scientific research.

In what follows, I will provide a detailed overview of the results of the preceding chapters. I will draw connections between these results and explicate what they tell us about the interrelated concepts at play in this dissertation. I will aim to make the connections between the different chapters explicit in a way that presents a conceptual overview of the dissertation as a whole. I will detail the way the sub-questions were answered and how they relate to each other and add up to an answer to the main research question. Following from this, I will highlight some possibilities for future research that follow from the results of this dissertation.

1. Naturalism

The entire project of naturalizing phenomenology finds itself on unsteady starting grounds, because of the strong antinaturalist inclinations that lie at the very roots of phenomenology. As framed in the 1999 volume *Naturalizing Phenomenology*, the success of the project depends on the possibility of “cutting Husserlian phenomenology from its antinaturalist roots” (Petitot et al. 1999, 43). One of the hypotheses from which this dissertation departs is that to truly grasp what is at stake here, it is crucial to take a step back and examine the reason why the roots of phenomenology are antinaturalist in the first place.

The imagery invoked by the figure of speech of “cutting something from its roots” is telling. By cutting a plant from its roots, you kill it. It ceases to be alive and is to be dried or stored somewhere by the gardener if intended for further practical use. Taken this

way, the imagery itself from the outset evokes the criticism of turning phenomenology into a tool in the toolbox of the cognitive scientist. It can be of practical use for the purposes of the scientist, but analogous to the stored and dried plant, is no longer a living discipline that by itself can offer any real, meaningful, possibly transformative criticism. The imagery becomes even clearer if we relate it to another famous use of the plant and root metaphor: the Cartesian image of the tree of knowledge (Descartes 2010, 6). Famously, the branches of the tree designate the individual positive sciences, the trunk of the tree designates physics, the roots of the tree designate metaphysics. The metaphor of cutting phenomenology from its antinaturalist roots can hence be taken to mean: cutting phenomenology from its now old-fashioned metaphysical criticism, in order to enable putting it to a purely methodological use.

All of this leads to the following questions: what exactly is at stake in Husserl's criticism of naturalism? Why does Heidegger say that despite Husserl's overt criticism of naturalism, Husserl himself does not succeed in escaping naturalism? In what sense does this accusation imply a radicalization of Heidegger's criticism of naturalism, and what does this imply? These questions were central to chapter 2 of this dissertation.

Much has been written about Husserl's criticism of naturalism. In *Philosophy as Rigorous Science*, he defines naturalism as a reduction of the psychical to the physical (Husserl 2002, 253-254; Husserl 1987, 8). This reduction takes two forms: the naturalization of ideas and the naturalization of consciousness. Husserl's problem with the naturalization of ideas is that it is self-undermining. By making the laws of thought into contingent natural structures, the conclusion that these laws are indeed natural structures is itself contingent. Husserl's problem with the naturalization of consciousness is twofold. First of all, he signals an epistemological problem. Naturalists reduce consciousness to nature, but they have no convincing story of how consciousness is related to nature. From the perspective of nature, it is not possible to tell a convincing story about how consciousness is related to nature, because intentionality is not a feature of natural entities. This ties in with the ontological side of the argument, namely that consciousness simply does not exist in the same way as natural entities and hence cannot be the object of a similar method of scientific investigation as natural entities. Rather than intersubjectively accessible objects with specific properties, consciousness is monadically given to me, always directed at something else and its contents are presented as a stream.

That, in a nutshell, is Husserl's criticism of naturalism as presented in *Philosophy as Rigorous Science*. But what is the reason for him to direct such a detailed critical

attack to naturalism? The self-undermining of the naturalization of ideas, and the epistemological naïveté and ontological miscategorization of the naturalization of consciousness all point to the lack of scientific rigor on display in the process of naturalization. As compared to the inherently skeptical and therefore far more detestable historicists, naturalists have their scientific heart in the right place, but their attempts at reducing the psychical to the physical makes what the naturalist is concretely aiming for radically misguided.

Husserl's reason for being critical of naturalism is exactly what Heidegger takes aim at in his criticism of Husserl. In Husserl's quest for rigorous science, there is something crucial he neglects to investigate, namely the being of the entity under consideration: the human being. Our existence is understood by Husserl as consciousness, which in turn is understood as a theoretical relation to the world. This theoretical relation to the world is only able to understand the world as nature, making it a matter of time before it inevitably falls into the trap of understanding itself in terms of nature. Husserl's reduction of human existence to consciousness understood as theoretical knowing hence does not allow him to truly escape the clutches of naturalism.

The positive feedback-loop that Heidegger sees in Husserl's *Philosophy as Rigorous Science* is exactly the reason why those in favor of naturalizing phenomenology consider it possible to cut Husserlian phenomenology from its antinaturalist roots. Husserl's goal of rigorous scientificity and his reduction of human existence to consciousness mean that his project aligns very well with that of the cognitive sciences in the first place. His lack of a truly rigorous criticism of naturalism means that the naturalization of his phenomenology is far from phenomenological blasphemy: it is a direct consequence of the way Husserl understands phenomenology, his reasons for being critical of naturalism, and the limits of this criticism. Heidegger's criticism of Husserl here shows the importance of the ontological considerations that are hidden in the antinaturalist roots. Only by means of an ontological investigation into the being of the human being and its relation to the world is it possible to truly overcome naturalism and arrive at a non-naturalistic understanding of the human being.

The sub-question "what is the relation between Husserl's and Heidegger's criticism of naturalism?" has thus been answered. Heidegger's radicalization of Husserl's criticism of naturalism constitutes a rejection of the primacy of the theoretical attitude and the understanding of human existence and consciousness. This sheds some new light on the discussion of naturalizing phenomenology. Until now, the discussion has mostly been focused on the question of whether or not we can naturalize consciousness in the light of contemporary developments in the cognitive

sciences, but because of its Husserlian framework it evades the question of whether or not it makes sense to understand human existence as consciousness in the first place. Interestingly, even Heideggerian inspired proposals such as Wheeler's (2012) replace the word "consciousness" with "*Dasein*", but still seem to operate within a similar ontological scheme. If you do understand human existence as consciousness, then the question regarding the possibility of naturalizing phenomenology is inevitably yes, but at what cost? What meaningful—if any—conception of phenomenology is left behind in the wake of such a naturalization process, given the positive feedback loop highlighted above?

All of this means that Husserl and Heidegger relate differently to the project of naturalizing phenomenology. Based on the foregoing, it seems that one can indeed cut Husserlian phenomenology from its antinaturalist roots, but the same cannot be said for Heideggerian phenomenology. What possibilities and problems do these two positions present *vis-à-vis* collaborations between phenomenology and science? In order to shed light on this, it is important to further highlight the way Husserl and Heidegger think about the relation between science and phenomenology.

2. Science

Husserl's and Heidegger's analyses of science in relation to their own phenomenological projects both start from the idea that the sciences in their time are in a state of crisis. This similarity extends to the point of origin they both see for this crisis: the natural philosophy of Galileo Galilei. For both thinkers, the crisis of the sciences finds its point of origin in Galileo's mathematization of nature: his fixating of the being of nature as a nexus of bodies in motion. This shows that the way nature is thematized by science plays a crucial role in our understanding of science and its possibilities. I will come back to this point in the next section.

The crucial difference in the way the two thinkers see this crisis and its solution can be traced back to Husserl's insistence on—and Heidegger's rejection of—the idea that phenomenology should be aimed at gaining absolutely certain knowledge about the world in its entirety. Both thinkers agree that the crisis of the sciences, at least partially, consists in the fact that the sciences think they can achieve absolutely certain knowledge with their current methodology. The difference, then, is that for Husserl, sciences are in principle able to achieve this, but only if they go back to considering themselves as branches on the tree of philosophy. For Heidegger, sciences are in principle unable to achieve this, and so is philosophy.

Husserl's analysis of the crisis of the sciences in *The Crisis of the European Sciences* can be summarized under the theme of severance. "Positivism", Husserl writes, "in a manner of speaking, decapitates philosophy" (1970, 9; 1976, 7). The projects of science and philosophy are for Husserl essentially one project. The positive sciences and philosophy all join hands in their common enterprise of rationally making sense of the world around us. The crisis consists in the fact that the sciences no longer see themselves as "dependent branches of the One Philosophy" (8; 6). This results in a severing of individual sciences from each other, making the relevance of scientific domains to each other unclear. Furthermore, scientific questioning is severed from practical, ethico-political, philosophical and existential questioning. This means, for example, that science has become irrelevant to political discussions or existential considerations, and vice versa. Science's severance from philosophical questioning makes science impotent in establishing its own relation to truth or untruth, to rationality or irrationality. This is similar to the epistemological naïveté Husserl observes in *Philosophy as Rigorous Science*.

All of this seemingly calls into question what I said at the end of the preceding section. If we take the imagery of cutting phenomenology from its antinaturalist roots seriously, and take Husserl's imagery of a decapitated philosophy and different branches severed from each other and the tree to which they belong equally seriously, the two figures of speech seem to clash with each other. Especially if we, in accordance with the Cartesian imagery, consider the roots to be metaphysics, the two pictures really do not seem to line up. Part of the crisis of the sciences Husserl diagnoses is the fact that the positive sciences as severed branches can no longer ask metaphysical questions regarding truth, reason and meaning.

One way to make sense of this is by attributing the difference in viewpoints to the 25 year gap between *Philosophy as Rigorous Science* and *The Crisis*. For example, in *Philosophy as Rigorous Science*, Husserl did not yet have a conception of the life-world, which in *The Crisis* arguably plays a big role in bringing the severed scientific branches back to the roots of philosophy. However, despite these and other changes, there is one thing that remains the same: the scientific impetus driving his philosophy, the unwavering commitment to establishing philosophy as a rigorously scientific enterprise, in the business of formulating absolutely valid propositions about the world.

Rather than explaining this seeming contradiction in terms of Husserl changing his mind, I argue that the ambiguity itself arises from this commitment. For on the one hand, his commitment to making philosophy into a rigorous science means that he is committed to understanding human existence as consciousness. He understands

consciousness as theoretical knowing, which makes him get stuck in the positive feedback-loop between the way we understand ourselves and the way we understand the world. On the other hand, the very same commitment means that he cannot accept the naturalist ontology established by the positive sciences. In the latter sense, the antinaturalist roots play such a fundamental role, that it is impossible to cut Husserlian phenomenology from them while still remaining Husserlian phenomenology in any meaningful way. The result of this tension is that Husserlian phenomenology can either indeed be cut from its antinaturalist roots, but in such a way that it can never be more than a tool in the toolbox of the scientist, unable to formulate fundamental, reformative criticism. Or it cannot be cut from its antinaturalist roots, meaning it plays the part of the roots of the tree of the One Philosophy, of which the sciences are branches. From this perspective, it is difficult to envision a truly collaborative relation, because science would never be in a position to offer fundamental, reformative criticism to phenomenology.

It becomes clear that these two irreconcilable strands in Husserl's thinking are mirrored by the two irreconcilable sides of the naturalizing phenomenology debate, as outlined by Gallagher (Gallagher 2018, 131-134). One side of the debate argues that if phenomenology can indeed be naturalized, that would mean a phenomenological explanation can ultimately be reduced to a scientific explanation of the same phenomenon. This position mirrors the strand of Husserl's thinking that results in a positive feedback-loop. The other side of the debate holds that phenomenological investigation takes place on a more fundamental level than science, meaning phenomenology can never accept a naturalist ontology, which is mirrored by the strand in Husserl's thinking about sciences as branches on the tree of philosophy.

Now let us take Heidegger's position on science, its crisis, and its relation to phenomenology into consideration. For Heidegger, the crisis of the sciences consists of three aspects: a crisis in the relation between science and individual existence, a crisis in the relation between science and historico-cultural existence, and a crisis of the internal structure of science. Heidegger's analysis here remains close to Husserl's. Both thinkers see very specialized scientific fields, in which sciences are unable to relate to the existential questions of the individual and the ethico-political questions challenges posed by society. Furthermore, similar to how Husserl claims sciences are naïve in the sense that they are unable to think their own truth or untruth, so Heidegger's crisis of the internal structure of science points to the fact that no science is able to determine itself by means of its own scientific method.

While their diagnoses are similar, their treatment of the crisis differs greatly. For Husserl, the core of the crisis consists in this idea of severance, hence the solution lies in closing the gap that came into existence because of the severance. The means by which Husserl wants to do this is by phenomenology as a science of the life-world, thereby uncovering it as the realm of original evidences and the way science springs forth from that realm, hence closing the gap between the world of the sciences and the life-world. For Heidegger, rather than bridging the gap, the point is to see what makes science and philosophy so vastly different. He considers the crisis of the sciences to be an in principle unsolvable one, because sciences by their very nature are both limited and estranged from our individual and historico-cultural existence.

The root of this difference can be found in Husserl's and Heidegger's conceptions of what phenomenology as a way of doing philosophy is, and what it is capable of. In *The Crisis*, Husserl characterizes the philosophical form of existence as follows: "A superior survey of the world must be launched, unfettered by myth and the whole tradition: universal knowledge, absolutely free from prejudice, of the world and man, ultimately recognizing in the world its inherent reason and teleology and its highest principle, God" (Husserl 1970, 8; Husserl 1976, 5). In the preliminary remark to *Introduction to Phenomenological Research*, Heidegger holds "a certain mastery in regard to prejudice" (Heidegger 2005a, 2; Heidegger 1994a, 2) to be necessary for philosophy. This seems in line with Husserl, but only until Heidegger clarifies: "Not absence of prejudice, which is a utopia. The idea of having no prejudice is itself the greatest prejudice" (2; 2). To be in possession of a certain mastery in regard to prejudice hence does not mean to live absolutely free from prejudice, but to free yourself to the possibility of giving up specific prejudices if the subject matter under investigation warrants such a giving up.

According to Heidegger, a radical phenomenological investigation of human existence confronts us with the *Halt-losigkeit* of that existence. In the end, our existence is finite, contingent, and we lack a fundamental grip on the world around us, a firm ground on which we stand. The entire aim of science as an enterprise—and this for Heidegger very much includes Husserl's conception of a rigorously scientific philosophy—is to cover up this *Halt-losigkeit* at the core of our existence. The search for absolute certainty is unmasked by Heidegger as a flight from the fundamental uncertainty inherent in human existence.

Hence, the sub-question "What is the relation between phenomenology and science Husserl and Heidegger envision?" has been answered. The core difference between the two thinkers lies in a different relation to the scientific impetus of formulating

absolutely binding propositions about the world in its entirety. We have seen that for Heidegger, this impetus itself is a way to cover up the fundamental *Halt-losigkeit* of human existence. Paradoxically, it is Husserl's commitment to this ideal that results in a breakdown of the possibility of a concrete collaboration of science and phenomenology.

So, it seems the question concerning a possible mutually reformatory cooperation between science and phenomenology hinges on our ability to accept uncertainty. This may seem counter-intuitive, but as we have seen, Husserl's emphasis on achieving absolute certainty leads to an ambiguous situation regarding the possibility of naturalizing phenomenology. We have to be careful, however, not to equate the acceptance of uncertainty with an anti-scientific, skeptical attitude. As Glazebrook puts it: "Heidegger is not opposed to science per se insofar as he does not reject the human project of understanding nature" (Glazebrook 2012, 18). As I have tried to show throughout this dissertation—and will emphasize further in the next section—it is precisely Heidegger's criticism of the idea that science is able to formulate a completely coherent, absolutely certain "theory of everything" that enables a positive interpretation of the relation between science and phenomenology. A relation that does not submit to one of two reductionist positions regarding the relation between the two fields. So that means: neither absolutizing the classical conception of nature and reducing the subjectivity to nature, nor absolutizing subjectivity and reducing nature to the subject. A relation between phenomenology and science that is able to do justice to both nature and the human being without reducing one to the other has to be able to accept uncertainty.

The question now is: in what way does Heidegger's position fare better with regard to the thinking about a collaborative relation between science and phenomenology? Does Heidegger's sharp distinction between science and philosophy not result in an equally untenable situation with regard to the prospect of naturalizing phenomenology? In the next section, I will argue that it does not. As we saw in chapter 5, Gallagher's proposed solution to the debate was to rethink the concept of "nature" underlying it. With the help of Heidegger's understanding of nature as *phusis*, I will show how Heidegger's conception of the relation between science and phenomenology opens up the possibility for a fruitful collaboration.

3. Nature

In the first subsection of this conclusion, I argued that it is not possible to cut Heideggerian phenomenology from its antinaturalist roots. The deciding question concerning the possibility of Heidegger adding something of value to the naturalizing phenomenology debate is: is it necessary to cut Heideggerian phenomenology from its antinaturalist roots in order to enable a fruitful collaboration between science and Heideggerian phenomenology? The way we answer this question is, as we shall see, wholly dependent on the underlying conception of “nature” at play.

In chapter 4, I treated the question of whether or not Heidegger can be considered a robust realist with regard to the entities of the natural sciences. In the chapter, I discussed the textual evidence for this reading of Heidegger to be inadequate. We can now see why it is also an unproductive reading when it comes to mobilizing Heideggerian insights for the naturalizing phenomenology debate, for the two irreconcilable sides of that debate are both struggling with precisely this classical, scientific conception of nature. Furthermore, as we have seen in chapter 2, nature as “*unworlded*’ world” (Heidegger 1985a, 168; Heidegger 1994b, 227) cannot be separated from an understanding of the human being as a rational animal, and the human-world relation as a relation of theoretical knowing. To attribute a robust realism concerning the entities of natural science to Heidegger thus means to attribute the same positive feedback-loop to Heidegger as we did for Husserl. Taking into account Heidegger’s thorough criticism of the primacy of the theoretical attitude, as well as his ontological investigation of the being of the human being, it is safe to say that this accusation would be both unproductive and unwarranted. The sub-question: “Can Heidegger be regarded as a realist with regard to the entities of natural science?” therefore has to be answered negatively.

The other realist position under consideration was Harman’s speculative realism, which runs into a different set of problems. According to Harman’s speculative realist adoption of Heidegger’s tool-analysis, the human-world relation loses the primacy it has enjoyed in continental philosophy since Kant. Harman states that “tool and broken tool make up the whole of Heidegger’s universe” (Harman 2011, 39) to later make explicit that “despite Heidegger’s denials, even human Dasein partakes of both modes of being” (39-40). Similar to the robust realist interpretation of Heidegger, this reading clashes with the interrelation Heidegger notes between the being of the human being, the human-world relation, and the world itself. Furthermore, as we shall see, this reading is equally unproductive when it comes to the naturalizing phenomenology conversation, for as we have seen in chapter 5, a mutually beneficial

relation between science and phenomenology depends on a relational understanding of nature as *phusis* and *logos*, which in itself is a prioritization of the human-world relation.

This leads to the fourth and final sub-question: Is there a viable alternative conception of nature that can be formulated on the basis of Heidegger's philosophy? Heidegger's retrieval of the ancient Greek understanding of *phusis* is a close fit with Gallagher's redefinition of nature as something that includes rather than excludes subjectivity. In this sense it provides an alternative to the understanding of nature that has hitherto been at the basis of the naturalizing phenomenology conversation. Heidegger explains the meaning of this Greek understanding of nature as *phusis* in terms of nature not existing as something opposite to us, but nature as something that we are. This "something that we are" should in turn not be understood as the rational animal which is completely lucid to its own understanding, but as *halt-los*, lacking a grip and a firm ground to stand on, baseless, contingent, finite. Thus understood, *phusis* designates precisely that on which we have no grip, that in light of which we are without firm ground, *halt-los*. Yet *phusis* at the same time designates our ongoing attempts to acquire this grip, to find steady footing, to ground ourselves and the world around us. To put this point in a different way: *phusis* is the overwhelming sway of that which arises out of itself, against which thinkers, poets and statesmen throw their counterweight in order to make it come to a standstill.

Understood in this way, nature as *phusis* is another word for being. The standstill created by the counterweight of thinkers, poets and statesmen is a specific understanding of the being of beings. In a particular standstill, beings become familiar, dependable, at everyone's disposal, while the understanding of their being itself retreats back into obscurity. The suggestion of a fundamental familiarity with these beings is given, while the lack of recognition for the ontological understanding that precedes this so-called familiarity makes the relation to beings into a stale, trivial, banal relation. The fundamental familiarity that is suggested and aimed at can never fully be achieved, because of the underlying understanding of the being of beings that remains invisible from within this specific standstill. Hence Husserl's claim that positive sciences are unable to think their own truth. Hence Heidegger's claim that no science is able to determine itself by means of its own scientific method.

What kind of relation between science and phenomenology follows from this? It should be clear from the foregoing that the relation envisioned here can no longer be a relation that ensures absolutely binding certainty, fundamental familiarity, or a complete grip regarding the beings around us, or ourselves. However, the fact that

this path is closed off should not lead to the conclusion that philosophy and science have nothing to say to each other, or that we should leave the study of nature to mystics and poets alone.

Rather, the ensuing picture of the relation between science and phenomenology is the following: science always operates within a specific understanding of the being of the beings in their field; a standstill, achieved by a particular act of throwing our counterweight against the overwhelming sway of *phusis*. Physics needs a prior understanding of the being of nature, biology needs a prior understanding of the being of the living, psychology needs a prior understanding of the being of the psychical. The establishing of this prior understanding is what I have called the act of field-delimiting in chapter 3. By this act, the being of the beings in a certain realm is fixated, and the realm itself is delineated in a specific way. This allows the positive, empirical research of the science in question to proceed.

This picture could lead to the assumption that the specific relation I have in mind is one in which phenomenologists first get to business in order to sufficiently map the basic concepts, only for science to then proceed on an adequate ontological basis. This does not work, because scientists cannot and should not be asked to sit around and wait for phenomenologists to lay down the basic conceptual groundwork. Establishing this conceptual groundwork should not happen independently from the positive empirical research. Rather, the ontological understanding of the basic concepts should be informed by positive research and vice versa. The circularity at play here is seen by Heidegger regarding the formulation of his thesis concerning animals: “The proposition [the animal is poor in world] does not derive from zoology, but it cannot be elucidated independently of zoology either” (Heidegger 1995b, 187).

Rather than on the basis of an explicit, ontological, phenomenological investigation, the fixation of the being of beings and delimitation of the area of investigation occur on the basis of a rough and naïve understanding of the basic concepts of the scientific field, presented to us by our pre-scientific experience. Based on that, science proceeds in a provisional manner. Meanwhile, the basic concepts of pre-scientific experience are exactly the subject-matter of phenomenology. In this way, phenomenology continually investigates the ontological building blocks on which the sciences operate. This means that scientific results might have to be interpreted in a different way based on a renewed understanding of the delineation of the domain of investigation of a specific science, or a renewed understanding of the way our pre-scientific basic concepts are translated into a fixation of the being of beings of a particular domain. At the same time, an understanding of the being of beings of

a particular domain can only occur in tandem with the actual, ongoing empirical research, to such an extent that the phenomenological understanding of a basic concept might need to be revised in light of new empirical evidence. In chapter 5, I gave two extensive, concrete examples of what this might look like.

The result is a circular movement between the empirical scientific research concerning beings, and phenomenological investigation of the being of these very same beings. This circular movement corresponds to Heidegger's call for philosophers to continue the struggle. As we saw above, the standstill created by the throwing of our counterweight against the overwhelming sway of *phusis* contains the danger of rigidification, in which the idea that there is an understanding of the being of beings at work in any delineation of a scientific domain is forgotten. By constantly working within this understanding of being, making sure it is still attuned to both our scientific results and our pre-scientific understanding, the collaboration between science and phenomenology continues the struggle. That fact that we are no longer guided by the end goal of a theory of everything, a set of universally binding propositions about the world in its entirety, does not stand in the way of—but rather enables—such a collaborative relationship. For considering either science or philosophy as the way to formulate a theory of everything implies a reductionism that stands in the way of any genuine form of collaboration. Only when we consider the two fields to be fundamentally open-ended in their attempts at understanding the world can they genuinely inform one another.

The foregoing outlines the ways in which it does—and does not—make sense to speak of naturalizing phenomenology in a Heideggerian sense. If by naturalizing phenomenology we mean committing phenomenology to a specific scientific understanding of the being of beings that remains implicit to scientific understanding itself, and against which phenomenologists are not allowed to pose ontological criticism, then the idea of naturalizing phenomenology has no tangible merit. If, however, by naturalizing phenomenology we mean understanding that science and phenomenology are engaged in a similar struggle against the overwhelming sway of *phusis*, then the merit in the form of the collaborative relationship outlined above is very clear. For this latter understanding, it is neither possible nor necessary to cut Heideggerian phenomenology from its antinaturalist roots. It is precisely Heidegger's radical criticism of naturalism that enables the collaborative relation between science and phenomenology I have outlined in this dissertation.

4. Final Conclusion

Do I now have an adequate answer to the question concerning the relation between Arthur Eddington's two desks that I started with in the introduction? In the introduction I framed the discussion between phenomenologists and naturalists concerning the desks in the following terms: phenomenologists prioritize the desk as a practical, everyday artifact, the naturalists prioritize the desk as a scientific conglomerate of particles and void. Those who want to naturalize phenomenology seek to bridge the gap between the two desks.

Based on the results of this dissertation, it is safe to say that any story concerning the relation between the two desks that treats one desk as the “real” desk immediately runs amok. If naturalizing phenomenology means understanding the everyday desk in terms of the scientific desk, then the project has—in my view—no discernible merit. For if we understand the everyday desk in terms of the scientific desk, then what it is exactly that a phenomenological understanding of the everyday desk adds to the scientific understanding of the scientific desk is unclear. From a phenomenological perspective that takes the everyday desk to be the most fundamental one, the reverse is true, which makes the project of naturalizing phenomenology just as unfeasible.

As I have shown, however, this is not the only way we need to think about naturalizing phenomenology, or the only way we can make sense of the relation between the two desks. From the Heideggerian perspective that I have sketched, the two desks represent two different types of the understanding of the being of beings, aligning with two different ways in which we try to come to grips with the world into which we are thrown. To make a decision concerning which of the two is more fundamental suggests being able to rid ourselves of the human need to come to grips with the world, to judge human endeavors from a divine perspective. It implies the possibility of formulating a definitive answer to all the questions we have about the world around us, desks included. The impossibility of taking such a stance renders any answer to the question concerning the fundamentality of the two desks fundamentally arbitrary.

Does this mean that the two desks have nothing directly to do with each other, other than the fact that they are both related to another desk, a desk *an sich*, even more mysterious than even the scientific desk with its voids and imperceptible particles? No. The desk as an everyday object presents the rough contours on the basis of which the scientific table is outlined. The fact that the two desks represent two different ways human beings try to get a grip, *Halt*, on the world around them means that phenomenology as a study of human existence is always and fundamentally relevant

to the scientific study of the scientific table. Something similar goes the other way around: as a specific way of understanding being, the scientific study of the scientific table has to be relevant for phenomenology as a study of human existence. The promise of the project of naturalizing phenomenology lies in seeing the relevance of the study of both of these desks for the other. This can only truly work if we abstain from reducing either the desks themselves, or the different ways of understanding them, to each other.



Appendices

Bibliography

Summary

Samenvatting

Acknowledgements

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Summary

Over the last two decades, the project of naturalizing phenomenology has caused the relation between phenomenology and naturalism to become a hotly debated topic. Critics point out that the project finds itself on unsteady starting grounds, because of the strong antinaturalist inclinations that lie at the very roots of phenomenology. Importantly, when naturalism enters into a dialogue with phenomenology, the conversation partner that is selected on the side of phenomenology is most often Edmund Husserl. In my dissertation, I will argue that Martin Heidegger's more fundamental criticism of naturalism makes his philosophy a good starting point for a constructively critical dialogue concerning the possibilities and challenges contained in the project of naturalizing phenomenology.

The central concept of concern in this dissertation is the concept of "naturalism" and its meaning in Heidegger's philosophy. The starting point for my investigation is the idea that the notion of "naturalism" is a relational notion, which means that in order to understand it there are at least two other notions we need to understand with it: "science" and "nature". The way we understand and criticize "naturalism", or naturalize phenomenology, is therefore highly dependent on the underlying understanding of "nature" and "science".

This dissertation takes the form of a collection of four articles. The aim of these articles is to step by step find an answer to the main question: How can Heidegger's stance on naturalism help us to better understand the possibilities and challenges inherent in the project of naturalizing phenomenology? The first article aims to understand Heidegger's stance on naturalism, departing from an understanding of its relation to Husserl's explicit criticism of naturalism. The second article investigates the differences and similarities in the relation Husserl and Heidegger see between science and phenomenology. The third article investigates Heidegger's notion of nature, by asking whether or not he can be regarded as a robust realist regarding the entities of natural sciences. The fourth and final article takes Heidegger's understanding of nature as *phusis* as a constructive alternative notion of nature that is helpful to the debate regarding naturalizing phenomenology.

Samenvatting

De afgelopen twee decennia heeft het *naturalizing phenomenology*-project ervoor gezorgd dat de relatie tussen fenomenologie en naturalisme een fel bediscussieerd onderwerp is geworden. Critici wijzen erop dat het project zich op een onzekere basis bevindt, vanwege de sterke antinaturalistische neigingen die aan de basis van de fenomenologie liggen. Wanneer naturalisme een dialoog aangaat met fenomenologie, dan is de gesprekspartner die aan de kant van de fenomenologie wordt gekozen meestal Edmund Husserl. In mijn proefschrift zal ik betogen dat Martin Heideggers fundamentele kritiek op het naturalisme zijn filosofie een goed beginpunt maakt voor een constructief-kritische dialoog over de mogelijkheden en uitdagingen die het *naturalizing phenomenology*-project bevat.

Het centrale concept in dit proefschrift is het concept van "naturalisme" en de betekenis ervan in Heideggers filosofie. Het uitgangspunt voor mijn onderzoek is het idee dat het begrip "naturalisme" een relationeel begrip is, wat betekent dat we om het te begrijpen minstens twee andere begrippen moeten begrijpen: "wetenschap" en "natuur". De manier waarop we naturalisme begrijpen en bekritisieren, of fenomenologie naturaliseren, is daarom sterk afhankelijk van ons onderliggende begrip van "natuur" en "wetenschap".

Dit proefschrift heeft de vorm van een verzameling van vier artikelen. Het doel van deze artikelen is om stap voor stap een antwoord te vinden op de hoofdvraag: Hoe kan Heideggers standpunt over naturalisme ons helpen om de mogelijkheden en uitdagingen die inherent zijn aan het *naturalizing phenomenology*-project te beter te begrijpen? Het eerste artikel heeft als doel om Heideggers standpunt over naturalisme te begrijpen, vertrekkend van een begrip van de relatie ervan met Husserls expliciete kritiek op naturalisme. Het tweede artikel onderzoekt de verschillen in de relatie die Husserl en Heidegger zien tussen wetenschap en fenomenologie. Het derde artikel onderzoekt Heideggers notie van de natuur door te vragen of hij wel of niet als een robuuste realist kan worden beschouwd met betrekking tot de entiteiten van de natuurwetenschappen. Het vierde en laatste artikel neemt Heideggers begrip van de natuur als *physis* als een constructief alternatief begrip van de natuur dat behulpzaam is voor het debat over naturaliserende fenomenologie.

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Curriculum Vitae

Tim Miechels (1989) obtained his bachelor's and master's degrees in philosophy at the Radboud University in Nijmegen (both *cum laude*), in 2011 and 2014 respectively. In 2017 he started working on his dissertation about Heidegger's conception of naturalism. At the same time he started working at the Radboud University as a lecturer and at Eindhoven University as assistant lecturer. He has presented insights from his dissertations at numerous international conferences, such as the conference 'Phenomenology and the Sciences' organized by the *Central and East European Society for Phenomenology* in Padova and the conference 'Religious Experience and the Phenomenology of Nature' organized by the *Society for the Phenomenology of Religious Experience* in Galway and Sligo. The articles comprising this dissertation were published in the acclaimed peer-reviewed journals *Humana.Mente*, *Louvain Journal of Philosophy* and *Ekstasis. Revista de Hermenêutica e Fenomenologia*.

