

SCIENCE AND *LEBENSWELT*

In ordinary life, we have nothing whatever to do with nature-Objects. What we take as things are pictures, statues, gardens, houses, tables, clothes, tools, etc. These are all value-Objects of various kinds, use-Objects, practical Objects. They are not Objects which can be found in natural science.¹

In this paper, I propose to reflect on the world we live in, as opposed to the 'scientific' descriptions which we so commonly take to be the 'correct' way of knowing the world. I want to 'return' to Edmund Husserl's and Jan Patočka's notions of the *Lebenswelt*, the life-world, to argue that the worry they expressed is still with us. It is not my intention in this paper to critique their work: rather, I will highlight similarities and differences in their conceptions regarding the world we live in and its scientific rendering in the language of formal structures.² My intention is to generate a debate that reflects on this 'splitting of the world'

1 Husserl, 1989, §11, 29.

2 For engagements with Husserl's notion of the *Lebenswelt*, see, for example, Carr, 1986; Bernet *et al.*, 1993; Moran, 2000; Sokolowski, 2000; Zahavi, 2003; Bernet *et al.*, 2005; Dodd, 2004. See also essays in Hyder and Rheinberger, 2010; and the entry for the life-world in Moran and Cohen, 2012b. For reflections on the life-world, see also Schutz and Luckmann, 1973; Schutz and Luckmann, 1989; Habermas, 1971.

and ask whether their critique is still pertinent in the context of current debates. I suggest that present-day language in the life-world is saturated to detrimental effect by the formalised language of sciences. We need to revisit Husserl's and Patočka's debate and consider anew the path that both thinkers sketched.

It is important to stress that Husserl's and Patočka's critiques are not about science and the benefits that flow from scientific research. They see as problematic the transformation of a responsible scientific practice – always aware of its own ground – into the scientific, technical know-how that is concerned only with manipulating symbols within a formal system unrelated to the life-world.

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However, why is this type of reflection important. There are, broadly speaking, two types of answers. Either, the problem of science and the world we live in was already solved. There is no problem anymore. Or, one is accused of being an enemy of progress, ignorant of changes within the sciences. Worse still, one is viewed as being insensible to the benefits that flow from the development of the sciences: to question suggests that you might be a religious Luddite. There seems to be no inquiry into why we are presented with only two options: religion or science. The message is: we cannot do anything else, just get used to it.

However, a superficial look at books recently published, our conversations, newspapers, radio, television, reveals that we are, indeed, living in “a theoretical-logical substructure”, as Husserl named it,³ but taking it as our real world. We already understand ourselves as if we could be defined by formalised scientific language, forgetting that science can tell us a lot about impersonal ‘processes’ concerning ‘matter’ but nothing about our changeable human world. To offer just a few examples from many: we do not receive medication such as chemotherapy anymore: it is ‘downloaded’, we are ‘hard-wired’ through genes,⁴ or our brains are

3 Husserl, 1970d, §34d, 127.

4 Clark and Grunstein, 2004.

‘hard-wired for happiness’;⁵ we can even outsmart our hard-wired habits, if we know how.⁶ To believe in God is also the result of ‘hard-wiring’.⁷ In *The Online Magazine For Evolving Minds*, published by Life as A Human Inc., we learn that “We Are Hard-Wired to Care and Connect”.⁸

We can dismiss these publications or comments, or we might stop and think about what is happening with our human world when firing neurons, neuron synapses and genes are supposedly in charge of our human conduct. Patočka’s questioning of the scientific picture of the universe is pertinent here. He points out that when querying the scientific construction of nature, a questioner is typically ridiculed. We are so accustomed to the scientific representation of the world that to ask questions about it is thought to defy ‘common sense’. The scientific knowledge of nature is assumed to be indispensable and benign. From a young age, we are educated into this understanding of nature, so the scientific description is now ubiquitous. Moreover, it is supposedly crucial for our lives; and is even required for the survival of the human species.⁹

Yet, the question persists: is a critique of the scientific rendering of reality anti-scientific? Is it really against science and the technology that is part of this development? I suggest that by reflecting on scientific, formalised thinking we can draw attention to the degree to which this thinking spills into our everyday world, thereby reshaping knowledge not only about nature but also about ourselves and others.

Husserl’s insight was to reflect on and re-consider the scientific rendering of reality and to realise that it is a misguided endeavour unless science can responsibly give an account of its basic axioms. He confronted the problem of formalised

5 Miller, 2008.

6 Herber, 2011.

7 Macrae, 2009.

8 Korten, 2011.

9 Patočka, 2001, 81.

knowledge to rethink what our age considers as ‘common sense’. For Patočka, Husserl’s insight is important, but the sedimentation of formalised knowledge is not that easy to disclose: we need to reflect on history and our place in it. To reflect on the life-world might help us to look at the issue from a different perspective and to rethink this sedimented ‘obviousness’ with which we are surrounded.

According to Husserl, the scientific objective world is “a theoretical-logical substructure” that we can never experience. However, it is not something in opposition to the life-world: it is a part of it. It is our human achievement.¹⁰ His critique of modern sciences suggests that because sciences have become “blinded by the ‘prosperity’ they [have] produced”, they leave unquestioned the reduction of the world in which we live to the formal structure of scientific knowledge. The formal structures – nature turned into formal ‘facts’ – have led to “an indifferent turning-away from the questions which are decisive for a genuine humanity”. As Husserl sums up: “Merely fact-minded sciences make merely fact-minded people.”¹¹

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Husserl’s and Patočka’s *Lebenswelt*

Husserl begins his reflection on the life-world, although not yet in that name, in his lecture course in the winter semester, 1910–11, *The Basic Problems of Phenomenology*. In his discussion of Richard Avenarius, he speaks about “the *a priori* of nature, the natural world-concept and the natural sciences” as well as “the *natural world-concept valid in an absolute and a priori sense*”. Already then, Husserl derives this concept from “the unity of world-experience itself”.¹² However, the sustained discussion of the notion of the life-world is found only in late Husserl.¹³ For Husserl, the life-world is the all-encompassing horizon, which we are never aware of in our everyday living; it is unthematized. The life-world is the

10 Husserl, 1970d, §34d, 127.

11 Husserl, 1970d, §2, 6.

12 Husserl, 2006, §10, 22, 26, italics in original See also Farin and Hart, 2006, xxi-xxii.

13 See Moran *et al.*, 2012b.

pre-theoretical world for everybody: cobbler, phenomenologist and scientist.¹⁴ The idea of the life-world as the ground from whence our pre-reflective everyday conduct proceeds is tied to Husserl's critique of the objectivism of natural science.¹⁵ The objective nature of the sciences is built up from this world of our pre-scientific experience, yet science forgets its original ground.

Husserl's critique of natural science, as he outlines it in *The Crisis of European Sciences and Transcendental Phenomenology*, is a continuation of his reflection on "the present state of the science"¹⁶, with regard to mathematics, that he first considers in *Philosophy of Arithmetic*. Already at that time he was concerned with concept-formation achieved in a mechanistic, unreflective manner. As he says, if we fail to reflect on the foundation of the concepts we use, we construct "totally strange conceptual formations" that are "equally useless for praxis and for science".¹⁷ We *might* think that once we formulate "rules", we do not need to waste our time anymore and can simply continue, without "the ever-renewed labor of difficult deliberations", to proceed in "*a seamless calculational mechanism*".¹⁸ In *Ideas III*, he writes, "the sciences become...factories turning out very valuable and practically useful propositions...from which, as a practical man, one can without inner understanding derive products and at best comprehend the technical efficiency". As he explains, for "the engineers of the art of science" and technicians, knowledge is "nothing but an artful invention of thinking for purposes of artful achievements in the practice of controlling nature and man". In short, it is simply know-how.¹⁹

From the beginning, Husserl was aware of the problems of manipulating symbols without really understanding them. His concern with skipping over the

14 Husserl, 1970d, §35.

15 See Zahavi, 2003; Moran, 2000; Sokolowski, 2000; Patočka, 1937; Patočka, 1989 [1971].

16 Husserl, 2003, 5.

17 Husserl, 2003, 123.

18 Husserl, 2003, 296, italics in original.

19 Husserl, 1980, §18, 82.

ground of knowledge (life-world) led him to his critique of science as technical know-how; and from there to realise the priority of the pre-scientific life, or, as he calls it later, the life-world, *Lebenswelt*.²⁰ We cannot understand the world constructed by the sciences unless we show that scientific explanations of the world grow out of the world in which we live: the origin of formal knowledge is our experience of the life-world.

Husserl notes that in our everyday living we do not encounter the objects of scientific theories but “pictures, statues, gardens, houses, tables, clothes, tools, etc.”²¹ As Schütz explains further, “the unquestioned pre-experiences are...from the outset, at hand as *typical* ones, that is, as carrying along open horizons of anticipated similar experiences.”²² Husserl brings to the fore our experience of the life-world by showing that it is based on ‘seeing’ and understanding things according to ‘types’. This unthematized experience of typicalities growing out of particularities is a basis for the possibility of knowledge but this typicality is not thematized. It is not a theoretical insight. In other words, despite the fact that the life-world is nothing but many ‘typicalities’ that we encounter in our everyday living, we are not aware of it. Our experience of the life-world is unreflective. Once we realise this, we can reflect upon these ‘types’ and understand experience by investigating and abstracting from particularities to discern the typical structures that illuminate them. When we bring this latent understanding, or, as Husserl calls it, prepredicative experience into relief, we can thematize those typical instances – eidetic structures – on which our understanding is based.²³

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For Husserl, then, the world is the horizon to all of our positing acts, or, as Ludwig Landgrebe puts it, the world is “the doxic basis persisting throughout all experiences”.²⁴ Our “belief in the world” is the basis from which our theorising begins.²⁵ As Husserl affirms, things themselves are the primary guide that

20 For a similar claim, see Mohanty, 1995, 51, 53.

21 Husserl, 1989, §11, 29.

22 Schütz, 1953, 5.

23 See also Husserl, 1973.

24 Landgrebe, 1940, 43.

25 Landgrebe, 1940, 42.

will lead us to knowledge in general. We need to recognise that our knowledge is based on our experience of the life-world: “the truth of predicative forms is founded on the movement of antepredicative experience”.²⁶ Once we recognise the typicality of certain forms, we can then extend this understanding and build scientific theories that will be valid for all and sundry, as long as they are familiar with the method. Hence, science is based on and proceeds from the world in which we live.

Husserl and Patočka recognise that our everyday understanding of the world is influenced by “the surreptitious substitution of the mathematically sub-structured world of idealities for the only real world, the one that is actually given through perception, that is ever experienced and experienceable – our everyday life-world”.²⁷ The outcome is, as Husserl suggests, that we think about our world in terms of subjective appearances, as opposed to the ‘real’ world that science discovers. In a way, “through the garb of ideas”, we accept that the world is composed of electrical charges, atoms and particles following mathematical laws, that we are ‘hard-wired’ and that neuron pathways determine our behaviour. We mistake these descriptions as “*true being*” instead of taking them for what they are: that is, “actually a *method*”.²⁸

Patočka develops Husserl’s idea of the natural world (as he terms it). Originally, it is the precondition for human understanding, just as it is for Husserl. “Aspects, perspectives, my own possibilities are modes of the world that is pre-given to all of us”.²⁹ In his habilitation thesis *The Natural World as a Philosophical Problem* (1935),³⁰ Patočka follows Husserl to suggest that the natural world of our experience, which was seemingly split by natural science into the scientific structures that are privileged over the world of our human experience, must be united in “a pre-existent transcendental subjectivity with its temporal structure of living presence, protention and retention and the laws which govern the constitution

26 Trán, 1986, 111.

27 Husserl, 1970d, §9h, 48-49.

28 Husserl, 1970d, §9h, 51, italics in original.

29 Patočka, 2009 [1968], 261.

30 Patočka, 2008.

of any objectivity in the subjective activity”.³¹ However, he changes his idea of the natural world later on. For late Patočka, understandings of nature, tools, cultural products, are a part of the historical process. At the same time, we cannot see this historical ‘movement’, because it is not something that can ‘stand’ in front of us. We *are* historical beings who see things differently in different historical situations.³² What for the Archaic Greeks was Zeus’s anger is for us a thunderstorm. According to Patočka, the world is a horizon we cannot ever see, because it is nothing particular, yet, it opens up the space where humans and things are and where meaning becomes disclosed in *historical situations*. So, according to Husserl, we need to recover the life-world and to understand how it is obscured by the ‘garb of ideas’; while in Patočka’s terms, we need to re-think the history of ideas to see how those significant conversions in our human understanding and experience happened.

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So, how did this substitution of a method for the world happen, and why do we not *see* that the world we live in is beginning to be experienced through theoretical structures that are useful for scientific predictions, but not applicable to our everyday, changeable lives? To reflect on this question, I will traverse between Patočka’s and Husserl’s thinking about the life-world and scientists’ picture of the physical universe (to use the title of Max Planck’s essay),³³ to show how scientific understanding, even when questioned by scientists themselves, is not radically questioned but accepted.

A Dispute over the Lebenswelt – the Life-World (the Natural World)

To begin with, let us compare Patočka’s reflection on the present-day crisis with Planck’s thinking. As Patočka writes:

Modern man has no unified world-view. He lives in a double world, at once in his own naturally given environment and in a world created

31 Chvatík, 2005, 1-2.

32 Patočka, 2009 [1968], 263.

33 Planck, 1933b.

for him by modern natural science, based on the principle of mathematical laws governing nature. The disunion that has thus pervaded the whole of human life is the true source of our present spiritual crisis.³⁴

Planck is also concerned about the present-day world, and for him:

We are living in a very singular moment of history. It is a moment of crisis, in the literal sense of that word. In every branch of our spiritual and material civilization we seem to have arrived at a critical turning-point. This spirit shows itself not only in the actual state of public affairs but also in the general attitude towards fundamental values in personal and social life.³⁵

The task is to think about scientific explanations of the world and our everyday experience. As already noted, Husserl was one of the first thinkers to question the problematic forgetting of our human experience of the world we live in by mistakenly adopting the scientific explanation of this very same world.³⁶ In other words, he recognised that science starts from our experience but then forgets its own starting point. It forgets its own ground: “the only real world, the one that is actually given through perception, that is ever experienced and experienceable – our everyday life-world”.³⁷

Patočka and Planck, as well as Husserl and Werner Heisenberg, speak of the crisis in our modern world. Philosophers and scientists reflect on the momentous times in which we live. How should we understand them? For Planck, we live in “a moment of crisis”: we have reached “a critical turning-point” in modern society, which might lead either to a “great renaissance” or to the “downfall to which our civilization is fatally destined”.³⁸ How can we know? Has an apocalyptic change already taken place? We can think about this purported crisis as a disease that is already underway, leading to either the recovery or the death of

34 Patočka, 2008, 129, trans. Erica Abrams.

35 Planck, 1933a, 65.

36 Husserl reflects on the positivists' take on the natural world by Ernest Mach and Richard Avenarius. See Moran and Cohen, 2012a, 47-48; 204 See also Husserl's discussion of Avenarius in Husserl, 2006. See also Patočka, 1995, 133.

37 Husserl, 1970d, §9h, 48-49.

38 Planck, 1933a, 65.

the patient. However, we can also reflect on a different meaning of ‘crisis’, derived from its Greek etymological root, *krisis*, meaning ‘decision’; and in turn from *krinein*, meaning ‘to decide’. In this sense, to acknowledge a crisis implies that we must decide what we will do about it. This is the way taken by Patočka, according to whom we “live in a double world”. We understand the world and ourselves based on the model of “modern science”; yet our everyday life is about practical tasks, hopes and worries in the world that surrounds us, and to which the scientific picture is not relevant. This “disunity” in our understanding of the world and ourselves leads to the disunity at the core of our being, generating modern society’s “spiritual crisis”.³⁹

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A possible example of the distinction that Patočka describes –the chasm between the everyday world and the world constructed by science, where the ‘scientific’ world is privileged – is Arthur Eddington’s description of two tables. Eddington starts his lectures on *The Nature of the Physical World* with an observation: “I have settled down to the task of writing these lectures and have drawn up my chairs to my two tables. Two tables! Yes; there are duplicates of every object about me – two tables, two chairs, two pens”.⁴⁰ Are they duplicates, or are they different descriptions of the same thing? To answer this question, we must look at Eddington’s description of his two tables to see whether he speaks of duplicates; and if he does, whether the descriptions of them – in other words, whether the ‘objects’ – are really different. For Eddington, it is not the case, as it is for Patočka, that our familiarity with the world is undermined by scientific descriptions of it, leading to disunity at the heart of our understanding of the world. Rather, there are things with which we live and then there are objects that physical science deals with; and science has the correct way to explain them.

First, let me describe *my* table, which is “familiar to me from earliest years”,⁴¹ as Eddington would say, so that we can understand Eddington’s ‘two tables’. My table is in the kitchen and I have my breakfast at it every morning. It is a table

39 Patočka, 2008, 129.

40 Eddington, 1933, xi.

41 Eddington, 1933, xi.

that unites people when they come to visit me and we talk in agreement.⁴² It also seems to divide us when we disagree. But it is always in between us, familiar and dependable: to put cups of coffee on; or indeed for whatever purpose we might use it at different times. I sit at that table when I am happy as well as when I am sad, and many memories come rushing in when I look at it. It is slightly damaged on one side from the time my daughter tried to climb up onto it and the table toppled onto her. Years later, she has no scars left, but the table reminds us of this event by the scratch that has remained there ever since: it is a memory writ large. I like to stroke that chipped table, as it reminds me of all the people who sat there once upon a time; and I imagine that others will sit there sometime in the future. It is not just a useful table that I have breakfast at; it is a part of my life.

Is this the kind of description that Eddington offers for *his* familiar table? Not at all! He is familiar with a very different table. This difference is not because he cannot know *my* table but because he sees his table very differently. He sees it as having “extension”, being “comparatively permanent” and “coloured” and most of all, “it is *substantial*”.⁴³ As René Descartes says “[t]hus extension in length, breadth and depth constitutes the nature of corporeal substance”.⁴⁴

So, let us recall the methodological move that Descartes makes in *Principles of Philosophy*. For Descartes, in order to secure our knowledge of nature, we need to start from clear and distinct ideas that we can account for “*univocally*”. However, since God is the only univocal substance existing “in such a way as to depend on no other thing for its existence”, we need a different way to describe the created things that all depend on God for their existence. Therefore, we must distinguish between those that need other things in order to exist and those that need nothing else except God in order to exist. Descartes calls the first group attributes or qualities and the second substances.⁴⁵ So, for Descartes, there is really only one substance, God, because God does not depend on anything else. By extension, then, we can describe as a substance also the created things that depend on God

42 For a different emphasis, see Arendt, 1998 [1958], 52.

43 Eddington, 1933, xi, italics in original.

44 Descartes, 1985, I, 53, 25 [210].

45 Descartes, 1985, I, 51, 24 [210].

only and nothing else. In other words, *res extensa* and *res cogitans* are substances: an extended thing (matter) and thinking thing (consciousness, as we would say today).

Descartes formalises all substances into two: body and mind. He insists that “*to each substance there belongs one principle attribute; in the case of mind, this is thought, and in the case of body it is extension*”.⁴⁶ So, in the case of body, its nature “*consists not in weight, hardness, colour, or the like, but simply in extension*”.⁴⁷ To secure apodictic knowledge, Descartes eliminates ‘qualities’ from his picture of science. Qualities are not beyond dispute, because we know them through our senses, which are by definition unreliable. Therefore, qualities cannot be incorporated into science. As he says, the ‘hardness’ of an object depends on us touching it, it is subjective to each of us; it cannot be precise due to different people’s sensory perceptions. So, imagine that while we attempt to touch an object, it moves away from our hand at the same speed as we are approaching it. In that case, we will never be able to touch it, hence never know how hard it is. Yet, we know that it is an extended thing. Hardness or softness are not attributes that give us knowledge about it. Thus, we realise that qualities do not constitute the nature of an object.⁴⁸ The only certainty is: any and every object is simply extended in space. As Descartes makes clear, “if we perceive the presence of some attribute, we can infer that there must also be present an existing thing or substance to which it may be attributed.”⁴⁹ The certainty I have of an object is reduced to its extension, and it is forgotten that Descartes’ distinction is based on the presence of God and suspicion of our senses.

This is the legacy of modern knowledge that Eddington accepts. Its metaphysical origin has been forgotten and transformed into the language of classical physical science. Eddington takes it as a description of his everyday experience: he experiences his table in terms of extension, permanence, mass. For him, for a table to be substantial does not mean that a table is steady, solid and of good

46 Descartes, 1985, I, 52, 25 [210], italics in original.

47 Descartes, 1985, II, 4, 42 [224], italics in original.

48 Descartes, 1985, II, 4, 42 [224].

49 Descartes, 1985, I, 52, 25 [210].

workmanship. His sense of the substantiality of a table is very different to the memory of my daughter climbing the table I thought was very steady, and being surprised that it actually moved, and moved in a very unfortunate direction. Eddington makes it clear that he does not take his description of substantiality to mean a table that “does not collapse when [he] lean[s] upon it”.⁵⁰ For him, to speak of substance is to tell us something about a “conception of [the table’s] intrinsic nature”.⁵¹

So we begin to understand that his is not just a description of the familiar table that he wrote his lectures on, but a general description of any and every object that is extended in space: it “is a *thing*; not like space, which is a mere negation; nor like time, which is – Heaven knows what!”.⁵² Eddington’s description encompasses every table – the table in my kitchen, a table in your living room or his own familiar table – as well as his pen, your chair, my house or a rock at the bottom of an ocean. It is an explanation that satisfies the method of classical physical science. Indeed, his description of the second table is even more refined. Here he moves from a description that is based on the classical modern science to a description derived from “mathematical researches on the relativity theory”.⁵³ Let me quote at length:

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My scientific table is mostly emptiness. Sparsely scattered in that emptiness are numerous electric charges rushing about with great speed; but their combined bulk amounts to less than a billionth of the bulk of the table itself. Notwithstanding its strange construction it turns out to be an entirely efficient table. It supports my writing paper as satisfactorily as table No. 1; for when I lay the paper on it the little electric particles with their headlong speed keep on hitting the underside, so that the paper is maintained in shuttlecock fashion at a nearly steady level. If I lean upon this table I shall not go through; or, to be accurate, the chance of my scientific elbow going through my scientific table is so excessively small that it can be neglected in practical life.⁵⁴

50 Eddington, 1933, xi.

51 Eddington, 1933, xi, italics in original.

52 Eddington, 1933, xi, italics in original.

53 Eddington, 1933, viii.

54 Eddington, 1933, xii.

As already indicated, despite Eddington's belief to the contrary, his descriptions of these two tables are not much different: they describe differences not of kind but of degree. They are both scientific descriptions. In practical life, one thinks neither about the possibility of one's elbow effortlessly penetrating "electric charges rushing about with great speed", nor of the paper I write on as being held in place by "the little electric particles with their headlong speed...hitting the [paper's] underside". But one also does not think about a table in terms of extension, permanence and mass, as Eddington's first description of a table assumes. Eddington's description tries to posit the scientific understanding of a thing in geometrical, abstract space as something that we live with. But do we really live with electrical particles and charges, or a table that is extended and coloured, instead of a table that I can lean on or put my cup of coffee on? Are they really two tables? Is this actually a meaningful question? It is for Eddington, as he continues:

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Reviewing their properties one by one, there seems to be nothing to choose between the two tables for ordinary purposes; but when abnormal circumstances befall, then my scientific table shows to advantage. If the house catches fire my scientific table will dissolve quite naturally into scientific smoke, whereas my familiar table undergoes a metamorphosis of its substantial nature which I can only regard as miraculous.⁵⁵

I am not sure whether you would describe the burning of your house, with a table among other things, as miraculous. I certainly would not. So, what is going on in Eddington's descriptions? Despite his conviction that he is presenting two descriptions of a table, there is already a reversal between what is familiar to us in our everyday living and the scientific description of it. Despite his intention to the contrary, Eddington describes even the 'familiar table' in scientific terminology. I suggest that this reversal is what Patočka points to when he claims that we 'live in a double world'. Modern science's description of our everyday world

⁵⁵ Eddington, 1933, xii.

is promoted as the one that is more accurate; we are not even aware that our understanding of what is familiar, what we live with, is already influenced by scientific language. This was also Husserl's insight in the last years of his life, when he started to think about our experience as being a starting point for natural science; not the other way around, as Eddington would have it.⁵⁶

We are not always aware of this substitution of the language and experience of the life-world with the language and methodology of natural science. Eddington clearly was not. He thought that he was giving us two different descriptions. To think about this discrepancy in more detail, I will look at other scientists who have written about the way scientists think about nature.

The Representation of Nature in Contemporary Physics

According to Heisenberg, our everyday world is “completely transformed by man”. He points out that “for the first time in the course of history man on earth faces only himself”. Heisenberg's diagnosis of our predicament is that “striding through landscape transformed by man”; there is nothing else except “structures created by man”. The scientist has already defined nature for everybody. It is “no longer nature in itself” which is approached by a scientist always anew, “but rather nature [is] exposed to man's questioning” in an already scientifically defined, classifiable way. So, “man here also meets [only] himself” because the “mathematical formulas indeed no longer portray nature, but rather our knowledge of nature”.⁵⁷ Scientific man proceeds to claim that his knowledge is knowledge of the whole world. But who is this proverbial ‘scientific man’?

Erwin Schrödinger acknowledges the difference between the scientist and the technician, as Husserl would say. Schrödinger notes that not “many physicists – certainly not experimentalists – are ready to endorse the statement that ‘light waves do not really exist, they are only waves of knowledge’”.⁵⁸ Some people

56 See Husserl, 1970d, especially; Husserl, 1970 [1935]; Husserl, 1970b; Husserl, 1970c; Husserl, 1970a.

57 Heisenberg, 1972, 131-132.

58 Schrödinger, 2000 [1956], 1065.

still take “causality and wave mechanics”⁵⁹ to be a part of nature rather than our way of thinking about and our description *of* nature. They substitute the model of the world – in other words, ‘waves of knowledge’ – for the world in which we live. Or, as Husserl says, they substitute “a method” for the world.⁶⁰

40 Schrödinger is aware that ‘waves of knowledge’ are not waves in nature because we can never know whether our methods are depicting what is really happening. We can only go by the data that our measuring instruments provide. They might indicate to us some kind of ‘activity’ but we do not have direct access to those happenings; we are unable to *see* them, so to speak. So, in one case, we use a model that takes those processes registered on instruments as waves; in another, we ‘interpret’ them as particles. However, while speaking of ‘processes’, my description is already based on the scientific method. We need to assume that there *are* ‘processes’ that we can describe in a certain way in order to turn those happenings into a model that our method will accommodate and to help us to predict future occurrences. Physicists know that they are dealing with methods and models; and that if they can access more ‘data’ or have better instruments, they will be able to either refine the models/methods or come up with different ones that will suit better the readings from their instruments.

Hence, Schrödinger warns us that “*no* model shaped after our large-scale experiences can ever be ‘true.’ A completely satisfactory model *of this type* is not only practically inaccessible, but not even thinkable.”⁶¹ Yet, to help us predict, we transform our everyday experience into mathematical formulae. Schrödinger is certainly aware that nature thought through mathematical formulae is “not perhaps quite as meaningless as a ‘triangular circle,’ but [is] much more so than a ‘winged lion’”.⁶²

Yet can our everyday experience be ‘large-scale’, as opposed to the small-

59 The title of Schrödinger’s paper.

60 Husserl, 1970d, §9h, 51.

61 Schrödinger, 2000 [1956], 1056, italics in original.

62 Schrödinger, 2000 [1956], 1056. See also Arendt, 1998 [1958], 3.

scale non-experience of the subatomic world that is given to us through measuring instruments? How can we think about scientific models and ‘our large-scale experiences’? What instruments would we use to measure our lived experience? Despite Schrödinger’s awareness of the impossibility of thinking in mathematical models on the level of experience, and despite his assertion regarding the impossibility of knowing a world we cannot experience except through measuring instruments that register something in the world, Schrödinger’s description of lived experience as ‘large-scale’ remains a description based in the world of science. Can we question this double way of thinking about the world?

It seems that when we move to the present, the double world disappears altogether: the only world left is the scientific one. While Eddington’s aim is still “to show that [new] scientific developments provide new material for the philosopher”,⁶³ Stephen Hawking and Leonard Mlodinow have no use of philosophy. They simply announce the death of philosophy, because “scientists have become the bearers of the torch of discovery in our quest for knowledge”.⁶⁴ Reflecting on Hawking and Mlodinow, we can paraphrase Friedrich Nietzsche: philosophy is dead and we have killed it.⁶⁵

Hawking’s and Mlodinow’s inquiry is: “*Why this particular set of laws and not some other?*”⁶⁶ Their questions are not about nature, humans, our existence or our experience, they are about laws: in other words, about the method of modern science. They propose that to understand the world there must be a single, overarching, indisputable theory, which they call the “M-theory, that is, “the final theory [that] we ought to have.”⁶⁷

I will not explain the cluster of theories that supposedly fall under this overarching M-theory, and how theories can differ and yet overlap, using the

63 Eddington, 1933, viii.

64 Hawking and Mlodinow, 2010, 13. For a critique of their argument, see Norris, 2011.

65 Nietzsche, 1974 [1882], §125.

66 Hawking *et al.*, 2010, 19, italics in original.

67 Hawking *et al.*, 2010, 17.

world geography map as their blueprint. What I am interested in is Hawking's and Mlodinow's reduction of the world in which we live to the language of science that we cannot experience by definition. Despite the claim by the authors that "the universe, according to quantum physics, has no single past, or history",⁶⁸ they do not shrink from the task of presenting the history of science. After all, as they say much later, "We create history by our observation, rather than history creating us."⁶⁹ Their history of science is creatively linear.

According to Hawking and Mlodinow, in a seamless progression, starting with pre-Socratic science through Aristotle to medieval science, pre-modern science was inadequate, because it could not predict. Aristotle simply did not observe the fall of bodies properly: Aristotle just theorised – and very badly. It is not a surprising reading, of course. We still encounter curious claims that modern science is experiential, as opposed to pre-modern science, which was armchair philosophy lacking the ability of proper observation.⁷⁰ So, in their history, Aristotle is simply incapable of abstracting the law of gravity from a falling object in front of his very own eyes. His disregard for natural law is notorious.

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Perhaps the authors' explanation of this history should not surprise us. There might be another history, though, in which Aristotle cannot observe the law of gravity because his understanding of *Kosmos* is very different from our own. Everything is possible, since there also might be, as they write, "one history in which the moon is made of Roquefort cheese".⁷¹

It might be helpful to recall Friedrich Nietzsche's bush: we see camels, dogs, cats, whales and, then, find a certain feature that they all share. Then we posit the category of mammals to enable us to understand these different species according to one characteristic. And then, we go to a desert, see a camel and say, 'look, it is a mammal'. We have forgotten that this is our own in-

68 Hawking *et al.*, 2010, 106.

69 Hawking *et al.*, 2010, 179.

70 See Koyré, 1968, 89.

71 Hawking *et al.*, 2010, 179.

vented category, and suddenly we see its being a mammal as if it were something innate to the being of a camel.⁷² As Nietzsche says, we hide something behind the bush, leave, and then, upon our return, suddenly we discover there what we have previously hidden: look, a mammal! So, if we are going to look for mammals, we already know the answer. It is “a warm-blooded vertebrate animal of a class that is distinguished by the possession of hair or fur, females that secrete milk for the nourishment of the young, and (typically) the birth of live young”.⁷³ The category of mammals already guides our search because our present classification is based on it. If we want to *see* something different, we have to start looking at the world differently. To do so, the ground has to shift to make the present classification problematic, to force us to start thinking about new pathways. But can we do it?

Questions and Answers

43

In seclusion, the soul interrogates itself with silent and concealed answers before the questions come. The answers are eternal, while the questions wait for their moment before appearing dressed in light and sound.⁷⁴

As I have already argued, in his later years, Husserl posits the primacy of the life-world. According to Husserl, we cannot understand physical nature, constructed in thought, unless we show that scientific explanations of the world grow out of the world in which we live. In order to rethink the crisis, we need to question the superiority of scientific models and acknowledge the life-world as the foundation from which all our knowledge proceeds. Patočka extends this insight.

According to Patočka, no inquiry can proceed by looking for an answer, since a riddle reveals itself only when all answers have failed to address it: suddenly, we realise that there are no questions either. What is phlogiston, for example? Except

72 Nietzsche, 1997.

73 Oxford English Dictionary.

74 Patočka, 1999 [1973], 193, note a; Březina, 1989 [1897], 9.

for lovers of the history of science, this is a meaningless question. We now speak of oxygen and combustion, and our methods have changed dramatically. We look for something very different.

When the ground of our understanding becomes shaky, meaning becomes problematic; questions and answers lose the familiarity that they had before. But we cannot live without meaning. So, either we cling to the old questions and answers, which have become empty of meaning, or we embrace this problematicity and start looking for new questions, which will give us new answers. Questions, however, always depend on the ground that we never question. In order to start opening up the space for a new way of thinking, we need to begin by questioning the ground. This is the most difficult of tasks, as we are, most of the time, blind to that which we nevertheless presuppose.

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In other words, only when the ground of our understanding is irresolvably disrupted do we become aware that the available questions are not adequate to the problem at hand. As Patočka says, we need to shift the ground in order to ask different questions, because what is problematic is, in fact, the ground from which our questions came:

In all sciences and in philosophy, we posit questions and we answer them, because we know that we can ask, that in principle and by itself the thing/matter is already obvious, it is already within the grasp of our reasoning; answers are posed before questions, as Otokar Březina once said. Before we can ask, we already have to know what we are looking for and what pathways we have at our disposal for finding an answer.⁷⁵

Only by becoming aware that we have failed to discover “what we are looking for”, and that the “pathways we have at our disposal for finding an answer” are not available, will we be forced to start thinking about new pathways. We live in unprecedented times, and we need to formulate new questions by “making possible new manners of asking”⁷⁶

75 Patočka, 2008 [1937], trans. by Martin Novotný, modified Lubica Učník.

76 Patočka, 2008 [1937], trans. Martin Novotný.

in order to search for different answers, enabling us to change the way we think about the world. Only when the tide throws a fish onto the shore does the fish realise that it needs water to live. As Patočka observes: “Philosophy is unthinkable without questions. But to develop or pose a question means precisely to find an explicitly empty space, to find something that in a certain sense is not here”⁷⁷

Only through reflection on the history of ideas can we realise how much our understanding of the life-world is trapped in the grip of scientific explanation. As Patočka came to realise, and outlined in his last book: “In the moment when life renews itself *everything* is cast in a new light. Scales fall from the eyes of those set free, not that they might see something new but that they might see in a new way”⁷⁸. It was Husserl who pointed out the problem of the sedimentation of knowledge, the substitution of formal reasoning for existential questions, and the shift in our perception of the world, by addressing the reversal in our understanding of nature brought about by modern science. Yet, only by giving reasons for our beliefs, will we be able to discuss our claims and defend them. As Patočka affirms, to accept responsibility for our knowledge means to accept the importance of giving reasons for our claims, in order to validate them. Experience is relative to our historical place in the world; reasons can anchor it.

Only by trying to rethink our present way of thinking might we again experience that wonder, *thauma*, *thaumazein*, that for Plato was the beginning of philosophy.⁷⁹

77 Patočka, 2002, 51.

78 Patočka, 1996, 39-40, italics in original.

79 See Plato's and Aristotle's claims that wisdom begins with θαυμα, θαυμάζω (*thauma*, *thaumazo*; wonder, to wonder). Plato, 1997, 7, 155d; Aristotle, 1941, 982b12-28, 983a12-21.

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