

From the Nadir of Negativity towards the Cusp of Reconciliation: A Dialectical (Hegelian-Teilhardian) Assessment of the Anthropocenic Challenge

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Abstract: This contribution addresses the anthropocenic challenge from a dialectical perspective, combining a diagnostics of the present with a prognostic of the emerging future. It builds on the oeuvres of two prominent dialectical thinkers, namely Georg Wilhelm Friedrich Hegel (1770–1831) and Pierre Teilhard de Chardin (1881–1955). Hegel himself was a pre-anthropocenic thinker who did not yet thematise the anthropocenic challenge as such, but whose work allows us to emphasise the unprecedented newness of the current crisis. I will especially focus on his views on Earth as a planetary process, emphasising that (in the current situation) the “spirit” of technoscience is basically monitoring the impacts of its own activities on geochemistry and evolution. Subsequently, I will turn attention to Teilhard de Chardin, a palaeontologist and philosopher rightfully acknowledged as one of the first thinkers of the Anthropocene and whose oeuvre provides a mediating middle term between Hegel’s conceptual groundwork and the anthropocenic present. Notably, I will discuss his views on self-directed evolution, on the on-going absorption of the biosphere by the noosphere, and on emerging options for “sublating” the current crisis into a synthetic convergence towards (what Teilhard refers to as) the Omega point. I will conclude that (a), after disclosing the biomolecular essence of life, biotechnology must now take a radical biomimetic turn (a shift from domesticating nature to the domestication of domestication, i.e., of technology); that (b) reflection itself must become distributed and collective; and (c), that the anthropocenic crisis must be sublating into the *noocene*.

Key words: dialectics, Anthropocene, Hegel, Teilhard de Chardin, self-directed evolution, noosphere, noocene

1. Introduction

Our geophysical impact as a planetary species on planet Earth has become omnipresent, irreversible and disruptive to such an extent that both geologists and philosophers have announced the birth of the *Anthropocene* as a *new* (καινός) and decidedly *human* (ἄνθρωπος) era (Crutzen 2002; Steffen et al. 2011; Schwägerl 2014; Hamilton, Bonneuil and Gemenne 2015; Lemmens 2015; Lemmens and Hui 2017). As a linguistic polymer, the term “Anthropocene” refers to a moment of global crisis, but also to the possibility of a metaphysical mutation or new beginning. In this contribution, the anthropocenic challenge will be addressed from a dialectical perspective and envisioned as a pivotal moment in a dialectical unfolding. Dialectics refers to a (“continental”) philosophical method which was inaugurated by Hegel, but inspired by ancient (Socratic) and medieval (scholastic) traditions and further developed by more recent authors such as Jacques Lacan (1991), Slavoj Žižek (2009; 2010), Catherine Malabou (2005) and John Bellamy Foster (2000). Dialectics builds on the conviction that a dialectical logic (or λόγος) can be discerned in nature, history and human thinking, which not only allows us to come to terms with and understand the present, but also to anticipate (and actively contribute to the unfolding of) the emerging future. In other words, dialectics combines intellectual with practical ambitions: it not only entails reflection and self-reflection, but also praxis (options for action).

Dialectics strives to capture the present in thoughts, to conceptualise the *truth* of the current era, i.e., the most radical dimension of contemporary existence, spurring us to come to terms with it. Hegel posits the *zeitgeist* of an epoch as a universal principle which expresses itself in all domains of socio-cultural existence. The modern principle of subjectivity, for example, realised itself in Protestantism, in the autonomous subject of Kantian ethics, in the concept of citizenship of the French revolution and in liberal democracy (Žižek (2009, 31), but also in egocentric conceptions of intellectual property, authorship and art. In the current era, however, a more global, less egocentric, more ecocentric assessment seems required to capture the fundamental challenge of the time,—and this is what the Anthropocene-concept purports to do. As Žižek (2009, 65) phrases it, in contrast to the pseudo-Hegelian cliché of a mega-spirit controlling history, Hegel was fully aware that self-consciousness arises in finite minds, and that any efforts to come to terms with the basic challenge of the time are bound to generate criticisms and contradictions. Yet, on this intellectual and practical battlefield (which *enables* rather than constrains individual articulations) a supra-individual coherence (*Sit-*

tlichkeit) may nonetheless emerge, eventually allowing us to collectively address the challenge. Dialectics offers a methodology that allows thinking and acting individuals to discern and read the dialectical logic at work in the heterogenic present. Dialectics represents a dynamical research program which engaged scholars are invited to join and further elaborate. Contrary to the position of the “beautiful soul,” bemoaning the current crisis while overlooking how we always already are *involved* in what we deplore (Žižek 2010, 399), Hegelian dialectics spurs self-reflection, raising awareness of how we ourselves are deeply immersed in the current process, but also outlining emerging options to actively contribute to and become part of the inevitable turn. Therefore, this paper is neither a philosophical exegesis of Hegel’s oeuvre (although the current crisis decidedly requires us to seriously reread his deep philosophy), nor a rebuttal of the countless instances of critique and deflection which his ambitious program continues to provoke. Rather the focus is on outlining the dialectical method, the methodological core of the dialectical research program, emphasising its potential for assessing and addressing the anthropocenic challenge.

The logic of dialectics builds on series of trichotomies, on triadic patterns of positions, triadic sequences of moments, which will be referred to in this paper in short-hand as M_1 , M_2 and M_3 . This concise, compact dynamics can be illustrated with the help of the human-nature relationship (cf. Zwart 2017). Initially, humans must have been in awe of nature, and nature must have invoked in us a sense of admiration and respect (M_1). Nature was “observed” by us, in the original sense of the Latin verb *observare*, which means: to *heed*, to *serve* and to *respect* nature. But precisely because of this devoted interest in nature, human observation became increasingly systematic and precise. And this inevitably resulted in a traumatic experience (M_2), namely that nature is not as perfect as was initially expected. Anomalies and inconsistencies began to accumulate, and respect for (the perfection of) nature was increasingly subverted by a growing inability to actually confirm the initial view. And this experience (of tension, contradiction or frustration; the second moment: M_2) forced us to realise that, apparently, our starting point was one-sided and naïve (so that this initial position was “negated”). In dialectical logic, contradiction is inevitable and necessary, and the moment of negation or contradiction entails an important *truth*. Somehow, fascination on the one hand and actual discovery on the other must be reconciled again, but on a higher level of complexity, by elaborating a more comprehensive understanding of nature: a “negation of the negation,” a position which *picks up* (or *takes up*), but at the same time overcomes, the unsettling, disturbing truth of negativity ($\rightarrow M_3$).

To develop a dialectical diagnostics of the anthropocenic present, I will notably rely on the oeuvres of two prominent dialectical thinkers, namely Georg Wilhelm Friedrich Hegel (1770–1831), the founding father of modern continental dialectics, and Pierre Teilhard de Chardin (1881–1955). Hegel himself was a pre-anthropocenic thinker who did not yet thematise or acknowledge the anthropocenic challenge, but whose work (precisely for that reason) allows us to emphasise the unprecedented newness of the current crisis. After explaining Hegel’s dialectical views on the human-nature relationship more generally (a), I will especially focus on his views on Earth as a planetary process or system (b) and on evolution (c). Subsequently, I will turn attention to Teilhard de Chardin, a palaeontologist and philosopher with a dialectical signature who is rightfully acknowledged—by Crutzen (2002) for example—as one of the first thinkers of the Anthropocene (albeit *avant la lettre*), so that his oeuvre provides a mediating middle term between Hegel’s conceptual groundwork and the anthropocenic present. Notably, I will discuss his views on (a) self-directed evolution, on (b) the on-going absorption of the biosphere by the noosphere, and (c) on emerging options for “sublating” the current crisis into a synthetic convergence towards what Teilhard refers to as the Omega point.

My position vis-à-vis dialectics in general and Hegel in particular may seem at odds with prominent voices in the current Anthropocene debate, such as Nick Mansfield and Timothy Morton, who discard Hegelian dialectics as fatally outdated. Whereas Morton (2012) for instance criticises Hegel for seeing history as a “purely human” and even Eurocentric affair (so that the connectedness with the broader planetary environment is allegedly lacking), Mansfield argues that the “hauntology” of climate change confronts us with forms of unpredictability and otherness that can no longer be incorporated within Hegelian parameters. For him, climate change represents “the limit of a tradition of philosophy epitomised by Hegel where what can be called the natural can be overcome” (2008, 6). But such views underestimate the potentials of dialectics as a program. The strength of dialectics precisely resides in the awareness of the *inevitability* of the experience of being haunted, challenged and offended by forms of otherness which, initially, may seem impossible to incorporate. Indeed, established parameters (such as Eurocentrism and anthropocentrism, for instance) are destabilised and opened up by painful or even traumatic experiences of negativity, but this is the essence of the dialectical logic (its second moment). Moreover, by speaking about “limits” and “parameters” that are challenged by “otherness,” Mansfield and Morton de facto admit that their reasoning is unconsciously imbued with the dialectical logic, to

a much greater extent than they (apparently) are aware of, or willing to acknowledge, so that, notwithstanding their explicit disavowals, dialectics still contributes decisively to the intellectual horizon or thought-scape of the Anthropocene discourse in which they participate. My line of reasoning is that, although dialectics is evidently challenged by the anthropocenic trauma in a very profound way, and must therefore be thoroughly worked-through and updated, it is precisely because of its fundamental susceptibility to the experience of being challenged that the dialectical method allows us to come to terms with the current predicament. Also, Hegel's controversial claim that the "end" of the dialectical process (the final sublation of negativity) is imminent acquires a new relevance under anthropocenic conditions, as the Anthropocene implies that the current crisis / transition may open up a socio-cultural constellation which is quite unlike the conditions of productivity and development which guided the modern epoch,—but I will return to this issue in the final section.

2. Hegel's Philosophy of Nature

At the dawn of human history, primordial nature must indeed have presented itself to us as what Aristotle (1980) refers to as φύσις, i.e.: that which emerges, comes forward on its own accord, that which has its own inherent principles of movement and change, that which is simply there without our doing: the first "moment" (dialectically speaking) of the human-nature relationship (M_1). In the course of history, however, most notably since the Neolithic era, human cunning developed a plethora of tools and methods bent on mastering nature (Hegel 1970, § 245), as was lucidly articulated in Sophocles' famous chorus in *Antigone*,¹ and this practical intelligence notably enabled humans to use nature's forces *against herself*, so that technology basically represents "negativity" against nature: the second moment (M_2). Under the sway of negativity, nature became a resource for human self-preservation. As natural beings, humans continuously experience instances of lack, such as hunger or thirst, Hegel argues, representing a threat to our self-preservation: a potential "negation" of ourselves by something (the continuous loss of energy and bio-matter) which threatens to consume us. This negation can only be (temporarily) abolished by sacrificing and consuming ("negating") other natural entities; for this allows us to temporarily restore our wholeness. Thus, humans are increasingly able to effectively safeguard their own well-being, at the expense of nature as "other." Yet, as Hegel argues, this negative view entails a rather shallow and utilitarian understanding of our relatedness to nature. Notably, it fails to capture nature *as such*, nature on a grander scale: nature as self-sufficient

and goal-directed, as something which works *through* us and in which we remain firmly embedded. But this recognition (of acting both against *and* in accordance with nature) requires a “sublation” of the (negative) utilitarian understanding into a more comprehensive view, which enables us to comprehend nature as a *process*, and as the self-sustaining ground and soil of our existence. Eventually, the spirit (*Geist*, i.e., the intellectual dynamical force driving human thinking) discerns and recognises itself in the dialectical dynamics at work in nature herself (the “third” moment: M_3), so that science, technology and nature can become reconciled again.

But precisely here, at this third moment, one could argue, a radical shift has taken place since Hegel developed his dialectics. In a pre-anthropocenic situation (notably in agricultural society), nature and technology could perhaps still be reconciled, so that, although particular natural *entities* become damaged, consumed, affected, disrupted, etc. by human activity, nature *as such* remains more or less intact. The Anthropocene challenge, however, addresses a situation in which planetary nature *as such* (life on earth *as such*) has become affected. Nature *as a whole* is being consumed by human consumption; nature *as such* is facing “negation” (a dynamics which will eventually result in human self-negation as well). In other words, the third moment (M_3 , the “negation of the negation”) now seems unattainable, as the second moment (negation: persistence in sheer negativity) becomes rampant and runs adrift ($M_2 \rightarrow | M_3$). The challenge of the Anthropocene therefore is (dialectically speaking) to once again accomplish the envisioned “negation of the negation” (M_3), but now under drastically altered conditions. Somehow, the negative sway of technoscience over nature must be “sublated,”²² so that nature and technology can be reconciled again, on a higher level of societal and technological integration and complexity (allowing us to reach a new plateau as it were).

In other words, whereas the second moment (from the Neolithic revolution onwards) focussed on the *domestication* of nature, the anthropocenic present must rather focus on the domestication of technology itself, on the “domestication of domestication” (the negation of the negation) because, rather than nature, technoscience itself must now somehow be “tamed,” so that nature and technologies can indeed become “reconnected” (Blok 2014). This will require advanced forms of practical cunning, bent on using the forces and dynamics of *technology itself* in order to effectively *subdue* technology (the basic ambition, one could argue, of biomimesis or biomimicry: cf. Zwart, Krabbenborg and Zwier 2015; Blok and Gremmen 2016), but in combination with a philosophical understanding which allows us to envision both technoscience and nature as overarching, interactive, dynamical systems or complex, intimately entangled wholes.

This dialectical pattern can be represented by the following scheme:

<p>M₁: nature as φύσις, basically invulnerable and beyond our grasp</p>	<p>M₂: the era of technology, i.e., the domestication of nature, where human understanding of the basic dynamics of nature is used <i>against</i> nature (technology as the <i>negation</i> of nature) and human interests and nature are increasingly in conflict with one another</p>	<p>M₃: the negation of the negation (the domestication of domestication), i.e., the <i>sublation</i> of technoscience into a bio-compatible (“nature-friendly,” sustainable) endeavour: the basic challenge of the Anthropocene</p>
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Although (as I will argue) this form of dialectical thinking will help us to conceptually address the challenges of the Anthropocene, and although Hegel must be credited with developing this dialectical method for assessing the present (capturing it in thoughts), it is at the same time clear that Hegel himself was not yet a thinker of the Anthropocene, so that his diagnostics of the present must be updated (guided by his own method). This notably becomes clear when we focus on two key issues of Hegel’s philosophy of nature which are highly relevant to our topic: (a) the necessity to see planet Earth as a systemic whole and (b) Hegel’s views on the “end” of natural evolution.

3. Hegel’s (Pre-Anthropocenic) Understanding of Planet Earth

In his *Philosophy of Nature* (the second part of the *Encyclopaedia of the Philosophical Sciences*), Hegel addresses the planetary environment as an “elementary, meteorological process” (1970, § 286), a view which results from his critical assessment of the discrepancies between the insights produced by experimental laboratory research and the real, large-scale meteorological processes of outdoors nature, which seem far too complex to be comprehended in laboratory settings. Initially, modern scientists see nature as a deterministic realm (M₁), a conception which allows them to study water, air, pressure, temperature etc. with the help of laboratory devices (barometers, hygrometers, etc.: M₂) and to establish various causal relationships. Yet, in the real atmosphere, such laboratory equipment is absent, Hegel argues, and laboratory knowledge cannot be meaningfully extrapolated into free nature. It is the conviction of modern experimental science that what happens outdoors in the open should also occur under controlled laboratory circumstances and vice versa, but that is a mistake, as laboratory consistently fails to replicate meteorological processes. According to Hegel, this is due to the fact that these research practices do not really regard atmospheric phenomena as moments *of a whole*, as aspects of a comprehensive planetary process, in which

planet Earth as such is involved as the “universal individual” (*das allgemeine Individuum*, 1970, 155), with a comprehensive metabolism of its own. Science aims to reduce real nature into a limited set of causal relationships, but by so doing it proves unable to realise its goal. Yet this reductionist obsession is nonetheless important because all these (finite, particular) experiments eventually culminate in one crucial *experience* (which is the ultimate *truth* of laboratory science), namely that planet Earth must be regarded as a complex, infinite *process*, a terrestrial *whole*,—an insight which reveals the one-sidedness of the reductionist premises from which laboratory research initially started (M_1). In order to really *understand* nature, science must develop a much more holistic meteorological approach (M_3). In schema:

M_1 : nature as a causal, deterministic realm	M_2 : nature disclosed by laboratory science; reductionism as a negation of nature. But this gives rise to chronic anomalies and frustrations: the inability of laboratory science to really comprehend <i>real</i> (outdoors) nature	M_3 : The “truth” of this reductionism (the negation of the negation): the awareness that planetary nature must be regarded as a whole, a terrestrial system; in Hegel’s terminology: a “meteorological” process.
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One could argue that, in present-day meteorology, relying on big data, big computers and climate modelling, this “holism” (M_3) already promoted by Hegel, has finally been achieved. Researchers are now studying the metabolism of Earth as such. In *in silico* experiments and climate modelling programs, the complex and apparently capricious dynamics of climate and weather is finally opened-up by technoscience. At the same time it is clear that, *precisely at this point*, something has dramatically changed. It is precisely here, in the context of these new and powerful research practices, that a disconcerting truth is revealed, namely the awareness that, when it comes to weather and climate, we are no longer facing a purely “elementary” process, as envisioned by Hegel (as a pre-anthropocentric thinker), but rather a geochemistry (a “meteorology) which has become dramatically and irrevocably tainted by human influence, so that human activity *itself* has now become a decisive, “elementary” factor. Indeed, in contemporary climate research, (the spirit of) technoscience is basically monitoring *itself*: technoscience is monitoring the impact of (the spirit of) technoscience.

Moreover, although Hegel decidedly urges us to see planet Earth as an individual, that is: as a whole, he is not a precursor of Gaia theory. For Hegel, planet Earth is essentially a petrified being, a gigantic, gleaming, spheroid amalgam of crystals and brittle, not *really* a living organism. Rather, as he phrases it, planet

Earth is *implicitly* alive: as the ground and soil of life as such. On the planetary level, the general terrestrial process remains a meteorological process (1970, 289), the dynamical and comprehensive end-result of a plethora of (finite, local, chemical) micro-processes. Whereas other substances are dissolved in these processes, the Earth as such cannot itself become consumed or dissolved, but continuous to persist. Therefore, the chemistry of planet Earth (of terrestrial nature) is “meteorology” (291), the inorganic geochemistry of nature as a whole. Hegel sees the earth decidedly as a frame of life, even as an “individual,” but not yet a “subject,” for the earthly super-individual lacks self-awareness. It is a paralysed, frozen, petrified form of life (§ 337). Still, the Earth must be conceived as a totality, and its global process is perennial.

In the countless chemical processes that are actually taking place on this planet, Hegel discerns a “semblance” of life (§ 335). An *implicit* vivacity is at work in planetary existence, but it realises itself in something else, namely in the life forms, the living organisms which are sustained by the earthly system. In contrast to the (finite, inorganic) chemical processes, organisms are described by Hegel as self-sustaining processes (§ 336). Whereas inorganic substances are continuously exposed to transformative pressures, living beings (although exposed to similar external dangers, to “negating otherness”) prove able to endure the tension, so that they persevere, and even reproduce themselves. Planet Earth on the other hand is not an organism, and does not reproduce itself, but nonetheless sustains herself (§ 339).

Again, one could argue that, although Hegel himself was not yet a thinker of the Anthropocene, his dialectics allows us to articulate what is currently at stake. First of all, under anthropocenic conditions, the earthly process *as such* can no longer be regarded as infinite or self-contained. The ground and soil of life can no longer be taken for granted and may even be made uninhabitable. This awareness, one could argue, has become a planetary form of self-awareness, taking shape in the form of the Anthropocene-debate. As if, in the face of the possibility of annihilation, the Earth becomes a planetary “subject” (capable of reflection and concerted action) after all. And precisely at this moment, the option of planetary self-reproduction emerges as well, namely the idea of transporting terrestrial life to other planets, whose surfaces and atmospheres may now become infected or fertilised with life (as Earth has become exhausted and “consumed”); for instance in the form of *terraforming Mars*.

4. Hegel's and the end of evolution

A similar revivification may apply to Hegel's highly controversial (Wandschneider 2002; Houlgate 2005) views on evolution. On the one hand, Hegel sees the successive geological formations disclosed by modern research as evidence of the "massive changes" and "tremendous revolutions" that must have occurred in a distant geological past (1970, § 339). Yet, for Hegel, these processes have now come to a stand-still more or less and he explicitly rejects the idea of an on-going evolution of species. Indeed, he even regards fossils (notably shells discovered in older geological strata) as petrified remnants of faltered experiments: the debris of previous efforts of nature to forge organic forms (359). Elsewhere (§ 367), however, Hegel explicitly acknowledges that organisms (both as individuals and as species) adapt themselves to external environmental circumstances (both biotic and abiotic), so that the original type may become modified in various directions. In other words, he acknowledges the plasticity of life (cf. Malabou 2005) in response to environmental pressures.

Although Hegel's views on evolution (here and elsewhere) may be regarded as fairly ambivalent or even self-contradictory (endorsing geological change and adaptation on the one hand while explicitly denying the idea of evolution on the other), his arguments gain an unexpected coherence when reconsidered backwards in time, from an anthropocentric perspective, namely by arguing that, whereas (extremely slow) geological (abiotic) and Darwinian (biotic) evolution has taken place in the past, in the present situation these processes are eclipsed and overtaken by technoscience. Darwinian evolution continues no doubt, on its own timescale and in its own super-indolent pace, but will increasingly be overshadowed by the rapid and dramatic transformations unleashed (directly and indirectly) by modern technology, so that Darwinian evolution *de facto* becomes increasingly irrelevant. Compared to the extremely high pace of self-directed, technology-driven processes of selection, extinction, migration, adaptation and even creation (the production of neo-life by synthetic biology, fuelled by the anthropocentric transition), natural random evolution becomes something marginal (with the exception of viral evolution). In other words, the anthropocentric present basically represents the "end" of (Darwinian) evolution: the end of *natural* history, not in the sense that this type of change no longer happens at all, but in the sense that it is bound to become marginal and irrelevant, because its impact is dwarfed and eclipsed by the much more immediate and dramatic impact of anthropocentric processes unleashed by technoscience,—ranging from pollution, climate change and ecological dis-

ruption up to synthetic biology, biological enhancement and the production of neo-life –, which irrevocably affect the present conditions and future prospects of life on Earth.

This also concurs with the finale of Hegel’s philosophy of nature, where he states that the spirit increasingly recognises itself in nature (1970, § 376). Via technoscience the spirit incessantly absorbs the processes of nature it uncovers, sublating them into something which is rational, technological and artificial (denaturalising the technologies and processes of nature, resulting in processes of bio-technical or techno-natural hybridisation. Moreover, while there is recalcitrance at work in nature when it comes to realising its own possibilities and concepts, the spirit (in the form of technoscience) may now attempt to break this cycle of natural “inadequacies” (the violence, suffering, waste, etc. entailed in natural existence) by self-consciously bringing forth what is implicitly inherent, but not actually realised by nature: by drastically enhancing (or as Hegel phrases it: “sublating”) nature.

By developing such an argument, however, we are not “applying” Hegel, but rather extrapolating Hegelian dialects into the present. To further extend this bridge, leading from early nineteenth century dialectics into the current debate, I now will shift attention to the work of a dialectical thinker who explicitly reflected on (the past, present and future of) evolution in the era of technoscience, namely Teilhard de Chardin.

5. Teilhard de Chardin’s Palaeontology of the Future

Allow me to begin this section on an autobiographical note. In the 1970s, when I was a high-school student (in the most southern and therefore most Catholic part of the Netherlands), Teilhard de Chardin was a very prominent name. My father (a technical engineer) insisted I should read him, but I preferred to expose myself to Jean-Paul Sartre, Karl Marx and Hegel instead. For many years, some of his books were patiently waiting for me on a bookshelf, and occasionally I did glance through *Le Phénomène Humain*. When I finally started reading him in earnest, in the summer of 2015, I was dumbfounded. Not only because Teilhard is one of those rare authors whose oeuvre opens up a universe of its own, but first and foremost because I realised that I had hardly ever encountered an author whose thinking is so radically *up to date*, and so decidedly focussed on the topic of this special issue: the challenge of the Anthropocene. It is dialectics on the individual micro-level as it were: the experience of finally addressing a different, haunting voice (ignored for too long) spurring us to broaden our perspective and work our

way towards a new plateau. Although Teilhard does not literally use the term (and would have preferred the term “noocene,” but I will come to that) his thinking was clearly moving in this direction, as indicated by sentences such as: “The future will decide what is the best name to describe the era we are entering. The word matters little. What does matter is that we should be told that life is taking a decisive step, in us...” (1959b, 214). Being much less famous than Hegel, however, some words of introduction may be in order.

Teilhard de Chardin came from a Catholic aristocratic background (he was actually born in a French castle), was ordained a priest in 1911, joined the Jesuit Order, survived World War I (as a stretcher-bearer, distinguished with the Legion of Honour for bravery), was involved in the discovery of “Peking Man” (*Homo erectus*) in China in the 1920s, became entangled in a conflict with his Jesuit superiors (over pantheism and the concept of original sin), and died in New York (in exile more or less). Although Teilhard de Chardin was first of all a paleoanthropologist, he was a highly trained philosopher and theologian as well. When his writings were published (shortly after his death, because his Jesuit superiors forbade him to do so himself during his lifetime), he quickly became an intellectual celebrity. Currently, he is not only credited with having anticipated Gaia theory (King 2006), the global village concept (McLuhan 1962), Internet (Barlow 1992; Cobb 1998), the WWW (Garreau 2005, 256; Greenfield 2014, 9), transhumanism (Steinhart 2008; Delio 2014) and the “global brain” (Stock 1993), but he is also widely regarded as a thinker of the Anthropocene (e.g., Crutzen 2002; Steffen et al. 2011; although Hamilton and Grinevald (2015) challenge this claim).

6. Self-Directed Evolution and Its Discontents

In *The Phenomenon of Man* (and elsewhere) Teilhard (1959b) argues that a direction, an orientation, an axis, a line of progress can be discerned in evolution, namely towards increased complexity and interiority (8), towards integration and sublimation (180), towards self-consciousness and self-directedness. Teilhard was aware, of course, that such claims are bound to trigger disavowal among scientists (notably biologists), as well as among (analytically inclined) philosophers;—as is reflected in the symptomatic review of Teilhard’s *The Phenomenon of Man* by Medawar (1961), who basically accuses the author of siding with “German Naturphilosophie,” which apparently is considered a perpetration.³ And yet, Teilhard convincingly argues that human beings represent the moment in time when evolution is becoming “conscious of itself,” and therefore increasingly self-directed (20, 126). Indeed, humans are able to consciously reorganise the conditions of

their own evolutionary development on an unprecedented scale. Whereas animals adapt to environmental challenges via learning (Baldwin 1896), humans, Teilhard argues (1959b, 168) not only learn, but *know* that they learn, and *how* they learn, and how they may *improve* their capacity for learning. This has brought us on the verge of a crucial moment in the history of life, Teilhard claims, as humanity has entered an era of planetisation (Zwart 2016). Dialectically speaking, current humanity represents the final transition from a more or less implicit awareness of the mechanisms of evolution in animals and other life forms (M_1), via a self-conscious manipulative understanding of these mechanisms (putting them to work on behalf of anthropocentric self-interest: M_2), up to assuming full responsibility over the future course of evolution as such, thereby radically sublating the boundaries between the “natural” and the “artificial” (M_3), giving rise to synthetic hybridisation.

But it is precisely here that relentless acceleration suddenly gives way to hesitation and reflection, to a sense of disquiet or even terror, Teilhard argues, for we seem definitely unable to live up to the daunting challenges and responsibilities entailed in the present situation, which is without precedent in the history of life ($M_2 \rightarrow | M_3$). We suffer from collective psychic disorientation and, more than at any other moment of history, from a fundamental anguish of being. Something terrible is confronting us, and we are taken aback by the enormous responsibilities which are opening up in front of us. Something seems “more than ever lacking” (1959b, 227) as we wake up to the fact that the biosphere itself is now becoming thoroughly humanised. Somehow, however, we must reconcile ourselves with our assignment, and our uneasiness (1959b, 228) must be transformed into thinking and foresight. Building on a solid diagnostics of the current crisis and its key symptoms (1959a, 329), the palaeontology of the past must change its focus and become a prognostic palaeontology of the future (1959a, 82), using our ability to discern the basic dialectical pattern in past events to understand what is ahead of us, so that dialectics may become our guide.

7. Emergence of the Noosphere

3.5 billion years ago, planet Earth (the primordial geosphere) gave rise to a diffuse super-organism, a living film: the biosphere, a green layer covering the abiotic geosphere (1959b, 94). And currently, Teilhard argues, we are on the verge of another decisive turn. Via global human activity, a new layer is added, over and above the other spheres (i.e., the abiotic, inorganic geosphere and the biotic, organic biosphere), namely the noosphere, the “thinking layer” (derived from the Greek term νοῦς: i.e., “mind” or “intellect”) which, besides noetic processes and activi-

ties (thinking, calculating, modelling, communicating, deliberating, etc.), also involves noetic products (technologies, devices, cultures, infrastructures, computers, industrial plants, airplanes, and so on. It is distributed intelligence: a technological materialisation of Hegel's objective spirit, conceived as an extended, externalised and institutionalised structure on which individual intelligence, autonomy and creativity to a large degree depend (Boldyrev and Herrmann-Pillath 2013). The noosphere evolves into a quasi-autonomous planetary network of advanced technologies and global circuits.⁴ Humans are obviously animals, and yet we represent a discontinuity, a leap, a crisis, a metamorphosis, an awakening, giving rise to the emergence of the noosphere, the thinking layer, relentlessly transforming and absorbing the geosphere and the biosphere, and one day (perhaps sooner than we think) we will be able to create artificial life (1959b, 249). Thus, the noosphere represents a conscious reshaping of the world, an epochal transformation affecting the entire planet. Indeed, it may even amount to an exhaustion of the earth and a frantic desire to invade other planets.

Evolution and selection, for instance, are being transposed from the biosphere into the noosphere, leading to the emergence of neo-life (1959b, 250). In laboratories, life is becoming technologically reproducible. For Teilhard, all this is not *due to* us, and his views should not be considered as anthropocentric. Rather, something has come *over* us, realising itself *through* us, something akin to Hegel's spirit, of which technoscience is the final culmination. What we currently experience is not a situation of human autonomy or mastery, but rather of "excentration," as Teilhard phrases it (1959a, 30), and the unfolding of the noosphere entails the destruction of human egoism and self-centredness (1957, 93). Rather than being the centre of the universe, humans act as carriers or vectors, pointing towards a future which is predictable in outline (1959b, 224). Heredity is now transplanted from the biosphere into the noosphere. Molecular "characters" (such as A, C, G and T, etc.: 226) are entering a new, technological milieu, as passive heredity is assuming a noospheric form. Life is transformed into concepts, and (in vivo) bio-molecules transmute into (in silico) symbols (247), so that heredity itself becomes hominised. Again, contemporary humanity represents the point in time when evolution and heredity become conscious of themselves, due to our ability to decipher, transform and rewrite the "characters" of life. Or, as Hegel already phrased it, the spirit is now able to recognise (read, discern, etc.) its own logic in the "noumenal" essence of living nature disclosed by technoscience. Passive, slow and natural evolution is sublated into a conscious, accelerated and systematic global endeavour. The artificial is now carrying on the work of the natural, and the

transmission techniques of a literate culture (i.e., techniques reading, editing and rewriting libraries of symbolic materials) are superimposed on genetic heredity. Conscious biomedical and moral considerations replace the randomness of natural selection. Life itself has brought into the world a power capable of criticising and improving it, and we are now awakening to the idea of a proactive, synthetic, humanised idea of evolution. And collective practical intelligence may now use these very technologies of disruption in order to transform technology itself, so that the “laboratories” (1959a, 128, 129) of nature and those of technoscience become reconciled, and technoscience becomes bio-compatible (in dialectical terms: $M_2 \rightarrow M_3$).

Precisely at this point, Teilhard has been criticised for giving in to techno-euphoria. And these critics include another prominent dialectician (a contemporary more or less), namely Jacques Lacan. In his *Écrits*, while explicitly referring to Teilhard, Lacan argues that humankind has indeed “hominised” the Earth, but first and foremost by *polluting* it (1966, 684). We humans left behind a vast trail of waste and garbage, of high-tech excrements, everywhere we went. How could Teilhard, a palaeontologist, in his optimism forget this? Moreover, now that the tiny symbols, the little characters and equations of quantum physics and molecular biology indeed allow us to manipulate nature, and even to enter the wider universe (via spacecraft), its Pascal-like immensity and silence no longer frighten us, seeing that we have begun to drop our garbage (our *noo-debris*) there as well. Indeed, the ability to ruin the earth, to destroy all life forms, including human life itself, would be a real “triumph,” a real testimony of human “superiority” over other life forms (Lacan 2005, 75).

But Teilhard’s response to this type of criticism is that, precisely in order to move away from the disruptive negativity of technology (M_2), we must develop a form of “hyper-consciousness” and “hyper-technology” (M_3). Without collective, concerted, planetary action, the negativity of rampant, unleashed technology will indeed increasingly disrupt both the geosphere (“climate”) and the biosphere (“biodiversity”), so that planet earth will run aground in tensions, contradictions and frustrations (M_2), a situation which must definitely be sublated. But this requires significant transitions on the side of the “spirit,” the “noosphere” as well. Research and reflection must become organised on a planetary and, indeed, industrial scale (where laboratories become factories and vice versa), via processes or global super-organisation (1959b, 283; 1959a, 145, 152) and collectivisation (1959a, 218, 290), or even “collective cerebralisation” (1965, 202), involving networks (e.g., the Internet) which turn abiotic matter into thinking systems (1959b,

251) and in which human brains (the final product of evolution) become increasingly entangled (1959a, 105). The noosphere must evolve into a global network, a collective memory and intelligence of humankind, a spherical thinking circuit, a “brain composed of brains” (1959a, 134), enabling distributed, transdisciplinary forms of analysis and synthesis, in order to live up to the requirements of the future. We are pushing and pushed forward, towards a superior, collective form of intelligence, a new conceptual reality of pan-human discovery, reflection and intervention, bent on reconciling technoscience and nature on a higher level of complexity, and involving global humanity as a whole: a truly *opus humanum* (1959a, 31). The noosphere, Teilhard predicts, will converge into a single system, a collective, planetary, electronic “super-consciousness” (1959a, 95; 1959b, 251).

There will be new risks involved in this no doubt, such as the risk of being overwhelmed by a superabundance of knowledge, by an explosive acceleration of noogenesis, which relentlessly moves in a direction which is juxtaposed to entropy (1959a, 93) and is now curving upwards towards “hyper-reflection” (1959b, 259). And here, Teilhard’s vision again takes a Hegelian turn, arguing that, instead of being at the mercy of our limited anthropocentric resources, the “spirit” will provide guidance on our irreversible ascending (1959b, 273) towards illumination and convergence (of research and thinking). In the “nadir” of the crisis, we sense a possibility of escape. Under the sway of the spirit, we may proceed, spiralling towards the Omega point, the “supreme synthesis” (1959a, 140), the final moment of convergence, reconciliation and unification (i.e., Teilhard’s version of the Hegelian dialectics of the spirit), where God and evolution no longer constitute two antagonistic centres of attraction (M_2), but rather enter into conjunction (M_3) (1959a, 94). In other words, towards the final act of the global drama, Teilhard’s thinking becomes increasingly theo-compatible and theo-logical. Let us have a closer look.

8. The Omega Point and the Wager

How to understand (and make) this final leap towards convergence, planetary reflection and action ($\rightarrow M_3$)? Teilhard, the veteran from the trenches, refuses to put his faith in human politics alone. He sees existing political ideologies as inadequate or even disruptive (M_2). They either focus excessively on individual self-interest (liberalism), or endorse a top-down statist understanding of collective action (reducing human beings to human resources, as in capitalism and communism), while the third alternative (fascism) is guided by Neolithic-agricultural ideals (albeit blending its nostalgia with hyper-technological futurism: 1965, 82).

Teilhard was a strong supporter of bodies such as the United Nations and UNESCO (1959a, 292) as exemplifications of post-political politics, taking us beyond national and ideological divides: a “negation” of politics in the traditional sense, and a “sublation” of politics towards action and reflection on a planetary scale. But again, even such global, “Areopagus-like” councils are in need of spiritual guidance from elsewhere, in order to avoid becoming mere instruments in the hands of particular ideologies, interest groups or blocs. For Teilhard, politics as such is destined to remain imprisoned within a constrained horizon. Or, as Heidegger once phrases it (his final words more or less): only a God can save us. Compared to Hegel, Teilhard’s thinking reflects the era of existentialism, emphasising the chaos: the absurdism of the real, which also infects human activity, thereby articulating a loss of self-confidence, engendered by the trauma of the trenches and similar collective experiences. Therefore, for Teilhard, the leap into a post-traumatic socio-cultural constellation would be unthinkable without the support and guidance of the Other, *drawing* us into this future, and for the catholic thinker Teilhard this Other is Christ.

Like Hegel’s dialectics, Teilhard’s conic topology (seeing history as a cone-shaped structure spiralling towards the Omega point, in a direction juxtaposed to entropic dissipation, 1957, 136) is decidedly religious. After pre-modern geocentrism (M_1) and modern anthropocentrism (M_2) we now recognise, Teilhard argues, that the dynamics of life and history displays a conic structure (M_3) (1959a, 101). But in order to be able to make the final leap and steer away from the “abys” (1957, 188) of catastrophic destruction, this “cone” of history (1965, 56, 62) must be *pulled* in the right direction ($M_2 \rightarrow M_3$), towards the Omega point: the “end,” the fulfilment (*πλήρωμα*) of evolutionary history and the beginning of a new era (*καινόζ*) of convergence, with the unsettling (anthropocenic) present as a critical transition stage. Whereas modern science focussed on “analysis” (i.e., breaking down natural entities into elementary particles of life and matter), faith is basically about “synthesis” (1965, 45), eventually giving rise to a veritable “synthesis of the spirit” (1965, 59). But this requires guidance provided by Something or rather: Someone.

In a secular, postmodern, neoliberal ambiance, most readers (notably academic readers) will feel uncomfortable with the decidedly religious fervour of Teilhard’s thinking. Science and philosophy claim to have emancipated themselves from religious creeds (even if the vast majority of the six billion human inhabitants of planet Earth consider themselves as religious). But here again, Teilhard argues that, also where science and religion are concerned, integration or reconciliation

must be strived for. While in the past we have indeed moved from a theocentric worldview (M_1) towards a techno-scientific one (M_2), seeing science and religion as opposites, the Omega point involves a sublation of the science-religion divide as well ($M_2 \rightarrow M_3$), so that science and religion increasingly absorb one another. During the second moment of this dialectical process, modernism and Enlightenment evolved (or degraded if you like) into neo-liberalism, postmodernism and technocracy: the symptomatic ideological “super-structure” of the current crisis. But when it comes to moving away from the Anthropocene towards the Omega point,⁵ a radically different constellation is needed. And here Teilhard invokes one of the highlights of the debate between religious faith and scientific rationality, namely Pascal’s famous “wager.”

On the one hand, Teilhard argues, we see scepticism, pessimism, alarmism and defeatism among those who refuse to believe in sublation as an option, and who continue to see progress as a myth (1959b, 232). But for Teilhard, this is unacceptable because it would mean that all spiritual momentum would virtually be brought to a stop. The impetus of culture would disintegrate into nausea and revolt. On the other side, there are those who, while having experienced “the sickness that disquiets us” (232), nonetheless believe in the possibility of transformation. For them, a way out, an opening exists, the sublation of solitary thinking into the emergence of a trans-personal “super-soul” (233). Between these two alternatives (of “absolute optimism” versus “absolute pessimism”) there is no middle way. There are only two directions, one upward and one downward, like in Pascal’s wager: all or nothing. We *must* choose, we cannot refrain from choosing, for we are already in the game.⁶ What will we decide? Although a turn for the better may seem highly improbable in the current situation of disruption, it becomes a probability once we consider the possibility of spiritual guidance. For Teilhard, moreover, the leap forward, out of the current crisis, would not be the first “improbable event” in the history of life (1959a,86; cf. De Duve 2002, 173). What is more, we cannot afford *not* to move in this direction. While the negative option will certainly lead to failure, the positive option (improbable as it may seem) may nonetheless succeed, and therefore must be waged. This means that Teilhard would definitely support climate summits for instance, such as the 2015 Paris climate conference, as efforts to build a global consensus, and as moments of convergence of politics and research, but at the same time he would argue that such initiatives must be regarded as preparatory exercises, for the drastic transitions that are required of us (to stop world-wide ecological disruption and sublimate current practices into the radically sustainable future of “neo-time”: 1959a, 103), will involve a collective experience

of global conversion,⁷ the emergence of a new form of consciousness, a transmutation of the general structure of the “spirit” (1965, 170). Not coincidentally, Pope Francis (a significant voice in the current discursive landscape) endorses and conveys a Teilhardian view in his campaign against the destruction of the global environment, which has turned the planet into a “polluted wasteland full of debris, desolation and filth” (*The Guardian*, September 1 2016). Only re-spiritualisation on a global scale (as a final sublation or synthesis) can overcome human deficiency and lack (1959b, 253). This cannot be brought about by rationality, diplomacy and (enlightened) self-interest alone.

9. Conclusion

According to Hegel, laboratory science (emerging around 1800) failed to comprehend planet Earth as a holistic process, a metabolic, geophysical system. In the current era, the drive towards reductionism seems sublated into scientific appreciations of complexity. But precisely now, we realise that a new factor has pervaded the outdoors mega-laboratories of global nature. The radicalisation of techno-scientific negativity has unleashed a global process of disruption. And in its efforts to monitor the evolving cataclysm (climate change, loss of biodiversity, ecological disruption, etc.), the spirit of technoscience is actually monitoring (the impacts of) its own activities. Now that we are heading towards the nadir of negativity (in terms of socio-ecological devastation and mass extinction), the possibility of a spiritual turn or pull towards synthesis and sublation may seem more inconceivable than ever. But rather than bemoaning the present or seeing ourselves (misanthropically and self-derogatorily) as a barrier to change, dialectics spurs us to play an active and dialectically-informed role, in a post-egocentric fashion. In terms of Kant’s third question, this is what we may hope.

The *United Nations Climate Change Conference* (aptly referred to as climate “summit”) held in Paris in 2015 (two centuries after Waterloo), exemplifies this dynamics, as a moment of convergence and gathering on the international political level which inevitably provoked its ‘negative,’ its counter-acting contradiction, notably in the form of the recent Executive Order issued by President Trump (on March 29, 2017), which was subsequently countered by the State of California, using this Presidential pass as an occasion to position itself as the fifth economy in the world, but primarily as *the* place on the planet where climate hope materialises into technoscience, to paraphrase Friedrich Engels (1880; cf. Zwart 2009): the negation of the negation. It is the ambition of dialectics to discern the deeper logic spiralling in this game of contradictions.

In order to break the cycle of negativity and inadequacy, we must sublimate destruction and contradiction (between technology and nature, ego-centricity and globalisation, science and religion: M_2) and work towards reconciliation, on three levels. First of all (a), after disclosing the noumenal, biomolecular essence of life, technology must now become decidedly bio-mimetic and biocompatible (Zwart, Krabbenborg and Zwier 2015; Blok and Gremmen 2016). Subsequently (b), reflection itself must become increasingly distributed and collective (rather than solitary, as in the Hegel era), building on electronic networks (the Internet, for instance, as a global Areopagus). And finally (c), both Hegel and Teilhard argue that a reconciliation of rationalism and spirituality must be part of this endeavour as well. From a dialectical perspective, the Anthropocene constitutes a transitory crisis which must be sublated into the *noocene*, i.e., the era of the intellect or spirit, transcending the inadequacies and biases of restricted, anthropocentric strategies, seeing human activities and experiences as part of a broader global movement of life itself towards a new plateau, and regarding the Anthropocene as the *end* rather than as the hubristic *climax* of anthropocentrism.

This is the new “spirit” of history, emerging in the present socio-cultural and ecological constellation. Like the concept of “autonomy” (coined for the first time in the tragedy *Antigone*) had to *realise* itself in history, the concept of “responsibility” (articulated by Jonas and others) must actively realise itself as well, notably on the collective and global level. And whereas the modern human striving for autonomy became increasingly haunted by the alterity of nature (revealing the ecological constraints imposed on human emancipation), responsibility purports to reconcile both dimensions by advocating forms of progress which promote sensitivity to and compatibility with natural dynamics. But dialectics does not imply the complete absorption of the biosphere by the noosphere. Remember that also the biosphere itself far from entails a complete absorption of the abiotic geosphere either. Life is not completely able to sublimate or incorporate the chemical mayhem of its surrounding (the abiotic real) into the web of life. Rather the geosphere (albeit affected by the biosphere) continues to persist, and the same goes for the (partial) absorption of biosphere and geosphere by the noosphere. This is for instance reflected in the well-known mind-body problem: while becoming a noospheric species (thereby representing a transition, a leap: a moment of awakening as Teilhard phrases it) we nonetheless remain a biological species as well, so that alterity, otherness, recalcitrance, entropic brittle, debris, frictions, etc. continue to exist. The noosphere likewise emerges as a web-like constellation, and otherness will never be completely incorporation and transformed by it. The nooscene does

not imply a complete *Aufhebung* of alterity, and they will continue to co-evolve. The term responsibility implies the ability to *respond* to a critical situation that is *addressing* us, probing our readiness to respond to the summons (coming from the Other) to become part of the future, or part of the debris. In the latter case our role in the dialectical process would be “finished.” And indeed, if we fail to become part of the turn we may eventually subtract ourselves from the moral equation, so that biosphere and noosphere evolve in the absence of humans.

Notes

1. οὐδὲν ἀνθρώπου δεινότερον πέλει (“Nothing more unsettling than human-kind”; *Antigone* V. 334; Hegel 1970, 13).

2. “Sublation” is the usual translation of the Hegelian concept *Aufhebung* (= to take up, to reconcile, to abolishing the contradiction).

3. Medawar’s polemical review (1961) notably tries to ridicule Teilhard’s “tipsy-euphoric prose-poetry,” written “in the tradition of German Natur-philosophie” which, according to Medawar, “failed to contribute anything of permanent value to the storehouse of human thought” (99).

4. Compared to Hegel’s objective spirit, the noosphere concept emphasises the technicity, materiality and globalism of the emerging networks. Compared to the *technosphere* concept (the non-anthropocentric view that technology is a quasi-autonomous global phenomenon that follows its own dynamics and represents a new paradigm of Earth history: technology as the next biology, Haff 2013), the noosphere puts more emphasis on thinking and spirituality.

5. Representing human individuals as *i* results in a Teilhardian dialectical matheme: $i \rightarrow \Omega$ (1959a, 83).

6. Or as Teilhard phrases it elsewhere: no one can afford to remain indifferent towards the changes which are already taking place in the apparent calm of our laboratories (1965, 170).

7. Cf. Peter Sloterdijk who, in the final lines of *You must change your life*, advocates the development of a global, planetary, incorporating, network-like macro-structure, so that the current helpless planetary amalgam becomes a robust unity, taking over the role previously played by world religions, while humanity becomes a political concept (2009, 713).

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