Chapter 6
Physical Reality and the Phenomenal World

6.1 The Question of Foundation

Before I continue the comparison of Plessner and Merleau-Ponty, I want to introduce a framework for the discussion of the present chapter and Chapter 7. Let me first sketch the three steps I am about to make. (1) I introduce the meaning in which I will speak of "physical reality". I argue that, in a sense, the physical *transcends* the phenomenal, and at the same time I forewarn the reader that this concept of "transcendence" does not have any existential-moral meaning. (2) Then I interpret, for now in a sketchy manner, the relationship between physical reality and the phenomenal world in terms of a problem of *foundation*. The question is: is the phenomenal world ultimately founded on physical reality, or is physical reality a concept or structure dependent on the phenomenal world? I show that the question is relative to an ontological-epistemological framework. This framework is necessary for a philosophical understanding of physical reality but it is also limited. A more thorough justification for this ontological-epistemological perspective must wait until the end of the next chapter. (3) I argue that the question whether the phenomenal world is founded on physical reality or vice versa cannot be answered in terms of either/or, because we are dealing with two opposite *directions* of foundation which complement one another. My thesis is that only if we respect the two directions of foundation and the ambiguous relationship between them can we avoid foundational*ism*.

(1) "Phenomenal world" and "physical reality" imply two different concepts of nature. Firstly, nature is the phenomenal world insofar as it is unaffected by human interference. Nature includes landscapes, weather conditions, animals, plants and non-living things, which appear according to the principles of the phenomenal world, such as spatial orientation, qualities (including secondary

qualities), perceptual gestalt-unities and motivational structures. Secondly, nature can be defined as physical reality in the strict sense of the word, i.e., as the inanimate universe of physical bodies subordinate to physical laws. In both cases, the term "nature" refers to something which in some sense *transcends* the human world. Let me explain this for either case. Incidentally, I am not suggesting that these are the only two sensible concepts of nature, but these are the ones I now want to work with.

As regards nature in the sense of phenomenal world, we have seen that there are a number of similarities between Plessner and Merleau-Ponty—despite the differences discussed in the previous chapters. Both Plessner and Merleau-Ponty include a conception of embodied subjectivity in their understanding of human beings. Merleau-Ponty's description of the thing-structure in terms of an invariable with variable aspects is close to Plessner's. This is due to the fact that both draw on Husserl's conception of the perception of things. In both Merleau-Ponty and Plessner, the phenomenal world in which things appear is organized by spatial orientations like up, down, left, and right. Merleau-Ponty would agree with Plessner that, contrary to the animal's *Umfeld*, the human world constitutes a boundary between immanence and transcendence.[1] Supposing that there is a level of agreement here, we can say that, according to these views of human existence, the transcendence of nature with regard to the human world manifests itself *within* the framework of the phenomenal, namely as the inexhaustible depth of qualities, shapes, entities, objects, landscapes, constellations of figures and grounds, and meanings. The world has a qualitative depth which renders possible a plurality of experiences but which does not allow for just any experience.

So why do I want to distinguish physical reality from the phenomenal world? Are physical objects and forces not already part of that world? Do I not see gravitation at work when I see an apple falling from a tree? It is true that in our normal, everyday life experience we are also concerned with physical forces, like gravitation, machines which work on the basis of the laws of physics, physical objects like the sun and the moon, or the ground we stand on. This is certainly one aspect of the relationship between physical reality and the phenomenal world. The examples show physical reality as *integrated* in the phenomenal world, which means that primary properties like mass, volume, or movement are not divorced from secondary properties like color, sound, smell, or taste. In addi-

1 Merleau-Ponty, *La structure du comportement*, 201/186: "Perspective does not appear to me to be a subjective deformation of things but, on the contrary, to be one of their properties, perhaps their essential property. It is precisely because of it that the perceived possesses in itself a hidden and inexhaustible richness, that it is a 'thing'".

tion, the physical is here integrated in a world which is organized by spatial orientations.

In the current chapter and in Chapter 7 I want to speak of physical reality also in a different way. Physical reality must have already existed before there were living things, and specifically human beings. It must now continue to exist as what it must have been before we came to be, i.e., before we brought along our phenomenal world. The physical can only appear to a *living* being, specifically to higher animals and human beings. If we restrict ourselves to human beings, we can say that the human world is a transformation of the physical into the phenomenal; it is thereby a concealment of physical reality as it is in itself.[2] Physical reality, as it were, hides behind the structure of the phenomenal world. In this sense, the physical *transcends* the phenomenal.[3] In the sections to come I will present examples to illustrate this transcendent dimension of physical reality.

(2) Is it possible to say anything positive about physical reality as it is in itself? This is in fact one of the central questions of this chapter. I believe that a fruitful approach to the problem has two aspects. Firstly, we are concerned with a problem of what comes first: being or our *thinking* of being. The problem thus reflects the interdependence of ontology and epistemology, and it should therefore be addressed from an ontological-epistemological perspective. Secondly, we are concerned with a problem of *foundation*. Let me explain what I mean by this. My explanation draws on Plessner and Merleau-Ponty, but in the current section I only sketch my own position. From the next section onwards I will elaborate my view and back it up with the necessary references.

From an ontological perspective, physical reality is the ultimate ground of the world, because human existence is founded on the occurrence of life, and the organic in turn presupposes the existence of physical reality. However, ontology is never completely independent from epistemology. This dependence renders the question regarding the foundation of the world ambiguous. Nature is our existential basis, but it is also given to a subject or person, or contemplated by her

2 "Concealment" here does not mean that it was not concealed before human beings came to be: it was neither concealed nor revealed. Appearance and hiding develop simultaneously.

3 I am aware that my formulations lead to awkward combinations if we take the metaphors involved literally: the *basis* of human existence would at the same time *transcend* it. The first expression points down; the second suggests upward (or forward) movement. Unfortunately, there are no better alternatives. Since we are concerned with dead metaphors (in Ricoeur's sense), I trust my account is still understandable.

theoretically. In addition, the person's knowledge is socially embedded. This means that, from the ontological-epistemological perspective, our relationship with nature has two poles which are both candidate for constituting the foundation of our being in the world: on the one hand physical reality and on the other hand the socially embedded ego (the first person of experience). The ego depends on physical reality as an ontic presupposition for her bodily existence, but at the same time the physical can only be real *to* somebody if there is a person in the first place.

When we search for a foundation of our existence in nature we aim not only at understanding how lower nature is integrated in the higher levels of living nature. We want to understand how nature at the same time persists as what it must have been before the organic and human life came into existence. In Merleau-Ponty's view of natural history, the physical is integrated into the order of the vital and the human. Plessner's view is in this respect similar: physical nature is transformed into (a) plant life and correlatively the medium of the plant, (b) the animal and correlatively the surrounding field (*Umfeld*), and (c) human beings and correlatively the phenomenal world. In both Merleau-Ponty and Plessner, physical reality is at the same time regarded as a *precondition* for life, human life, and the phenomenal world. This leads to the paradox mentioned: the physical appears to us as a phenomenal world, and yet we know, on the basis of the history of nature, that it must at the same time precede our relationship to the phenomenal and persist as this precondition. Insofar as it precedes and supports the phenomenal world, physical reality *is not phenomenal*. This is a logical necessity.

(3) I argue that we should not discard this paradox as a contradiction but rather accept it and think it through. This is what some philosophers fail to do. Both reductive and eliminative materialism only accept physical reality as the foundation of our existence. As I will show in the sections to come, Merleau-Ponty's case is more complicated, because he is not entirely consistent. In some passages he embraces both phenomenal realism and physical realism, but in other passages he treats physical reality either as a mere perceptual structure or as a theoretical construct on the basis of the phenomenal world. He then denies the physical universe its reality independent of a subject. When Merleau-Ponty rejects physical realism in the name of phenomenal realism, he takes the position exactly opposite to the materialism that he wants to overcome. Although I embrace physical realism, I do not accept the materialistic reduction of the phenomenal to the physical. And although I accept Merleau-Ponty's phenomenal realism, I do not subscribe to his claim that physical reality is a mere perceptual structure or an intellectual construction.

The alternative to these positions is that we rephrase the problem by saying that there are two *directions* of foundation, which are complementary.[4] That is the view which I think ensues from Plessner's double aspect of subject and object. But as noted above, Merleau-Ponty's dialectical approach in *The Structure of Behavior* contains the same productive paradox. In my view, there are two directions in which we can seek a ground of our existence: nature as the ground for our perceptual and reflective openness to the world, and our openness as constitutive of nature's appearance and of our contemplation of nature. Only in this way can we reconcile physical realism and phenomenal realism. The aim of this chapter and the next is to argue this point.

As just noted, the question of foundation is relative to an ontological-epistemological framework. This may be a controversial aspect of my account. Existential philosophy, phenomenology, and hermeneutics often want to go beyond ontology and especially epistemology, because these approaches would be too neutral or too abstract, or because they would be foundationalist or representationalist. At the end of the next chapter I argue that these criticisms do not apply to the framework I am here presenting. But at the same time I agree that the ontological-epistemological perspective is not all there is. I will also reflect on the differences and interconnections between this framework and the broader ex-

4 The idea of "two directions of foundation" is inspired by Plessner, but the way I use this phrase also deviates from Plessner's use. Although Plessner's aim, in *Die Stufen des Organischen und der Mensch*, is to understand the relationship between nature and the human world, "nature" in the sense of physical reality is not extensively discussed. When Plessner describes his approach of the relationship between the human being and nature, he mentions two directions of exploration: the horizontal and the vertical. The horizontal direction, says Plessner, explores human existence as "it is manifest in his acts and his suffering" (*Stufen*, 32/70). The vertical direction explores man's place "as an organism within the chain of organisms" (ibid.). Plessner states that the *Stufen* is dedicated to the vertical direction, and this is largely true, but Plessner here also describes how we are subjectively open to the external world, and how we are persons in a social world—which are elements of a horizontal approach. The question of the current chapter and the next is inspired by the doubleness of Plessner's horizontal and vertical directions, but there is also a difference: my question aims at an understanding of the place of human beings, not only among other organisms, but also in relation to the physical. As I will show, the *Stufen* nonetheless provides the right framework to deal with physical reality and Plessner's *Die Einheit der Sinne* provides further support for my approach.

istential-moral framework philosophy has to work with. I will show that both approaches overlap and are complementary.

6.2 PHYSICAL SYSTEMS AS PERCEPTUAL GESTALTS

On the face of it Merleau-Ponty seems to support a balance between two directions of foundation. Insofar as the foundation of nature in the human world is concerned, the "structure of structures" describes the principle of our relationship to the outer world which sets us apart from animals. We find here a deeper foundation of perception in the higher, symbolic structure of our behavior. The higher structure can be called a "foundation" because it is an organizing principle which *re*structures all being. For instance, on the basis of human disengagement (our ability to *se déprendre de la situation*), the external world receives the structure of the thing, i.e., the ambiguity of immanence and transcendence.

As regards the foundation of the human world in nature, it seems that, according to Merleau-Ponty, human disengagement with regard to perception at the same time remains dependent on what *precedes* perception: the structures of *the physical order* which are later integrated into the order of the vital and the human.[5] This dependence on physical nature would complement the foundation of our existence in the human world. Merleau-Ponty would then be both a phenomenal and a physical realist. But Merleau-Ponty never calls himself a physical realist, because to him physical realism belongs to reductionistic materialism or to Cartesian dualism. I have argued that physical realism does not necessarily imply reductionism or dualism and I think that, at this point, Merleau-Ponty's view leads to problems. These present themselves clearly in his criticism of Köhler. I will first sketch the main point and then elaborate.[6]

According to Köhler, physical reality consists to a large extent of systems of causes and effects. These systems constitute gestalts which possess properties that cannot be reduced to the properties of the parts. Examples of such systems are molecules or planetary systems. Merleau-Ponty accepts this definition of a physical gestalt, but he also criticizes Köhler by making the following two claims. (a) Physical systems are indeed gestalts, but this means they are not real: they do not exist beyond the human world. Rather they are forms of perception,

5 See my introduction of *La structure du comportement* in Section 4.1.

6 The following critique is inspired by Thomas Baldwin's criticism of Merleau-Ponty's "idealism" (Baldwin, "Merleau-Ponty's phenomenological critique of natural science")

more precisely: of the *scientist's* perception. (b) Physical systems are taken over by and integrated into higher dialectics which have their proper structure and which become the principle of the physical, determining them as lower structures. I argue that (b) presupposes that physical systems are real *beyond* human perception, which is not consistent with (a).

Ad (a). Although Merleau-Ponty accepts Köhler's definition of the gestalt (*die Gestalt*, *la forme*) in terms of wholes and parts, he radically rejects Köhler's realism: "But in speaking of physical gestalts, Gestalt theory means that structures can be found *in* a nature taken in-itself and that the spirit can be constituted from them. However, the same reasons which discredit the positivist conception of laws also discredit the notion of gestalts in-themselves."[7] Note that Merleau-Ponty rejects both the reality of physical gestalts and the reality of physical laws, as both are interdependent. According to Merleau-Ponty, physical gestalts are *structures* and all structures are relations of perception or relations on the *basis* of perception, so that "[a] gestalt is not a physical reality, but an object of perception; without it physical science would have no meaning, moreover, since it is constructed with respect to it and in order to coordinate it."[8]

I do not think Merleau-Ponty's analysis is accurate. But what makes Köhler vulnerable to Merleau-Ponty's criticism is that he uses "gestalt" and "system" as synonyms. Both gestalts and systems are more than the sum of their parts, but only the word "gestalt" carries the strong connotation of being subject-relative. We can agree with Merleau-Ponty that gestalts are forms of perception but still also agree with Köhler that physical systems exist in themselves, independent of subjects.

In the *Phenomenology of Perception* Merleau-Ponty also denies the fundamental character of physical reality, but for a different reason. Here he emphasizes that physical reality is an intellectual construction by science which remains dependent on the lived world: "The whole universe of science is built upon the world as directly experienced, and if we want to subject science itself to rigorous scrutiny and arrive at a precise assessment of its meaning and scope, we must begin by reawakening the basic experience of the world of which science is the second-order expression."[9] Merleau-Ponty's aim in this book is therefore to return to the lived world of perception, i.e., to "the world as this pre-objective individual".[10] In addition, contrary to what science says, geometrical space

7 Merleau-Ponty, *La structure du comportement*, 151/140 (translation modified).

8 Ibid., 155/143 (translation modified).

9 Merleau-Ponty, *Phénoménologie de la perception*, II/ix.

10 Ibid., XIII/xx.

would be a construction on the basis of the *oriented* space of the prepersonal body: "Nature is *not* in itself geometrical".[11] And finally, the formation of the earth 4.5 billion years ago "is not behind us, but in front of us, in the cultural world",[12] because the concept of such a formation presupposes our conscious being in the world. I return to the latter passage below.

Ad (b). Let us return to Merleau-Ponty's discussion of the mind-body problem, and see how it is connected with his view of the physical order. Merleau-Ponty says that physical systems constitute a lower dialectics which historically and systematically precede the higher dialectics of the human order. This thought is part of his argument against "critical thinking". Critical thinking tells us that the lower dialectics of nature can only be *present to* consciousness, and not historically and ontologically prior to it. Critical thinking thus denies the *past* of consciousness, says Merleau-Ponty: "For life, as for the spirit, there is no past which is absolutely past . . . Higher behavior retains the subordinated dialectics in the present depths of its existence, from that of the physical system and its topographical conditions to that of the organism and its 'milieu'."[13]

What does it mean that the lower dialectics are the "past" of consciousness, as Merleau-Ponty says? We would like to know this in regard to both types of lower structures mentioned in the quoted passage, the physical system and the organic, but Merleau-Ponty only explains it for the organic: "While critical thought pushed the problem of the relations of the soul and the body back step by step by showing that we never deal with a body in-itself but with a body for-a-consciousness and that thus we never have to put consciousness in contact with an opaque and foreign reality, for us consciousness experiences its inherence in an organism at each moment; for it is not a question of an inherence in material apparatuses . . . but of a presence to consciousness of its proper history and of the dialectical stages which it has traversed."[14]

So Merleau-Ponty says that our past must, in a latent manner, remain constitutive of our existence, so that we experience it as a "foreign reality" within ourselves. This is a promising starting point, but we see that Merleau-Ponty only explains this with respect to the organic character of our body. The physical structure of the body proper is now described in the terms of the reductive materialism of classical theory which needs to be rejected: "it is not a question of an

11 Ibid., 69/65. Cf. ibid., 340/343.

12 Ibid., 494/502. Merleau-Ponty's remark is in fact restricted to "Laplace's nebula", but the thought can be easily extended.

13 Merleau-Ponty, *La structure du comportement*, 224/207-208 (translation modified).

14 Ibid., 224-225/208.

inherence in material apparatuses". But how is the "*physical system*" retained in the "present depths" of "higher behavior"? How is our organic and subjective body still part of physical reality which constitutes the vastness of its latent past? Can I experience my body as part of the "foreign reality" of the physical? Merleau-Ponty does not pose these questions, let alone answer them.

Although Merleau-Ponty seems to avoid an answer because he wants to steer clear of scientism, these questions actually do not address physical reality from a scientific perspective: only in philosophy does it make sense to consider physical reality (or the organic, for that matter) as the "latent past" of our present being in the world, or as part of our "present depths". Science would reject such formulations as vague and ambiguous. I think we are indeed dealing with an ambiguity, but in a positive sense. I argue that, although philosophy is not physics, it can still positively speak of physical reality, as long as it addresses the ambiguous relationship between physical reality and the human world. If philosophy takes this ambiguity into account, it can also be informed by science without having to fear a relapse into reductionism.[15]

Whereas Merleau-Ponty's dialectical view of nature is based on the assumption that physical reality precedes and supports the higher dialectics of life and of the human world, thus affirming the *reality* of the *physical*, his response to Köhler implies that he rejects physical realism because physical "reality" would be a mere set of perceptual gestalts. This is a contradiction which remains unresolved. Merleau-Ponty's rejection of physical realism entails that the "physical aspect" (Plessner) of the human body remains unaccounted for. It disables us from understanding how the body proper is besides an organism also still part of the physical universe.

Now let us turn to the passage from *Phenomenology of Perception* referred to above. Here physical realism is also discredited, but in a slightly different way: physical reality is not portrayed as a set of perceptual gestalts but as an intellectual construction on the basis of the lived world.[16] The question at stake is whether there was an earth before there were human beings. Note the equivocation of "earth" and "world" in the following passage:

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15 Lester Embree makes a similar point referring, more specifically, to causality: "It is rather curious that, given its role in science and technology, causality receives so little attention in phenomenology. Perhaps most phenomenologists throw the baby of causality as perceived in primary passivity out with the bath of naturalistic-scientifically constructed causal explanation and thus naturalism." Embree, *The Impression of Causality: Merleau-Ponty on Michotte*, 319.

16 Cf. Soraya de Chadarevian, *Zwischen den Diskursen*, 69.

For what precisely is meant by saying that the world [le monde] existed before consciousness? An example of what is meant is that the earth [la terre] originally issued from a primitive nebula from which the combination of conditions necessary to life was absent. But every one of these words, like every equation in physics, presupposes *our* prescientific experience of the world and this reference to the world in which we *live* helps to constitute the proposition's valid meaning. Nothing will ever bring home to my comprehension what a nebula that no one sees could possibly be. Laplace's nebula is not behind us, at our remote beginnings, but in front of us in the cultural world. What in fact, do we mean when we say that there is no world without a being in the world? Not indeed that the world is constituted by consciousness, but on the contrary that consciousness always finds itself already at work in the world.[17]

The world in which consciousness is always already at work is the *phenomenal* world. So Merleau-Ponty says that we have a prescientific experience of the phenomenal world and that physical reality, including our conceptions of the earth's early stages, can only be a cultural construction on the basis of that prescientific experience.

It is true that our conceptions of the earth in its early stages are *human* conceptions of nature, but this is precisely the ambiguity we need to address. Merleau-Ponty in this passage dissolves the ambiguity by suggesting that something like the "early stages of the earth" is only part of the human world, nothing "behind" us but only something "in front of us". But the earth is not the world. We should rather say that the earth in its earliest stages is both in front of us *and* behind us. The earth in the sense of "behind us" is not a world, but it *is* a reality. Merleau-Ponty here gives priority to only one direction of foundation: the grounding of being in the phenomenal world. He ignores the dialectic of the physical, the vital, and the human, which he discusses in the *The Structure of Behavior*. According to that dialectic, human life is based on the lower forms of life which in turn depend on the pre-existence of physical reality, including the earth. The early stages of the earth are an undeniable ontic precondition for the development of life and human life.[18]

The one-sidedness in Merleau-Ponty's account of physical reality can be avoided if we respect the two directions of foundation introduced above. On the one hand human life is based on the organic and on physical reality; on the other

17 Merleau-Ponty, *Phénoménologie de la perception*, 494/502.

18 Cf. Thomas Baldwin, "Merleau-Ponty's phenomenological critique of natural science". Referring to the quoted passage, Baldwin argues that Merleau-Ponty, if he wants to be consistent, has to discard "much of contemporary cosmology", 210.

hand we live in a phenomenal world, and whatever we say about physical reality, we cannot detach ourselves from our human perspective. Our being bound to a human perspective does not imply that we cannot say sensible things about physical reality as something pre-human and pre-cultural. We can explore physical reality as the necessary ontic precondition for life and human existence. In addition, we need to integrate a critical moment in our reflection: we turn to epistemology in order to examine the way in which these ontic conditions are *known* by a *knower* whose existence is already presupposed. We should not try to solve the paradox, but rather think it through. A good starting point for doing that is Plessner's view of the physical. In the next section I discuss Plessner's account of physical reality in *Die Einheit der Sinne* and in the *Stufen.* Then I return to the deadlock in Merleau-Ponty.

6.3 THE BODY PROPER AS AN OBJECT OF PHYSICAL REALITY

Plessner finished his Einheit der Sinne five years prior to Die Stufen des Organischen und der Mensch. Later Plessner distanced himself somewhat from the former text, so it needs to be treated carefully.[19] I limit myself to some of Plessner's considerations about the relationship between perception and physical reality, which in my view bear the test of criticism. Then I will connect this interpretation with the concept of the body proper we find in the Stufen. Whereas Die Einheit der Sinne addresses perception mainly in terms of secondary qualities, the passage from the Stufen that I want to discuss focuses on spatial orientation. But this difference is not an obstacle for a comparison of the two works: both

19 *Die Einheit der Sinne*, first published in 1923, was not particularly well received (cf. Hans-Ulrich Lessing, *Hermeneutik der Sinne*, 38-42). Josef König wrote an extensive letter to Plessner which was very critical of the basic thoughts expounded in the work. This *Briefessay* appeared in: Josef König and Helmuth Plessner, *Briefwechsel 1923-1933*, 225-310. For an assessment of König's criticism, see Lessing, *Hermeneutik der Sinne*, 331-359. Thereafter the philosophical world more or less ignored *Die Einheit der Sinne*. In 1975, more than 50 years after its conception, Plessner describes this early work as rather a stage in his thinking than something he had been able to build upon (Plessner, *Selbstdarstellung*, 318). But he certainly does not abandon it altogether. In 1970 he publishes *Anthropologie der Sinne*, which he describes as the distillate of everything worthwhile from *Die Einheit der Sinne* (Plessner, *Selbstdarstellung*, 318-319).

secondary qualities and spatial orientation are constitutive moments of the human world which cannot be attributed to physical reality.

In *Die Einheit der Sinne* Plessner takes a realistic position in regard to physical nature, but at the same time he is aware of the ambiguities involved in this realism. Without an organism that can perceive, Plessner says, there would just be matter subordinate to physical laws: "But suppose it were the case that all human beings . . . would lack eyes and ears and thereby their central sensory fields; then there would no longer be light or sound as qualities of consciousness; their real basis in the energetic conditions of matter would, on a sensory level, remain hidden from us; these conditions could at best be known indirectly, via their effects on the appearances of the tactile and olfactory senses."[20] So, according to Plessner, if we would not have eyes and ears at our disposal, the qualities corresponding to these senses would not exist, but the underlying physical processes would exist, although they could only be known indirectly (if at all).

Plessner makes a similar observation in regard to light, which renders possible visible qualities in the first place. Living beings which dispose of organs of sight seem to have evolved this ability by adapting to sunlight, which, it seems, must have existed before there were organisms with sight. But what is sunlight before there is sight? The answer cannot be univocal, because at the outset of evolution light as we know it did not yet exist: "The animal does not have eyes because there is light, although it is true that it needs its eyes in order to see light and colors. And eyes did not develop because the organism, by adapting to the environmental quality of light, which without eyes it could not see, wanted to triumph over other organisms. Rather, to the extent and in the manner that eyes developed, the environmental quality of light existed for the bearers of eyes."[21] The phenomenon of light does not exist prior to but comes to be *along with* the evolution of an organism that can see. In the *Selbstanzeige* Plessner puts it this way: "Nature, without an eye that sees it, an ear that hears it, would not be really shining, but possibly shining, not sounding, but possibly sounding."[22]

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20 Plessner, *Die Einheit der Sinne*, 38-39.

21 Ibid., 111-112.

22 Plessner, *Selbstanzeige*, 382.
Cf. Du Bois-Reymond's 1872 paper, *Über die Grenzen des Naturerkennens*, 445: "The Mosaic 'there was light' is physiologically false. Light first was when the first red eye-point of an infusorian for the first time distinguished between light and dark. In the absence of the visual and auditory sense-substance, this colorfully glowing, sounding world around us would be dark and mute."

In short, if there were no organisms with senses, reality would not come to appearance but only *possibly* come to appearance. What materially underlies our ability to see, what precedes human sight, is not the phenomenon of light, but the possibility of light insofar as it sits in physical processes. The eye realizes a possibility which matter already had: matter is "lightable" (*leuchtbar*).[23] In more general terms, Plessner speaks of "the chance, given in [the world's] essence, to become objective to consciousnesses".[24] In all these passages Plessner attempts to address being or reality insofar as it *precedes* its appearance to a subject. Reality is characterized by the *possibility* ("chance") to become the content of perception and consciousness. This "chance" applies to physical reality itself.

But this is only half of the story. If we start from the visible world, which might seem to be located only at a distance from our gaze, we are inclined to imagine physical reality as the behind-the-scenes of the appearance over against us. But once we human beings exist, the body proper is not merely an organism which finds a physical thing across from it, and physical reality is not the Kantian *Ding an sich* behind the appearance. The physical is external reality *including* our bodies, *insofar as* they are physical. So the other half of the story is about our own bodies as part of physical reality. In order to understand the relationship between body and physical reality we need to return to *Die Stufen des Organischen und der Mensch*.

In the *Stufen* Plessner distinguishes between two aspects of the body. We are concerned with a further differentiation on the basis of the double aspect of body-subject and body-object explained in Chapter 5. Both aspects which are now introduced are aspects of the *objective* body. The first is our body as a *physical* body (*Körper*), i.e., the body as a "physical thing" (*Körperding*), or a "thing among things" (*Ding unter Dingen*).[25] The second aspect of the objective body is the *lived* body (*Leib*).[26] It is by now clear that the use of the word *aspects* is typical of Plessner's thinking. The term expresses that we are concerned with two moments which materially constitute one and the same body, but which at the same time cannot be brought to a *conceptual* synthesis: "Both aspects exist be-

23 Plessner, *Selbstanzeige*, 384.

24 Ibid., *Die Einheit der Sinne*, 59.

25 Both quotations: ibid., *Stufen*, 294/367.

26 The translations of *Körper* and *Leib* are borrowed from James Spencer Churchill's and Marjorie Grene's translation of Plessner's *Lachen und Weinen*: *Laughing and Crying*, e.g. 34-35. Incidentally, Churchill and Grene use both "lived body" and "living body" for *Leib*.

side one another, mediated merely in the point of eccentricity, in the non-objectifiable I."[27]

The reason for the irreconcilability of the two aspects is that, from a strictly logical point of view, the essential properties of the physical are not commensurable with those of the organic. This incommensurability can be addressed in different ways. In the passage under discussion it is addressed in terms of spatial orientation: as a lived body the human being is "in the middle of a sphere which, in accordance with his empirical form, has an absolute up, down, front, back, right, left".[28] The physical body, then, is the body proper insofar as it is interchangeable with other material objects, i.e., with concentrations of matter within "the spatiotemporal totality in which directions are relative" (*das richtungsrelative Raum-Zeitganze*).[29] So whereas the organic body has a top, a bottom, a left, and a right, the physical body is unspecified in terms of spatial orientations. This means that we are addressing the body proper in a way which deviates from all concepts of the body discussed so far. The *Körper* in this narrow sense is neither the body that I perceive, nor the objective body of which I am tacitly aware in all my sensorimotor actions. Or rather: it is the partial aspect of this body, the aspect which is turned away from the body's phenomenality. The lived body prefigures our experience of a phenomenal, oriented space; the physical body is a volume within external space in which orientations do not matter. We cannot separate physical and living body: they constitute one and the same entity. At the same time we can never entirely make sense of this, because there is no conceptual transition between the two aspects: they are "nicht überführbar".[30] Let us consider a couple of examples, starting with the living body (*Leib*). The examples are from me, not Plessner.

If a person sees that her hand is bleeding, she is at that moment an embodied subject (*Leibsubjekt*) who perceives a condition of her objective living body (*Leib*). This person is not relating specifically to her physical body, since only a *living* body can bleed. In the same way, only the organic body has a phenomenal structure and thus has a top, a bottom, a left, and a right. When we look at a sleeping body we immediately recognize a functionality which is indicative of subjectivity. In terms of spatial orientation this means that the organic body has a higher part and a lower part (regardless of where exactly we draw the boundary) which correlate with this person's usual upright position, and she has sense

27 Plessner, *Stufen*, 295/368.

28 Ibid., 294/367.

29 Ibid., 294/366. Here the word "directions" refers to the orientations up, down, etc.

30 Ibid., *Stufen*, 295/367.

organs and limbs to move. This living body not only *has* a higher section and a lower section, the way any phenomenal (not *physical*) object possesses such orientations. In the case of the human body this spatial organization prefigures the body's ability to open up to the phenomenal world and immediately recognize spatial orientations in it. Another way of saying this is that the living body, as the partial aspect of the body-object, is the objective prefiguration of subjectivity. But as long as the person is asleep, the subjectivity thus prefigured in the objective body is not (or only marginally) realized. Only when the person awakes from her sleep and we follow her gaze through the room are we witness to the transition from the living body (*Leib*) to the embodied subject (*Leibsubjekt*). In sum, the living body is not the same as the embodied subject; it is rather its objective prefiguration.[31]

If a person grabs a ballpoint from the table he performs the act of an embodied subject. Since the person oversees his action as a means to a goal (making a grocery list, going to the supermarket), he uses his body as an instrument. The body he uses is an organic body, not specifically a physical body. This is different in the following cases. If I talk to a friend whose eyes are blinded by the sun shining from behind me, I might be able to move my body to a position where it is in between my friend's eyes and the sun. I am using my body as an instrument, but now in the basic sense of "physical object", since my body can be replaced by a sunshade. If I let my body sink into a full bathtub, I might cause the water to spill over the edge, like a non-living object of the same volume would. In this situation it is also the physical aspect of the objective body which comes to the fore.

The everyday-life context of these examples includes spatial orientations, colors, use objects, and so forth. But the principles at work here are not specified

31 I am here discussing the *narrow* senses of *Körper* and *Leib*, which we find in the passage from the *Stufen* under discussion (293-295/366-368). In Plessner's *Lachen und Weinen* (238-242/34-38), the *Leib* is discussed in a wider sense, as *Leib-sein* (being the lived body) in connection with *Körper-haben* (having the physical body). There, the *Leib* is not a partial aspect of the *objective* body, but rather the embodied subject who controls and uses his objective body (which is then the *Körper* in a wide sense). This use of the body can pertain to actions in the external world and to expressing oneself in the social world. So the *Leib* is here the *Leibsubjekt* of the external world and the embodied person of the *Mitwelt*. Both *Körper* and *Leib* in this wider sense presupposes that the body has a physical and an organic aspect (in the narrow sense), which allows Plessner to uses the combination *Körperleib* (physical lived body) for both *Körper* and *Leib* in the wide sense (ibid., 240/36).

in regard to these orientations, colors, and the like. When we reflect on these examples we focus on one aspect of the body which becomes thematic, without forgetting that the other aspects of our being in the world remain constitutive of our experience.

In all these situations, this thematization of the physical body is dependent on reflection—why is this so? What does it mean that when we are *engaged* in these simple, everyday life situations we are not focused on the physical or the organic aspect of the body? Why is the body "as sun-shade" to us not shockingly different from the body that has a skin color and that can bleed? Or better: why are we rather inclined to regard the body simply as the living thing which it (also) is?

Here, it is important to note that the relationship between the physical and the organic aspect of the body is not symmetrical. Since the living body constitutes the body's higher dialectics, it *includes* the physical body. Otherwise put, the relationship between physical body and lived body corresponds to that between physical reality and phenomenal world. Physical reality is *integrated* in the phenomenal world in a way which makes the distinction between primary and secondary properties irrelevant. I do not distinguish between the weight of the ball that I am holding and its color: all properties are phenomenal. Likewise, primary properties of the body proper are integrated in the totality of the body's properties. They are embedded in the living body (*Leib*).

This may seem to affirm the view that what we regard as physical reality rather constitutes an abstraction from the lived world. If this view would be the *whole* truth of the matter, then there would only be one direction of foundation: physical reality would be an abstract construction on the basis of the phenomenal world. However, I have introduced Plessner's distinction between physical body and organic body because it enables us to understand what it means that, as Merleau-Ponty suggests, physical reality constitutes the *past* of consciousness which, in some latent manner, still supports its higher dialectics. The two aspects of the body in fact represent the two directions of foundation I want to keep in balance. I want to use Plessner's view as a framework for my argument that physical reality is indeed a reality, i.e., more than a perceptual gestalt or an intellectual construction. But it can more convincingly serve my aims if we look at experiences of a fundamentally different kind than those discussed above.

The examples discussed so far limit our possibilities because, in those examples, philosophical reflection is required in order for the distinction between the physical and the organic aspect of the body to become thematic. As noted, in the examples described it does not make a difference for my own experience which properties are merely phenomenal (secondary) and which belong to phys-

ical reality itself (primary). The eccentric position allows us to disengage from the situation through explicit thought, and *then* address that difference, singling out the physical aspect of our bodily being in the world. But, as noted above, eccentricity does not only enable reflection: it also restructures our *engaged* experience in the world, inserts a dimension of negativity or disengagement *into it*. The limitation of the examples above is due to the fact that they concern experiences which can be called "normal" in the sense that the physical is integrated in the phenomenal and tacitly supports human life and perception. What is tacit first needs to be made explicit by reflection. However, what I am getting at is that there is a different kind of experiences, which we can call "boundary experiences", in which the physical aspect of the body, and of the world, becomes thematic *on a pre-reflective level.*[32]

One such type is the experience of the threat of a natural disaster. Science informs us that non-living nature preceded living nature and also formed the basis for human life. In addition, inanimate nature continues to function in a way which supports our existence, if only by remaining relatively stable. Our existence depends on the stability of our circumstances on earth, which in turn depends on the stability of the universe. A change in the constitution of this natural balance can disrupt the preconditions of our lives. We experience this when natural disasters occur.[33] A person confronted with an approaching tsunami or avalanche is immediately aware of the futility of her body's resistance to the enormous powers heading towards her. If we are confronted with the threat of disaster we are reminded of the fact that our bodies are vulnerable to the powers of physical reality. More precisely, according to their *organic* aspect, our bodies are indeed *vulnerable* to these powers. This presupposes that, according to their *physical* aspect they are, like all other real objects, *susceptible* to the powers of nature.[34]

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32 In the past few years my thought on this subject has developed. I used to think that, although we can have knowledge of physical reality as it is in itself, we cannot experience it (van Buuren, *Plessner and the Mathematical-Physical Perspective*). I am now convinced that we *can* experience physical reality in its transcendence.

33 This can be extended to natural, small-scale, accidents, like a rock falling on a rock climber's head. It can also be extended to disasters or accidents caused by human beings, such as traffic accidents, in which physical forces of course play a crucial role. I have restricted myself to natural disasters in order to avoid having to disentangle human and natural factors.

34 I am restricting myself to the ontological-epistemological dimension of such experiences. There is also an existential-moral dimension to natural disasters, which can be

These distinctions are hard to make on the basis of Merleau-Ponty's account or our bodily existence. Merleau-Ponty would probably not deny the self-evident fact that we are vulnerable and susceptible to brute physical forces, but it is important to note that we can only account for this fact if we accept that *in one respect* (according to one direction of foundation) inanimate nature precedes and supports our being in the world. When natural disasters occur, this tacit support of our existence comes to the fore precisely insofar as it withdraws. It is clear that we are here dealing with *causally structured* nature since it makes no sense to speak of destructive powers without reference to causes and effects. Meteorites, earthquakes, tsunamis, hurricanes, avalanches, and floods all have traceable causes and can kill many people at a time. The question to what extent cause-and-effect relationships are integrated in physical systems which are more than the sum of their parts is of secondary importance. Since Merleau-Ponty rejects both a realism of physical systems and of physical laws, we do not have to decide this issue here.

But the concept of a perceptual gestalt remains crucial for our concerns. In our relationship to the powers of nature we are also dealing with nature's *appearance*. From this point of view nature is a phenomenal world which includes appearing shapes, qualities, and spatial orientations. The confrontation with the threat of natural disaster involves moments of perception which integrate physical reality into a constellation of perceptual gestalts (unless we are struck by something we never saw coming). These observations enable me to restate my point: if the physical powers which can appear to us as perceptual gestalts, can also destroy our lives, i.e., destroy the very possibility of perception, then these powers must at the same time *transcend* the structures of perception. The stability of the circumstances in our direct environment, on earth, in the solar system, and so forth, shows itself to be an ontic precondition of our existence and, implied therein, of our ability to perceive. This means that physical reality is not exhausted by either the content or the form of our perceptual experience. I conclude from this that Merleau-Ponty's rejection of physical realism is not tenable.

Both Plessner and Merleau-Ponty find a foundation of our existence in the human world, but this needs to be complemented if we want to do justice to *all* distinctive possibility conditions of our being in the world. We need two directions of foundation which, as it were, keep each other in check. In Merleau-Ponty, all that is real is structure, and structure is always a structure of percep-

interpreted in terms of trauma, the nothingness of human life vs. the sublimity of nature, meaningfulness vs. meaninglessness, and similar concepts.

tion or on the basis of perception,[35] so there is no room here for thinking the transcendence of physical reality. But we do need to think physical nature as transcendent, because its stability is an ontic possibility condition for human life and the phenomenal world. We are especially reminded of this when nature threatens to become the condition for the *im*possibility of the human world and of perception. Our awareness of physical reality is then a more-than-perceptual awareness, as it grasps a reality beyond the world as it appears to us. The implication for philosophy is that it cannot restrict itself to phenomenology in the narrow sense. The issues under discussion force us to surpass the description of perceptual structures or structures of consciousness. The ontology of nature needs to go beyond the external world as a phenomenal world, in an attempt to comprehend nature insofar as it precedes, transcends, and renders possible our

35 It is important to note that Merleau-Ponty in one sense does address a materiality or quality of nature beyond structure, but then he always remains within the domain of the phenomenal world. Consider, for instance, the following contemplation of the experience of *color*, which, in a sense, goes beyond structure: "As I contemplate the blue of the sky I am not *set over against* it as an acosmic subject; I do not possess it in thought, or spread out towards it some idea of blue such as might reveal the secret of it, I abandon myself and plunge into this mystery, it 'thinks itself within me', I am the sky itself as it is drawn together and unified, and as it begins to exist for itself; my consciousness is saturated with this limitless blue." (Merleau-Ponty, *Phénoménologie de la perception*, 248/249.) The emphasis on color illustrates that Merleau-Ponty is here exploring "transcendent nature" in the first sense I distinguished in Section 6.1: the transcendent depth of *phenomenal* nature. This is a perfectly legitimate starting point but it does not address the question of foundation in its ontological-epistemological form, which refers to nature not only as phenomenal world but also as physical reality.

Ted Toadvine, who quotes the same passage, interprets Merleau-Ponty in the context of questions concerning environmental ethics and politics and, like me, he formulates the problem as one of "foundation" (Toadvine, *Merleau-Ponty's Philosophy of Nature*, 131). However, since he remains loyal to Merleau-Ponty's focus on the phenomenal world, Toadvine concludes, in my view one-sidedly, that "the world of perception as revealed through experience" is "the foundation of environmental philosophical exploration rather than the secondary world of scientific realism" (ibid.). Toadvine only addresses *scientific* physical realism but, as noted, once we start to reflect on the ambiguous relationship between the physical and the phenomenal, physical realism is no longer scientific (let alone scientistic) and physical reality is no longer univocally secondary in relation to the phenomenal world.

perceptions of it. Of course, this ontology of nature does not replace phenomenology but complements it, in the same sense that the two directions of foundation are complementary.

6.4 PHYSICAL REALISM AND QUANTUM MECHANICS

Much of the debate about physical realism in roughly the last ninety years focuses on quantum mechanics, so why am I not talking about this apparently important topic? The reason for this restriction is that I am connecting with our *prescientific* experience of physical reality. This means on the one hand that I present philosophical (non-scientific) considerations about the nature of physical reality and on the other hand that, insofar as I reflect on scientific explanation, my implicit framework is not quantum but classical physics and perhaps the theory of relativity.[36] Let me explain in more detail why quantum mechanics is irrelevant to my purposes.

The central argument of the current chapter is that we can experience the transcendence of physical reality in the threat of natural disasters such as earth quakes and tsunamis. In the experience of such threat we can come to realize that human existence, and thus the phenomenal world, tacitly depends on the stability of the universe and of our conditions on earth.[37] The universe, and especially earth and its specific properties, is the possibility condition of human life and therefore also of the phenomenal world. When natural disasters occur this possibility condition turns into the condition for the *im*possibility of our existence. These events remind us that the universe is, as a matter of speaking, "indifferent" to human beings. I am referring to the universe as the reality which already existed before life, and human life, came to be. Although this reality appears to us as a phenomenal world, it must at the same continue to exist as what it must have been before there was life or human life. In this respect the universe precedes *and* supports the phenomenal world, and consequently, it can to this

36 I am saying "perhaps" because, in fact, I do not discuss specific physical laws at all. I only talk about causal laws in general terms.

37 By speaking of the stability of *the* universe I do not mean to pass judgment on the question how far this relationship of dependence reaches *into* that universe. We could restrict ourselves to speaking of the stability of the Milky Way or even the Solar System as a precondition for life and human life, but I think it remains hard to decide where exactly we have to draw the boundary.

extent *not be phenomenal*. This is what we mean by physical reality *in itself*, or *in its transcendence*.

The discussion about quantum physics has a different focus. When we turn to subatomic particles such as electrons and photons and try to measure their location and their momentum (or velocity), it turns out that we can only measure one variable accurately, while the other variable necessarily remains uncertain. When we measure the particle's momentum, its location is obscured and vice versa. This is Heisenberg's famous uncertainty principle. According to the common interpretation held by Heisenberg himself and many others, the measurement of the researcher necessarily influences the outcome of the measurement. Our dependence on measurement techniques determines that we cannot know both the location and the momentum of quantum particles. Heisenberg and also Niels Bohr concluded from this that, at least on the quantum scale of physical reality, we have to give up the idea that we can really *know* reality as it is in itself. This thesis has become famous as the Copenhagen interpretation of quantum mechanics. Some have drawn more radical conclusions from the results of quantum physics, conclusions which surpass the domain of *knowledge* and enter the domain of *being*. According to Richard Conn Henry, for instance, "The Universe is entirely mental."[38] In this view, we have to give up the idea that a physical reality exterior to our minds exists at all.

At the other end of the spectrum there is debate about the question whether the uncertainty established by quantum physics is in fact not a property of the reality itself which is measured, rather than a property of the relationship between subjective measurement and object.[39] This debate has been fuelled by recent research which, on the basis of weak measurements before and after the interaction between particle and the "strong" measurement apparatus, suggests that the uncertainty is in the physical system as such, independent of our observation of it.[40] Whereas the Copenhagen interpretation appears to point to the subject-relativity of physical reality, these more recent findings seem to imply that quantum mechanics does not make physical reality any more subject-relative than

38 Conn Henry, "The Mental Universe", 29.

39 Rohrlich, in *From Paradox to Reality*, 147-152, 175-180, defends the realist position, as does, more recently, Karakostas in "Realism and Objectivism in Quantum Mechanics". Both authors point out that quantum reality differs essentially from classical reality, but that both are aspects of physical reality as a whole.

40 Rozema et al., "Violation of Heisenberg's Measurement-Disturbance Relationship by Weak Measurements". For a criticism of Rozema's article, cf. Busch et al., "Proof of Heisenberg's Error-Disturbance Relation".

Newtonian mechanics. I am not competent to judge this issue, but it is interesting to note that theoretical reflection on quantum mechanics does not automatically lead to the rejection of physical realism, as is often believed. In fact there is a wide array of positions regarding the philosophical consequences of quantum mechanics.

What is more important within the present context is that quantum mechanics does not affect my own argument concerning physical realism, which as just noted is based on a completely different approach. I do not start from problems concerning the certainty of empirical knowledge about the true location or momentum of subatomic particles, let alone use such considerations as a springboard for ontological/metaphysical claims about the existence or nonexistence of the physical universe. I start from physical reality as it appears on the scale of our factual, prescientific lives, while at the same time addressing how physical reality *transcends* our lives. I discuss natural disasters because they reveal a side of physical reality which is normally turned away from us. Although we may be uncertain about the location/momentum of a particle on a microscale, we cannot doubt the physical forces which present themselves on a human scale. If an avalanche (or tsunami, lava stream, meteorite, and so forth) approaches you and threatens to get to you before you can get out of the away, there is absolutely no room—no time, in fact—for a theoretical doubt of the whereabouts of the avalanche. Incidentally, quantum physics does not give you reason for such scepticism in the first place: according to the widely accepted correspondence principle first formulated by Bohr, quantum and classical mechanics complement one another so that we can keep relying on classical mechanics when dealing with physical forces on a human or larger than human scale. If we would nonetheless want to call into question the independent reality of the physical, this doubt cannot be upheld in the case of threats from physical nature such as an approaching avalanche. Like any natural event, the avalanche is in some sense relative to perception, measurement, or theoretical reflection. But if an avalanche threatens to kill us this means that, despite its subject-relativity, it threatens to destroy the very ability to perceive, measure, or reflect. In this respect physical reality presents itself not as *relative* but as *absolute* with regard to our subjective faculties. We recognize in this capacity to destroy human life the transcendence of physical reality with regard to our existence. Our physical environment is not only a *phenomenon*; it is not only relative to our subjectivity: it can also *destroy* our subjectivity and this possibility proves that it is more than subject-relative. If it can kill you, it is real.

There is a second argument in favor of physical realism which is also not affected by the debate ensuing from the rise of quantum mechanics. The rejec-

tion of physical realism implies that it is nonsensical to speak of physical reality as it was before there were human beings, or more generally, before there were organisms on earth. It is common sense that human life presupposes animal and vegetable life, and that life as such presupposes a physical, inanimate environment which is hospitable first to primitive and then to more complex life forms. This view is not only common sense but it also constitutes the basis of a vast amount of scientific knowledge, among which evolution theory. However, it presupposes that there must have been a physical reality before there was life, and it implies that a physical universe without life is possible in general. If we are tempted to think that physical reality only exists as relative to our perception, measurements, or reflection, then we have to accept the conclusion that human beings have existed precisely as long as the universe. Clearly, this does not make sense from the perspective of natural history.

These two arguments are not affected by a nonrealist interpretation of the uncertainty principle, simply because I choose a different starting point. It might be true that we cannot know, on a quantum scale, the definite properties of reality as it is in itself. But this does not mean, firstly, that there *is* no physical reality in itself, and secondly, that we cannot say *anything* about that reality. We can still say about physical reality what classical mechanics says about it and ascribe the causal mechanisms described by physics to physical reality itself. After all, these mechanisms are real enough to kill a person. We can also argue that a physical reality without life, and specifically without human beings, is possible, that this physical reality does not possess secondary properties or spatial orientations, and that at least within a limited spatiotemporal framework it must have the right *primary* properties to support life and human life. The fact that we use our subjective-social language, concepts, and institutions to investigate physical reality, does not detract from its transcendence. It simply means that we are always in touch with transcendence *through* immanence.

6.5 ELECTRICITY AS A CONDITION FOR THE POSSIBILITY OF THE NERVOUS SYSTEM

I have been arguing that in *The Structure of Behavior* there is a tension between two of Merleau-Ponty's claims: (a) Physical systems are not real: they do not exist beyond the human world. Rather they are forms of perception, more precisely: of the *scientist's* perception. (b) Physical systems are taken over by and integrated into the higher dialectics of the vital and the human, dialectics which have their proper structure and which become the principle of physical systems, de-

termining them as lower structures. Thesis (b) not only affirms that the higher structures of behavior, once they have come to be, constitute the foundation (the principle) of lower structures; it also presupposes a relationship of foundation which runs in the opposite direction: physical reality must already have existed before living beings and specifically human beings came to be, it must in some paradoxical sense continue to exist as what it must have been, and this existence must function as an ontic support for life and human life.

So far I have addressed the tension between these two claims by focusing on the macroscale, or intermediate scale, of the human body as susceptible and vulnerable to the physical powers that manifest themselves in natural disasters. I then argued why the discussion about physical realism in the context of quantum mechanics does not touch on my argument. But I do want to address the microscale of neural processes. Does the same tension within Merleau-Ponty's claims present itself in his discussion of the brain?

In the first two parts of *The Structure of Behavior*, Merleau-Ponty shows that physical and chemical mechanisms on the microscale of the nervous system cannot explain how the organism as a whole responds to the situation it finds over against it. He points out, for instance, that a local lesion in the cerebral cortex can cause global changes in the organism's behavior, and that, vice versa, a set of scattered lesions can cause one definable change in a part of the behavior of the organism.[41] Illnesses which have a clear physical cause can be traced down to a location in the brain where the illness started, but with mental illness without physical causes this is often impossible. Here, the principle holds true that "the symptom is an organism's response to a question from the milieu".[42]

Notwithstanding this holistic approach, Merleau-Ponty acknowledges, albeit in passing, that physical-chemical processes on the microscale simply *need to take place* in order for the organism to function on its proper scale: "This whole [of nerve events] can be only the *condition of existence* of such and such a sensible scene; it accounts for the *fact that* I perceive but not for *that which* I perceive, not for the scene as such since this latter is presupposed in a complete definition of the nerve process."[43] Although Merleau-Ponty is here criticizing the reduction of perception to a set of neural events, he makes clear that these neural events are an ontic (but not causal) precondition of our perceptual experience. Here it seems that Merleau-Ponty keeps open the two directions of foundation distinguished above. The quoted passage precedes the one about the disintegra-

41 Merleau-Ponty, *La structure du comportement*, 66/62.

42 Ibid., 67/63.

43 Ibid., 222/206.

tion of higher structures discussed in Section 4.1. As noted there, Merleau-Ponty on the one hand emphasizes that the physical and the organic are integrated in higher structures of behavior; on the other hand, he shows that disintegration is always possible. When this happens, the lower structures resurface so that, as I have called it, an *ontic* reduction of human behavior takes place. Apart from the forms of disintegration discussed in Section 4.1, Merleau-Ponty also mentions death, which is ultimate disintegration: "the body which loses its meaning soon ceases to be a living body and falls back into the state of physicochemical mass; it arrives at non-meaning only by dying".[44]

To return to the nervous system, does Merleau-Ponty indeed acknowledge the organism's dependence on the micro-events in the brain? And does this imply an endorsement of physical

realism on his part? After reading that the totality of nerve events in the brain are "the *condition of existence* of such and such a sensible scene" and "accounts for the *fact that* I perceive", one can argue that Merleau-Ponty at least in passing acknowledges that the microscale of physicochemical reality is an ontic precondition for the organism's global functioning. But let us not forget that any kind of affirmation of physical reality is to Merleau-Ponty a form of materialism. Merleau-Ponty distances himself from the materialism inherent in both Sherrington's classical theory and Köhler's gestalt theory by treating physical systems not as systems in reality (in themselves/ *en soi*) but rather as perceptual gestalts. So the problem discussed above returns, or rather: it never disappeared because it was never solved. The crux of the matter is that, if physical mechanisms which exist on a microscale truly are an ontic precondition for our functioning on our own human scale, then physical systems are not exhausted by perceptual gestalts. They are not exhausted by the structure of the perceived world of the neuroscientist when, for instance, he looks at an MRI-scan. They must possess a dimension of transcendence with regard to the phenomenal world and can logically only on this condition be the ontic precondition of human consciousness and perception.

Let us take a closer look at this aspect of our dependence on physical reality. My starting point is that the organism is the result of a transformation and integration of physical matter into a being whose structure is not reducible to the properties of physical reality which we find on a microscale. The organism is, as it were, the result of an "appropriation" of physical-chemical properties through which these properties receive a form and a function beyond their physical reality. To make this more concrete, the *brain* makes use of physical mechanisms

44 Ibid., 226/209.

and properties which in some form already existed before organisms with brains evolved. These mechanisms and properties are in themselves physical, but insofar as they are *embedded* in the organ that is the brain, their structure is transformed. A good example of such a property is electrical charge:

> A neuron fires an impulse when it receives signals from sense receptors stimulated by pressure, heat, or light, or when it is stimulated by chemical messages from neighboring neurons. The impulse, called the *action potential*, is a brief electrical charge that travels down the axon. A layer of fatty tissue, called the *myelin sheath*, insulates the axons of some neurons and helps speed their impulses . . . When the action potential reaches the knoblike terminals at an axon's end, it triggers the release of chemical messengers, called *neurotransmitters*. Within 1/10,000th of a second, the neurotransmitter molecules cross the synaptic gap and bind to receptor sites on the receiving neuron—as precisely as a key fits a lock. For an instant, the neurotransmitter unlocks tiny channels at the receiving site. This allows electrically charged atoms to enter the receiving neuron, thereby either exciting or inhibiting its readiness to fire. Excess neurotransmitters are reabsorbed by the sending neuron in a process called *reuptake*.[45]

Electricity already existed on earth before there was life. It existed in the form of piezoelectricity, i.e., the electrical charge caused by pressure on materials like crystals. Another example is the difference in electrical charge between cloudy regions within the atmosphere, which can cause discharges in the form of lightning. I am not referring to lightning as the bright, ramifying appearance we see in the sky, but rather to its physical reality prior to perception. That it is a reality in this sense is illustrated by the fact that lightning can kill a person without that person having perceived the phenomenon. If electricity did not exist and could not exist on the basis of the structure in itself of the universe, organisms with nervous systems could not have developed. Of course, something *like* a nervous system could presumably make use of *different* physical mechanisms, but this only gives the dependence of human beings on physical reality a slightly different face. The point remains that, although the organism transcends (dialectically) the domain of the physical-chemical, it remains dependent on ontic preconditions belonging to physical reality. This also means that these mechanisms need to exist prior to the organism's emergence. It means that these conditions for the possibility of the nervous system can show their "other side": they can, theoretically speaking, turn into the condition for the *im*possibility of the functioning of the nervous system.

45 David G. Myers, *Exploring Psychology*, 38-39.

It is hard to give concrete examples of such an event in the case of electricity in the nervous system. Without doubt, extreme temperatures or extremely low or high pressures at some point disturb normal brain functioning, but these factors threaten our whole *organic* functioning, including the physical mechanisms which take place on a microscale. In other words, these circumstances threaten not electricity and the like *as such* but rather the *embeddedness* of physical events in the organic brain. But we can alternatively understand the nervous system's dependence on physical mechanisms by looking at the medical treatment of certain *defects* in brain functioning. Parkinson's disease, for instance, can be treated by sending electrical signals into the brain. This is called "deep brain stimulation" or DBS. A brain pacemaker which sends electrical signals to the brain can be implanted into the body, so that symptoms of Parkinson's disease, such as tremors, are reduced.[46] Exactly how this works is not yet known, but it is clear that DBS is an intervention in the organically embedded electrical pulses (action potentials) in the nervous system.

As we saw above, Merleau-Ponty argues against "critical thinking" by stating that the lower dialectics of human existence, the latent past of the organism, must be preserved within that organism, but he only elaborates this in terms of the organic. I quoted: "for us consciousness experiences its inherence in an organism at each moment; for it is not a question of an inherence in material apparatuses . . . but of a presence to consciousness of its proper history and of the dialectical stages which it has traversed."[47]

The example of deep brain stimulation illustrates that not only the organic but also physical reality belongs to the "latent past" of the organism which is integrated in its present. In this sense "physical apparatuses" *are* integrated in the body. It illustrates that physical mechanism on a microscale is an ontic precondition for the holistic functioning of the human organism. As noted earlier, the objection that we have now turned to a scientific (neurophysiological) perspective does not hold, because we are not reducing behavior to causally determined matter but rather exploring the ambiguous relationship between the physical aspect of the human body and its organic aspect, and between the lower dialectics of causal mechanism and the higher dialectics of first-person experience of the world. So although we are processing scientific results, we are doing so on a level where we can try to bridge the gaps between the various perspectives involved. There is, however, a certain logical condition for this to work, which I

46 J. Volkmann, "Deep Brain Stimulation for the Treatment of Parkinson's Disease" (review).

47 Merleau-Ponty, *La structure du comportement*, 224-225/208.

have not yet addressed: as Merleau-Ponty rightly points out, physical reality is an ontic condition for human behavior but not a causal condition. This implies that there is *discontinuity* between the different levels (and scales) of being under discussion. I will end this section by extending this thought. In the next section I try to sum up in what sense the physical is *real*. I also explain the difference between the *experience* of physical reality's transcendence and our *contemplation* of it.

My criticism of Merleau-Ponty aims at his rejection of physical realism. However, as noted, Merleau-Ponty is not consistent about this: sometimes he *does* presuppose the reality of the physical. We need to take this side of Merleau-Ponty seriously, too. The discussion in the previous section of Merleau-Ponty's view of physical reality implies that an account of the relationship between the human world and physical reality needs to fulfill two requirements. On the one hand we need to steer clear of a reduction of our being in the world to a complex system of physical events. On the other hand we need to recognize physical reality as the past of our being in the world which remains constitutive of it. It seems impossible to fully understand how both demands can be met. Perhaps this is what leads Merleau-Ponty to ultimately accept only one direction of foundation. The alternative is that we accept that in a sense it *is* not fully understandable how physical reality still supports our being in the world, in all its dimensions and its richness.

Let me explain what I mean by this. In the discussion of eccentric positionality we addressed the problem of a fundamental hiatus between our openness to the outer world and our being objectively part of that world. In this context Plessner speaks of the "unfathomable character" (*Unergründlichkeit*)[48] of our existence. We accepted more discontinuities of this kind, for instance when we tacitly agreed with Merleau-Ponty that there are essential differences between the physical, the vital, and the human, or again with Plessner, that there are such differences between inanimate matter, plants, animals, and human beings, or between the physical and the organic aspect of the objective body. In fact, natural science implicitly appreciates these fundamental ambiguities or discontinuities as well, namely insofar as it accepts that none of the scientific disciplines (physics, chemistry, biology, meteorology, geology etc.) will ever be able to subsume the others under its own denominator, because the various regions of nature which they address are governed by different principles. And even *within* these domains there are discontinuities. Physics, for instance, accepts fundamental hia-

48 Plessner, *Lachen und Weinen*, 235/31. There is no perfect translation of *Unergründlichkeit*. Churchill and Grene prefer "impenetrability".

tus in nature by embracing wave-particle duality. One important reason to accept such discontinuities in philosophy is that the richness and inner differentiation of our being in the world requires us to resist a reduction of one sphere to another.

I think this is the basic logical precondition for meeting both requirements mentioned above: only if we accept unfathomable hiatus (plural) in nature, and in our relationship *with* nature, can we be realistic about physical reality and at the same time avoid materialistic reductionism or eliminativism. This means that we can avoid a foundationalism of physical reality as well as a foundationalism which dissolves physical reality into culture. The principle of the unfathomable character of reality is thus the main precondition for avoiding foundationalism.[49] This is not the end of understanding: we need to locate the discontinuities and think through how categorically different modes of being are connected by ambiguous relationships or interlacings (*Verschränkungen*).[50] As noted in the previous section, as long as philosophy does justice to these hiatus, it can (and should) learn about nature from science, at the same time going beyond the univocality of scientific theory. Human beings have evolved from other life forms, which themselves have developed from inanimate nature. According to a dialectic of life which takes its past into account this means that there is still a physical aspect to the human body, which cannot be brought to a conceptual synthesis with the organic aspect of the body or with nature as a phenomenal world.

There are further implications for philosophy. Our discipline is not only about positive descriptions of phenomena but also about exploring the boundaries of experience and knowledge. Plessner's "eccentric positionality" describes the fundamental condition for understanding these boundaries. Only because we are eccentrically positioned, because we "stand in nothing", do we stand in a relationship to the discontinuous aspects of our being. These aspects reflect hiatus in nature which were already there before humans existed. We can even say that the negative dimension of our being in the world is a *realization* of these hiatus in nature. In Hegelian terms, but with a Plessnerian twist, the negativity in nature *an sich* (in itself) becomes *für sich* (for itself) in human experience and self-reflection.

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49 Cf. Mitscherlich, *Natur und Geschichte*, 48-53. My reading of Plessner is similar to Mitscherlich's, which also targets foundationalism. One of the differences is that, unlike Mitscherlich, I interpret the principle of *Unergründlichkeit* within the limited ontological-epistemological framework that centers on the relationship between eccentricity and physical reality.

50 Cf. ibid., 50-51.

6.6 THREE WAYS IN WHICH THE PHYSICAL IS REAL

The question concerning the compatibility of physical realism and phenomenal realism requires that we explore the *hiatus* between physical reality and the phenomenal world. In the next chapter I show that this discontinuity not only makes itself felt in the threat of natural disasters but also in perceptual illusions. In the threat of natural disasters the tension between physical reality and our entire existence becomes thematic. In perceptual illusions the tension between physical reality and, more specifically, *perception* comes to the fore. In both kinds of experience we get a sense of the transcendence of physical reality with regard to the phenomenal world.

I hope the examples I present in the next chapter will make this more concrete, because I realize that the phrase "transcendence of physical reality" may still sound a little awkward. Physical reality is ultimately real in the sense that it is a reality in itself, which is both historically and systematically presupposed in our being in the world. Since we do not live in a physical reality but in a human (phenomenal) world, this presupposition of our existence is hidden from view. Precisely because it is hidden, we can get the impression that physical reality is only a model or theoretical construction conceived by human beings. To avoid confusion we need to distinguish between three senses in which the physical is real. This classification was already anticipated above; it is loosely based on Plessner.

(A) The physical is *integrated* in the lived world. It concerns conditions or facts which constitute the aspect of strict measurability of the world, such as the weight of the body proper, the distance I walk today, which is in absolute terms *longer* than the distance I walked yesterday, et cetera: "In our dealings with things, which occur to us as big, heavy, slow or fast, hard or weak, i.e., as completely quantifiable according to grades, and which offer a corresponding hold, what can be grasped in number, measure, and weight belongs to a dimension of *qualities*."[51] Technology is also integrated in our lives in this way, because we do not use the devices which surround us by adopting the scientific perspective which was needed to design them. Because in our prescientific experience physical properties are normally part of the dimension of qualities, the distinction between the physical and the phenomenal is not an issue in everyday life. This is also where the Bill Viola example from the previous chapter fits in: I cannot find the right place within the installation because the walls, by their physical resistance, prevent me from doing so, but the properties of the walls are integrated

51 Plessner, *Anthropologie der Sinne*, 323.

in an experience of the phenomenal world. The phenomenality itself of the world is here not undermined, which means that the relationship between the phenomenal world and physical reality does not become thematic. I see walls that have a color, I see shades, and I only see from the corner of my eye the parts which are not at eye level. In short, I am in an oriented, phenomenal space in which physical properties, like mass, volume, or hardness (resistance) of the material are experienced as qualities among other qualities. For this reason I discussed this case as an example of the experience of the body proper as an object of the phenomenal world, i.e., not specifically of physical reality.

(B) Physical reality is an *abstraction* insofar as science extracts the physical aspect from our world and systematizes it *in isolation* from the lived world in which it is integrated: "Methodical procedure always follows the path of isolation. Isolation, in turn, implies abstraction. If one knows what one has abstracted from in order to attain the isolation of particular 'factors', this isolation will not conceal the original context. But science has frequently made the mistake of taking the abstraction on which it rests for ready cash, for reality itself, as if its basic concepts and fictions were themselves set like building blocks in the original context itself."[52]

Science thus brackets the vital and symbolic norms of the phenomenal world. It is not reductive or eliminative as long as it makes no claims beyond its proper domain. Only scient*ism* can be defined as reductionism/eliminativism. From a Plessnerian point of view, the physical is real only in its ambiguous relationship with the other aspects of human existence. The error of materialism is therefore not its affirmation of physical reality but rather its claim that the physical is all that exists. That claim negates the ambiguity science springs from. It univocalizes our being in the world in mathematical-physical terms, and comes home in causally determined matter and mathematical relationships as the final foundation of our existence. Materialism circumvents the problem of the *givenness* of physical reality to a subject. It thus constitutes a form of *naive* realism. Whereas Merleau-Ponty in some passages wants to do away with both materialism and realism, I have been arguing that a critique of materialism restores the ambiguity of our being in the world, thus transforming naive realism into well-founded realism.

According to my interpretation of Merleau-Ponty in Section 4.1, science constitutes a secondary perspective with regard to our first-person point of view. But in my view the secondary character of the scientific *perspective* does not

52 Ibid., *Lachen und Weinen*, 215-216/15-16 (translation modified). Plessner here mentions psychology and physiology, but his point also applies to physics.

imply that the physical *universe* is also "secondary". Scientific theories are intellectual constructions but they *refer* to something exterior to the theory. Merleau-Ponty, however, seems to mix these two issues up. Consider the following passage from the *Phenomenology of Perception* (the last sentence was already quoted above):

> It is a matter of describing, not of explaining or analyzing. This first directive Husserl gave to phenomenology in its early stages, to be a 'descriptive psychology', or to return to the 'things themselves', is first and foremost a foreswearing of science. I am not the result or the interlacing of numerous causal agencies which determine my body or my 'psychism'. I cannot conceive myself as a part of the world, a mere object of biology, psychology, or sociology. Nor can I shut the universe of science above me. All that I know of the world, scientifically, I know from a point of view that is my own, or from some experience of the world without which the symbols of science would be meaningless. The whole universe of science is constructed upon the lived world, and if we want to conceive of science in a rigorous manner and arrive at a precise assessment of its meaning and scope, we must begin by reawakening this experience of the world of which science is the second-order expression.[53]

Merleau-Ponty speaks of the "universe *of* science" (italics mine) and says that this universe is "constructed upon the lived world". But in what sense does the physical universe *belong* to science? Or better: should we not distinguish between a sense in which it does indeed belong to science and a sense in which it does not? Should we not distinguish between immanence and transcendence? Merleau-Ponty here mixes up the *reality* of the universe with the scientific *concept* of the universe. Consequently, he not only regards science as a "secondary" perspective—which I agree with—but he also considers the universe *itself* to be secondary with regard to the phenomenal world. According to one direction of foundation this is indeed correct: we live in a phenomenal world and apart from a peculiar kind of boundary experiences, our experience is not specifically directed at physical reality. But according to the other direction of foundation, the phenomenal world *ontically* depends on a pre-existing physical reality, as argued above.

The proposition that science constitutes a secondary perspective in our practical lives can also be argued starting from Plessner,[54] but with Plessner we

53 Merleau-Ponty, *Phénoménologie de la perception*, II-III/ix (translation modified).

54 Plessner, *Lachen und Weinen*, 215-216/15-16, and ibid., *Die Deutung des mimischen Ausdrucks*, 77-78. Plessner does not use the terms first-person and third-person expe-

can furthermore understand that science positively connects with a physical aspect of our being in the world which precedes the turn to the scientific viewpoint, an aspect which can be experienced and reflected upon from the first-person perspective. In this view, science is not a mere construction on the basis of the lived world. When Plessner says that the physical aspect of the body proper "[leads] to the mathematical-physical conception"[55] of the world, he means that (a) the body's physical aspect is real to us from a prescientific point of view, and (b) this prescientific reality of the physical body is the *potential* object of science. In other words, Plessner is here not integrating a scientific perspective into his view, but rather laying bare the ontic-objective foundation of the possibility of science. This enables him to avoid scientism. At the same time he can understand that science relates to a reality which it does not itself construct. Only in this way can we maintain that scientific theories refer to something. We can attribute to science its truth-value.

(C) Physical reality is *transcendent* in regard to the human world. From a Plessnerian point of view (but not expressed by Plessner in these terms), the dialectical development of organic forms leads in human beings to the sphere of immanence of experience, and thereby implies a transcendence, viz. the otherness of physical reality in regard to the immanence of the phenomenal. The universe sustains our existence by remaining relatively stable, and in this sense it transcends the human world. Transcendence, in this meaning, is not dialectical, since we are not saying that the human world is a lower structure which is dialectically integrated in the higher structure of physical reality. The ontic transcendence of physical reality with regard to the human world is not analogous to the dialectical integration of physical reality into the organic and the human world. The relationship between the two foundational directions is asymmetrical. Only on this condition can we accept in the first place that there are two directions of foundation.[56]

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rience (or understanding), but uses the classical distinction between *verstehen* (to understand) and *erklären* (to explain).

55 Plessner, *Stufen*, 294/367.

56 I appreciate Jan Beaufort's careful reading of the *Stufen*, but he overlooks that there are two directions of foundation in Plessner (Beaufort, *Die gesellschaftliche Konstitution der Natur*). The title of Beaufort's book perfectly describes its outcome: although, initially, Beaufort seems to want to do justice to the double direction of foundation (which Beaufort reconstructs somewhat differently than I have done), he concludes that, according to Plessner, nature is in the end "*socially* constituted" (ibid., 237). Beaufort's conclusion presupposes that we have to choose which of the two di-

We never experience the transcendence of physical reality as a pure transcendence. It is not even clear what that would mean. The suggestion that this is possible is a relapse into naive realism. All that we can experience sometimes is the ambiguity itself between immanence and transcendence. We experience this from *within* the immanence of our being in the world. One form of this experience we discussed above: when forces of nature threaten our existence we are reminded of the fact that nature is not merely a domain within our lives, that it is not merely a sector within the infrastructure of our being in the world. Physical nature supports the human world and is at the same time "indifferent" (*gleichgültig*) to it.[57]

When Plessner speaks of nature's "indifference", he is not using some kind of anthropomorphism, and neither am I. I mean by this term that physical nature is not only a possibility condition of our existence, but also potentially (and sometimes in reality) a condition for the *im*possibility of our existence. The occurrence of natural disasters illustrates this. It furthermore illustrates that "transcendence" does not mean that nature-as-other is a pure exteriority. Nature is exterior to the immanence of experience but not to the body proper. This is the significance of the physical aspect of the body. Physical nature hides "behind" or "underneath" the human world but it encompasses the human body, and in this sense it encompasses human existence. Physical reality includes the body insofar as the body possesses a physical aspect. The otherness of physical reality is therefore also an otherness of our own bodies. Because the body possesses this aspect it is susceptible to the powers of nature.

I have already touched on the difference between *reflection on* and *experience of* physical reality. The eccentric position not only restructures the world; it also allows human beings to withdraw from the world in order to contemplate, theoretically, its structure. On the junction of inner world and social world, i.e., through symbolic thought and communication, we distance ourselves from the here-now of perceivable things. This allows us to grasp a reality beyond the

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rections of foundation is the most fundamental one. I have been arguing that "physical nature" and "human world" (or "social world") represent two different kinds of foundation and that we should avoid subordinating one to the other. I have shown that Plessner's view supports this account. I agree with Volker Schürmann that, in Plessner's *Stufen*, philosophy of nature and philosophical anthropology are equally fundamental (Schürmann, *Natur als Fremdes*, 46-48).

57 Plessner, *Elemente der Metaphysik*, 187. Cf. Bitbol et al, *Constituting Objectivity*, 1: "a transcendent object is supposed to wait for us 'out there', and is indifferent with regard to our intervention".

phenomenal world.[58] We *see* that the mountain has a top and a foot, that we can go around it on its left side or on its right side, but in our theoretical reflection we *know* that these spatial orientations cannot be ascribed to the mountain as part of physical reality. The theoretical nature of this reflection does not detract from the fact that it reaches out to a reality which is relevant to our own lives. What is under discussion is the reality *of* the appearing world, but then precisely insofar as this world does not appear. So the object of thought is not arbitrary, not without relation to the phenomenal world, not some arbitrary X.

This is where Merleau-Ponty's reference to Laplace and to the earth the way it was (or is thought to be) before there was life fits in. If I state that the earth must already have existed before there was life, someone who only accepts the human world as a foundation of physical reality will point out that it is still *me* who thinks this. The statement I make depends on *my* existence. He will say that, unless you have a naive world view, "impossible" always also means "unthinkable". A universe without life, then, is unthinkable because without a being who can think the universe cannot be thought in the first place. So it is "impossible" in this critical sense.

The argument is flawed and based on a one-sided focus on one direction of foundation. A universe without thinking beings is only unthinkable de facto but not de jure. Such a universe is possible, which implies that it is *thinkable* provided that, at some point in time, there are beings capable of thinking the thought concerned. In other words, although it is *me* who speaks of a universe without human beings, this state of affairs does not detract from another state of affairs: that a planet with certain properties is a necessary precondition for the evolution of life and human life. The fact that it takes a human being to think this simply does not make that condition any less necessary objectively. If there were no human beings the condition would remain unthought but it would still be a condition.[59] It is rather the task of our sceptical interlocutor (and, as a matter of fact,

58 Cf. Baldwin's criticism of Merleau-Ponty in "Merleau-Ponty's phenomenological critique of natural science": "If we can only understand things as 'perceived' or 'perceptible', then it follows that we can have no coherent understanding of an uncentered, objective, space; for any space we can perceive is bound to be perspectival" (210; cf. 209, 213). Baldwin is absolutely right that we should be able to conceive such an objective space: this is Plessner's "spatiotemporal totality in which directions are relative" discussed above.

59 Cf. Jeff Malpas, in "The Fragility of Robust Realism", 99: "that the *conception* of an object is dependent on the mind—all conceptions are—implies nothing about the dependence on the mind of the *object* that is conceived."

of Merleau-Ponty) to show how it is possible that the earth in its early phases does not belong to our past, i.e., how it is possible that human beings always already existed—not in a *certain* sense, but unambiguously.

Eccentricity renders possible that reflection reaches past the phenomenal world in order to address reality insofar as it does not appear but helps to render possible appearance. In the same move, reflection discovers the body's physical aspect, i.e., the *physical* body insofar as it does not *specifically* occur in our *normal* experience or awareness of the body as a whole. Thought thus reaches beyond our attunement to the phenomenal world in order to reveal a condition of it which normally remains hidden.

I have argued that the eccentrically positioned ego has knowledge of transcendent physical reality. But this knowledge would remain mere theory if human beings did not have boundary experiences. "Eccentricity" would be a bad concept of disengagement if it would not at the same time structure our perceptual *engagement* in the world and lend it a particular ambiguity. So the ambiguous relationship between physical reality and phenomenal world can be explored on two levels, reflection and experience, which are not radically divorced. From an ontological-epistemological perspective, the experience of the threat of natural disaster is a more-than-perceptual experience because it reveals physical reality as an original condition of our existence, and by implication, of human perception. But the threat of natural disasters is only one way in which the transcendence of physical reality makes itself felt. We can also become aware that physical reality is indifferent not to our existence as a whole *including* perception, but *specifically* to our ability to perceive. This happens in perceptual illusions, as I will show in the next chapter.