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Saving Earth: Encountering Heidegger's Philosophy of Technology in the Anthropocene

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Abstract: In this paper, we argue that the Anthropocene is relevant for philosophy of technology because it makes us sensitive to the ontological dimension of contemporary technology. In §1, we show how the Anthropocene has ontological status insofar as the Anthropocenic world appears as managerial resource to us as managers of our planetary *oikos*. Next, we confront this interpretation of the Anthropocene with Heidegger's notion of "Enframing" to suggest that the former offers a concrete experience of Heidegger's abstract, notoriously difficult, and allegedly totalitarian concept (§2). In consequence, technology in the Anthropocene cannot be limited to the ontic domain of artefacts, but must be acknowledged to concern the whole of Being. This also indicates how the Anthropocene has a technical origin in an ontological sense, which is taken to imply that the issue of human responsibility must be primarily understood in terms of responsivity. In the final section (§3), we show how the Anthropocene is ambiguous insofar as it both accords and discords with what Heidegger calls the "danger" of technology. In light of this ambiguity, the Earth gains ontic-ontological status, and we therefore argue that Heidegger's unidirectional consideration concerning the relation between being and beings must be reoriented. We conclude that the Anthropocene entails that Heidegger's consideration of the "saving power" of technology as well as the comportment of "releasement" must become Earthbound, thereby introducing us to a saving Earth.

Key words: Anthropocene, technology, Enframing, Earth, Heidegger

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1. The Anthropocene Is at Hand

Although the concept of the Anthropocene was first developed in the scientific fields of geology and Earth-system science, it was never a purely disinterested, descriptive account, but included an explicit prescriptive dimension. Descriptively, the Anthropocene indicates the geological epoch in which the activity of industrialized humanity becomes the dominant factor in shaping the Earth and its life-supporting systems (Steffen, Crutzen, and McNeill 2007). Supplementing the Holocene, in which the (relatively warm) climate was considered to be the central geological factor (Crutzen 2002), the Anthropocene places human activity in the centre, and thus marks the time in which "natural forces and human forces [are] intertwined, so that the fate of one determines the fate of the other" (Zalasiewicz et al. 2010, 2231). Prescriptively, the Anthropocene takes account of how humanity faces the perilous situation in which the ecological aftermath of Earth-shaping threatens the very existence of our species (cf. Baskin 2015, 13). Issues like global warming, deforestation, pollution, reduction of biodiversity etc. appear to us both as consequences of our activity qua geoforce and as an urgent and inescapable demand to take responsibility for the faltering sustainability of the planet as life-support system. We call this the ecological demand of the Anthropocene, since it concerns the *oikos* of the anthropic geoforce which will become uninhabitable unless we manage it differently.

In his review of the concept of the Anthropocene in geology and Earth-system science, Jeremy Baskin recognizes the pairing of descriptive and prescriptive dimensions (2015, 22) and shows how responses to the ecological demand follow a paradigm of management:

> In almost all of the major accounts of the concept it is assumed that [the Anthropocene] requires a trinity of techniques: clear *management* of the Earth and Earth-systems, guided by *experts* (and scientists/engineers in particular), using the most advanced *technology* possible (including large-scale technology). (Baskin 2015, 20)

Examples of this paradigm of management include Paul Crutzen and Christian Schwägerl, according to whom "we should shift our mission from crusade to management, so we can steer nature's course symbiotically" (2011; cf. Crutzen 2002) or Erle Ellis who states that "in moving toward a better Anthropocene, the environment will be what we make it" (2013; cf. Baskin 2015, 14).

This paradigm can also be witnessed in various (critical) discussions of the Anthropocene in social science and the humanities. For instance, the concept of the Anthropocene has been criticized for its hidden normative agenda. The general "anthropos" not only excludes non-humans, but is modelled after a particular group of humans, namely the western, rich, excessively carbon-footprinted specimen (Baskin 2015, 16; cf. Latour 2014, 5). As a result, it appears that decisions regarding how to deal with the Anthropocene's ecological demand (e.g., via large-scale geoengineering projects) are also limited to this select group of humans and exclude other humans and non-humans. Such a critique is oriented towards management insofar as it criticizes one form of management whilst calling for a more democratic way of managing the Earth—where the associated "demos" is not necessarily anthropocentrically limited (cf. Harraway 2015; cf. Lorimer 2016).

A similarly oriented critique holds that the Anthropocene should not have been named after humans, since "humans as such" are not responsible for the state of the Earth, but that it is primarily capitalism that first connects humanity, fossil fuels, and technologies in a way that now shows its geological and ecological ramifications. Accordingly, the name capitalocene is deemed more appropriate (Moore 2016; cf. Latour 2014, 7; cf. Morton 2016, 3–61). This can be understood as a variation on Marxist "suspicion of ideology," where an abstract idea (e.g., Reality is the result of anthropos in general) is brought back to a material substrate, i.e., a particular politico-economical force field. Such a critique is (unquestioningly) oriented towards management insofar as it calls for a reconfiguration of this force field in dealing with the ecological demand.

As a final example, various ethicists have developed ways to deal with the ecological demand of the Anthropocene in a normative way, for example by arguing for a less anthropocentric and more ecological way of dealing with other species, by laying bare the normative dimension of carbon footprints (Shue 2010), or by making a case for demographic management (Collings 2014, 173–88). Such contributions are oriented towards management insofar as they sketch out new ways of managing our existence on the planet, including its normative dimension.

The coupling of descriptive and prescriptive dimensions in both the natural scientific account of the Anthropocene (geology, Earth-system science) as well as in the humanities (social science, political science, economy, ethics) brings to light the following philosophically relevant characteristic of the Anthropocene: humanity now appears as a geoforce intertwined with other natural forces, and reality conversely appears as a configuration of geoforces (including the anthropic geoforce) that, due to the ecological demand, urgently needs to be managed by us

in order to safeguard our habitat. This managerial orientation envelops the whole planet and the identities of all its inhabitants, whereby these identities appear in a remarkable way due the pre-eminent Anthropocenic phenomenon of global warming. Timothy Morton makes this clear by interpreting global warming as a "hyperobject" (2013), which is to say as something that inescapably environs and permeates all Earthlings.[1] His observation that in any routine conversation about the weather today, "the presence of global warming looms into the conversation like a shadow" (2013, 99) explicates this inescapability.[2] With respect to the identities of Earthlings, this means that whereas a tree was formerly understood as a perishable instance of an eternal and fixed idea or form (Plato, Aristotle), or as *ens creatum* in a divinely instituted natural order of things (medieval philosophy), it is now inescapably environed by global warming and therefore appears as resource that must be managed, e.g., as carbon-source or carbon-sink.[3]

Similarly, whereas humans were formerly identified as terrestrial beings equipped with extra-terrestrial, viz., transcendent qualities, e.g., the rationality of the animal rationale, such rationality now appears telluric, which is to say as an expression of the anthropic geoforce, immanent to the collective geo-forcefield.[4] In other words, rationality no longer merely appears *on* Earth as a manifestation of a transcendent essence, but decidedly appears *as* Earth (cf. Blok 2017, 5). It is thereby inescapably bound up with global warming, both as its source and potential remedy, thus revealing the human identity as anthropic geoforce and planetary manager.

These shifts in identity bring the managerial dimension of the Anthropocene under consideration in a way that is not primarily situated on the level of things (whether subjective or objective, human or non-human), but first concerns the way in which things appear to us, whilst we are included in this mode of appearance. The Anthropocene is therefore not merely a description of a planetary condition, nor a prescription on how to deal with the (implications of the) ecological demand, but has ontological status insofar as it concerns a mode of appearance according to which the world appears as managerial resource for human beings as planetary managers. We can therefore say that *the Anthropocene is at hand:* it marks our contemporary encounter with things under the demand of "handling" or managing them.

If "the Anthropocene is at hand," how does technology relate to this? The answer takes the form of a triptych. *First*, there is little doubt that the Anthropocene is a consequence of the technological exploitation of Earthly materials and processes: if the industrial revolution constitutes the bedrock of the Anthro-

pocene,[5] this revolution was only possible due to the vigorous technological and exploitative management of natural resources such as coal and oil, capital, etc. *Secondly*, the Anthropocene can be said to be an epistemological consequence of technology insofar as it only appears to us through the (computative) management of large amounts of collected scientific data. Global warming cannot be directly seen, but can be inferred and computed (cf. Morton 2013, 3, 73, 153). Put in terms of philosophy of technology, our knowledge of the Anthropocene is technically mediated inasmuch as epistemological access is solely possible via technologies (satellites, laboratory equipment, carbon-measurements, etc.).[6] Thirdly, as we have argued in this section, the Anthropocene further involves technology in a way that is neither limited to the objective domain (e.g., material beings such as fossil fuels) nor to the subjective domain (e.g., our techno-scientific knowledge of global warming), but as concerning the ontological dimension, where reality appears to us "at hand" as resource, and we correspondingly appear as planetary manager or handler of these resources. In the next section, we further elucidate the ontological dimension of the Anthropocene via a confrontation with Heidegger's consideration of the essence of technology as Enframing.

2. The Anthropocene Enframed: Totality, Origin, and Response

In this section, the hypothesis is that the Anthropocene offers an indication of Martin Heidegger's philosophical questioning of the *whole of Being* on the one hand, and a concrete experience of his notoriously abstract and allegedly totalitarian consideration of the essence of technology as *Enframing* on the other. We argue that the Anthropocene implies that critiques about the totalitarian character of Enframing must now acknowledge its "total"[7] character inasmuch as it concerns the whole of Being. Further, the concretisation of Enframing gives rise to a re-examination of the origin of the Anthropocene, which is usually understood in terms of particular (industrial) technologies, but is ontologically situated in our interpretation. Understanding the origin in this way will subsequently be shown to necessitate a reinterpretation of human responsibility for (and in) the Anthropocene.

2.1. The Whole of Being, Concretely Enframed

When Heidegger asks about the *whole of Being*, this implies the inclusivity of the questioner in the question (1998b, 82). Philosophical inquiry is inclusive, meaning that it is not principally about a domain of beings that stand over against me as isolated objects (which is the case in scientific inquiry; cf. Heidegger 1998b, 83), but concerns the mode of appearance according to which I discover such beings.

This mode is not itself a being, i.e., ontic, but ontological inasmuch as I cannot isolate myself from it to consider it objectively, but find myself included in it insofar as my encounter with the world is already structured so that things appear as objects (cf. Zwier, Blok, and Lemmens 2016). Whereas this rendition remains rather abstract, the Anthropocene offers a concrete indication of the inclusivity in the whole of Being. As indicated in §1, the Earth now no longer simply appears as an object for our rational scrutiny and technological interventions. Rather, reversely, our rationality, objective science, and technological activity appear as expressions of the anthropic geoforce, which is to say *inclusive* to the Earth. As Crutzen and Schwägerl put it: "in this new era, nature is us" (2011). The Earth is thereby not primarily understood as the objective *totality* of Earthly things, but as an indication of the *whole*, i.e., the inclusive mode of appearance according to which we encounter things.

Further, and more specifically, in its managerial orientation, the Anthropocene offers a concrete experience of what Heidegger calls the essence of technology. Heidegger asks about the essence, i.e., the *being* of technology and calls this essence Enframing (1977, 19–20). Given the ontological direction of questioning, Enframing is not theoretically investigated as an objective domain, but comes under consideration as a whole, i.e., as the mode of encountering the world. For Heidegger, technology as Enframing structures our encounter with things in such a way that beings appear as resources which are "challenged-forth" (1977, 16) to "stand in reserve" as potential resources for human needs, whilst humans are included in this structuring as the managers of these resources or "standing-reserve" (1977, 17; cf. Blok 2014). Again, whereas this remains abstract, the Anthropocene offers a concrete experience of Enframing. Returning to our example from §1, in light of Heidegger's notion of standing-reserve, a tree does not have intrinsic value, but its value derives from its identity as resource, e.g., for the paper industry or enjoyment of nature, whilst humans are included in this structuring as the consumers of newspapers or the ones who appreciate nature after office hours (Heidegger 1977, 18).[8] Now, in the Anthropocene and due to global warming, the ecological demand structures our encounter with a tree in such a way that it appears inescapably environed by a managerial horizon (e.g., as carbon sink), and—recalling Morton's emphasis on the pervasiveness of global warming—the same goes for all our encounters taking place on a warming globe. What follows is that whereas Heidegger must make a strong appeal on our willingness to follow his abstractions when he suggests that a stationary airliner offers an experience of

Enframing (1977, 17), the Anthropocenic ecological demand assuredly compels this experience by rendering planetary management inevitable.[9]

2.2. Managerial Totality, Managerial Whole

If the Anthropocene involves a concretization of Enframing, this necessitates a reconsideration of its alleged totalitarianism. Heidegger explicitly relinquishes considerations of specific technological objects via the argument that "rods, pistons, and chassis . . . never [comprise] Enframing itself" (1977, 20–21), since "the essence of technology is by no means anything technological" (1977, 4; cf. 2012, 58). In consequence to this orientation, the notion of Enframing has regularly been criticized for its totalitarian and bloated character, and has conversely been interpreted as a regional ontology. To take two examples from philosophy of technology, Andrew Feenberg has responded to how Heidegger infers from Enframing that "Agriculture is now the mechanized food industry, in essence the same . . . as the production of hydrogen bombs" (Heidegger 2012, 27). For Feenberg, this account is far too abstract and totalizing, since it fails to discriminate between technologies associated with electricity, atom bombs, and agriculture (1999, 187). He therefore explores alternative, more democratic or democratizing technologies that exceed the totalizing region of Enframing: "Technology can deliver more than one type of technological civilization. We have not yet exhausted its democratic potential" (2010, 29).

Secondly, in postphenomenology, Peter-Paul Verbeek has argued that whereas Enframing may be a condition of possibility for modern technologies, it does not follow that all dimensions of such technologies can be reduced to this condition (2005, 66). Don Ihde has similarly argued that Heidegger's depiction is "insightful and penetrating" insofar as it elucidates "gigantist industrial technologies" (2010, 119), but cannot simply be scaled up to cover all technologies. Verbeek and Ihde thus take issue with the totalitarian aspect of Enframing, and in arguing that it depicts a region of beings at most, they emphasise a less reductionist and more expansive perspective on the rich intricacy of various human-technology relations (cf. Zwier, Blok, and Lemmens 2016).

Both perspectives thus reject Heidegger's contention that Enframing "rules the whole Earth" (Heidegger 1969, 50), and instead aim to show how its resource-oriented mode of appearance only covers a limited region of technologies and their uses. However, the very concreteness of inescapable managerialism in the Anthropocene indicates that Enframing can no longer be reduced to a limited region, but must be acknowledged to encompass the whole Earth. This has implications

for, on the one hand, artefact-oriented philosophical approaches that result from a critique of Enframing, and on the other hand for Heidegger's unidirectional consideration of the relation between the ontic and the ontological. In what follows, we first elucidate the former, thereby working our way toward a discussion of the latter in §3.

In philosophy of technology, the critiques concerning the totalitarianism of Enframing have given rise to an alternative, less reductionist method of questioning technology, which empirically analyzes specific technological artefacts and their implications.[10] It is noteworthy, first of all, that these approaches have taken surprisingly little consideration of the (unsustainable) planetary *oikos* housing these technologies, leading Langdon Winner to critically wonder "upon what planet . . . today's philosophers of technology think they are living?" (2013).[11] Furthermore, a methodical focus on specific technologies cannot take full consideration of the planetary situation because it overlooks its ontological dimension. Recalling the triptych presented in the conclusion of §1, one can imagine how artefact-oriented approaches may respond to Winner's remark by focussing on both material and epistemological dimensions of the Anthropocene, e.g., democratic questions concerned with geo-engineering for Feenberg, or questions pertaining to the technological mediation of our knowledge of global warming for post-phenomenology. This would take the Earth as the meta-region housing all the technological regions in question, viz., as a thing housing many technological things. However, such an orientation overlooks the third aspect of the triptych, i.e., the ontological dimension according to which the Earth is not merely an objective thing or (meta)region upon which technologies take place, but concretely marks the inclusivity of the mode of appearance of Enframing according to which we discover things in the first place. Accordingly, if the Anthropocene offers a concrete experience of the mode of appearance according to which we appear as managers of the planetary *oikos* (which jointly appears as managerial resource), this additionally makes clear how Enframing cannot be understood as categorical concept under which the *totality* of technological things is (inappropriately) subsumed, but concerns the *whole of Being* qua mode of appearance (cf. Heidegger 1977, 29). The implication for philosophy of technology is that rejecting Enframing as a bloated category and conversely turning to specific technological things concurrently turns a blind eye to the ontological dimension, which in the Anthropocene is not only experienced concretely, but is philosophically relevant and urgent.[12]

2.3. Origin and Response

An ontological questioning of the Anthropocene is philosophically relevant because it gives rise to a reflection on the origin of the Anthropocene, which in turn leads to the question of human responsibility. In Earth-system science and geology, the origin of the Anthropocene is situated in the industrial revolution, where humanity taps into a vast well of fossil fuels on an unprecedented scale, and accordingly becomes the dominant Earth-shaper (Crutzen 2002; cf. Lorimer 2016). This origin is thereby interpreted on the ontic level, i.e., of beings (e.g., humans in a specific social organisation) who happen to come across other beings (fossil fuels) and as such radically change the face of the being called planet Earth.

Via Heidegger's interpretation of technology and its concretisation in the Anthropocene, however, we can situate this origin ontologically. The encounter between beings engendering the Anthropocene (the anthropic geoforce, fossil fuels, etc.) is already structured in a resource-oriented way according to which anthropic beings encounter other Earthly beings as standing-reserve: factories can only exhume the large amounts of products (prompting swift multiplication of humans on Earth) and associated greenhouse gasses (rendering the Earth an unsustainable *oikos* for humans) if the Earth is encountered as raw material that can be exploited and managed by humans. Hence, following the Heideggerian dictum that "that which is primally early shows itself only ultimately to men" (1977, 22), we can see how the Anthropocene may come into view in the wake of the industrial revolution, but understood as the concretisation of the mode of appearance of Enframing, the Anthropocene is ontologically prior to the revolutions of industrial machinery.

Understanding origin in this way sheds light on the question of human responsibility. As Latour recognizes: "to claim that human agency has become the main geological force shaping the face of the Earth, is to immediately raise the question of 'responsibility'" (2014, 4). This immediacy is evident in the Anthropocenic sciences, where the fact of the anthropos as dominant Earth-shaper immediately translates into the task of taking responsibility for the planet according to a managerial paradigm: "it's we who decide what nature is and what it will be" (Crutzen and Schwägerl 2011; cf. §1). When seen in light of the above asserted ontological origin of the Anthropocene, however, the issue of responsibility must be primarily understood in terms of responsiveness. If the Anthropocene has ontological status qua concretization of Enframing, this mode of appearance cannot itself be anthropogenic, since it concerns the whole of Being and thus already includes us. Parallel to Heidegger, for whom Enframing is "no merely human doing," but

a mode of appearance by which "man . . . has already been claimed" (1977, 19), our managerially oriented encounter with the Earth is not of our own making, but consists in our responsiveness to what "calls man forth into the modes of revealing allotted to him" (1977, 19). Hence, taking responsibility for Earthly beings on the ontic level is already responsive to this call on the ontological level. What follows is that although humans are now responsible for managing the planet, they cannot be held responsible for bringing about the situation in which taking responsibility becomes imperative. This does not diminish the role of humanity in favour of some absolute determinism but, on the contrary, takes heed of how the ecological demand compels us to concretely hear and respond to the "call" *as* the "challenging forth" that Heidegger associates with Enframing, since the challenge now resounds as the imminent and urgent call for sustainable planetary management (cf. Blok 2015, 936–37).

What follows is that because human responsiveness to the ecological demand is situated at an ontological level, humans cannot be irreducibly listed as one geoforce amongst many (cf. Heidegger 2012: 66). Yet far from returning us to some auto-congratulatory celebration of humanity as the "crown of creation" or "masters of the universe," we will show how this irreducibility instead brings into view how the anthropos in the Anthropocene is essentially *in danger*. In the next section, we explore this danger by confronting Heidegger's consideration of the danger of technology with the danger of the Anthropocene.

3. Anthropocene in Danger

In this final section, we ask whether the Anthropocene accords to what Heidegger calls the danger of Enframing, as well as its saving power. We will argue that the answer is radically ambiguous, meaning that the Anthropocene can be said to accord *and* discord with the danger of Enframing. We subsequently confront the radical ambiguity of the Anthropocene with Heidegger's consideration of the "saving power" of Enframing and associated comportment of "releasement," thereby developing the claim that Heidegger's thought concerning the relation between beings and being must be reoriented. We elaborate on this by showing how in the Anthropocene, the Earth comes under consideration as having ontic-ontological status. We conclude by suggesting that Heidegger's thought on the saving power of Enframing and associated comportment of releasement must become Earth-bound, which entails the opportunity of thinking a saving Earth.

3.1. Danger and Ambiguity

Heidegger conceives of Enframing as "the supreme danger" (1977, 26). Rather than consisting in ontic dangers affiliated with technology, e.g., the destruction of nature (cf. 1969, 55–66), the danger of Enframing is ontological and pertains to human existence as responsive to the claim of Enframing. As the supreme danger, Enframing tends to exclusively structure our encounter with the world in terms of standing-reserve, whilst we jointly exclusively appear as its "orderer" or manager (1977, 27). This exclusivity is dangerous because "[man] stands so decisively in attendance on the challenging-forth of Enframing that he does not apprehend Enframing as a claim, that he fails to see himself as the one spoken to" (1977, 27). Hence, the danger concerns our self-evident understanding of ourselves as manager of the planetary standing-reserve, meaning the failure to recognize Enframing as *a* mode of appearance, which entails that we forget how our managerial encounter with the world is already responsive to the claiming call of Enframing. In this way, Enframing becomes dangerously indifferent in "driving out every other possibility of revealing" (1977, 27).

Undergirding Heidegger's consideration of the danger is the idea of ontological epochality, i.e., the thought that different modes of appearance have held sway throughout the western tradition.[13] In his questioning of technology, Heidegger articulates this epochality via the example of an old windmill. He interprets the windmill to still bear the traces of a now subsided mode of appearance, arguing that it does not challenge-forth the wind to unlock and store its energy as does a modern wind turbine, but that its sails "are left entirely to the wind's blowing" (1977, 14). At first glance, this perspective may seem nostalgic, since we can also regard the old windmill to challenge the wind to deliver energy, but simply to a different end, e.g., milling grain as opposed to generating electricity. It is worth considering, however, that such a critique, albeit theoretically correct, begs the question of whether it does not itself accord with the danger of Enframing insofar as it indifferently and apriori encounters both windmill and turbine as standing-reserve (energy resource).[14] But more important for the present discussion is that the Anthropocene not only demonstrates the danger of Enframing, it concurrently epitomizes Heidegger's consideration of ontological epochality.

To address the former point first, in what sense can the Anthropocene be said to demonstrate the danger of Enframing? In the Anthropocene, the exclusivity of the standing-reserve is cemented insofar as we now cannot encounter the Earth otherwise than as managerial resource (cf. §2.1). Since there is no Earthly place

left untouched by global warming, no-thing can be left unmanaged, which both demonstrates how we are included in the whole of being as Enframing and corroborates Heidegger's assertion that Enframing dangerously "banishes man into that kind of revealing which is an ordering" (1977, 27).

Be that as it may, while the Anthropocene is dangerously monolithic in how the Earth concretely appears as managerial resource (standing-reserve) for human beings as manager of these resources, it simultaneously—and likewise concretely—conveys the epochal character of this situation. On the one hand, the Anthropocene by definition is a geological epoch, implying that it has a geological origin and will have a geological termination. On the other hand, following the argument put forth in §2, the epochal character in question is not merely geological—which is to say ontic insofar as geology deals with the Earth as objective being—but ontological because it concerns the whole of Being as the inclusive mode of appearance according to which we, as planetary managers, encounter the Earth in terms of managerial resources. The Anthropocene can then be seen to epitomize Heidegger's consideration of ontological epochality, because it demonstrates that its specific (managerial) mode of appearance arises at some point in time to find concrete expression from the industrial revolution onwards. Our previously discussed tree offers further clarification: although it would be theoretically correct to state that a tree also functioned as a carbon-sink during medieval times, we must also apprehend that it was not encountered as such during that epoch. This is to say that the identity of the tree has changed, and its current appearance as resource in light of global warming (i.e., as carbon source or sink) specifically belongs to the epoch of the Anthropocene, thus epitomizing ontological epochality.

The implication for the question regarding the danger of Enframing is that the Anthropocene accords *and* discords with it. The Anthropocene accords with the danger insofar as it cements the exclusivity of encountering the Earth qua managerial resource (standing-reserve) for human existence qua manager of these resources. At the same time, the Anthropocene discords with the danger insofar as it offers the opportunity to concretely experience the epochality of the hegemony of Enframing. This then constitutes a countertendency to the danger of Enframing by explicitly manifesting how human existence as planetary manager is embedded in a responsiveness to a specific call arising in the epoch of the Anthropocene (cf. §2.3). The danger of the Anthropocene is therefore radically ambiguous.

3.2. Saving the Earth—The Saving Earth

If the Anthropocene is radically ambiguous with respect to the danger of Enframing, this implies that Heidegger's consideration of the "saving power" associated with Enframing (1977, 28) must be reoriented. How does Heidegger understand the saving power? Like the essence and danger of technology, the saving power is ontological. It therefore neither consists in renouncing technology (cf. Heidegger, 1969, 53), nor in the production of "safer" or better technologies (e.g., greener, smarter, more democratic etc.). Rather, the saving power concerns the awareness of human existence *as* responsive to the call of being, meaning that Enframing is perceived as *an* epochal mode of appearance to which our managerial encounter with the world is already responsive.

In citing Hölderlin's words "But where the danger is, grows the saving power also" (1977, 28), Heidegger considers the two in concert, which is to say that in the dangerous "frenzied-ness" and "irresistibility of ordering" (1977, 33), we are offered a chance to experience Enframing *as* the epochal mode of appearance that tends to hide its own epochality in indifference. In recognizing this, we can become perceptive to how the mode of appearance of Enframing involves a withdrawal insofar as the possibility of a different mode of revealing remains hidden. We can experience this withdrawal, for instance, in our contemporary tendency towards indifferent responsiveness when we find ourselves disposed to regard both the old windmill and modern turbine indifferently as energy resources (cf. §3.1). Or, with specific regard to the Anthropocene, we can experience this withdrawal in our self-evident notion of human existence as planetary manager when we recognize how both "conservative" reactions to the ecological demand (e.g., mitigation) as well as "progressive" reactions (e.g., geoengineering) are already and self-evidently disposed towards management (cf. Baskin 2015, 21; cf. §1). The saving power then means that we become perceptive of this withdrawal, which entails resistance to being indifferently absorbed in managerially attending to the standing-reserve, thus gaining a glimpse at the possibility of a wholly different mode of revealing (cf. Heidegger 1977, 31–33). In other words, the saving power consists in being responsive to the call of being as the "challenging forth" belonging to Enframing (cf. §2.3) whilst remaining attentive to the presently withdrawn possibility of a different call.

Now, for Heidegger, the danger and saving power of Enframing solely involve the ontological level, meaning that the rise of a different mode of appearance is not dependent on human interactions with ontic things (e.g., producing greener

technologies), but depends on the call of being (Heidegger 1969, 52; cf. 1977, 28). Since our interactions with things on the ontic level are already responsive to a call on the ontological level (cf. §2.3), human made solutions to the ecological demand of the Anthropocene (e.g., sequestering carbon) indifferently adhere to Enframing insofar as they remain oriented towards planetary management (cf. §1). Accordingly, when Heidegger considers the saving power, he turns away from solutions pertaining to ontic dangers and instead calls for an attitude of "releasement" (1969, 54). Releasement means, first, not viewing things "only in a technical way" (1969, 54), which we can understand as resisting indifferent myopism with respect to the standing-reserve. Secondly, releasement acknowledges the importance of technologies into our life, whilst simultaneously leaving them outside. This offers a glimpse at how technologies are "dependent on something higher" (1969, 54), which is to say dependent on an epochal mode of appearance that already structures our encounter with technologies (cf. §2.1). Thirdly, rather than denouncing technologies as meaningless instruments, releasement takes heed of how "*the meaning pervading the technological world hides itself*" (1969, 55, translation modified), where this meaning can be understood as the withdrawn possibility of a different world or different way of revealing.[15] In this way, Heidegger's thinking concerning releasement is consistent with his relinquishing of the ontic in favor of the ontological (cf. §2.2) and also demonstrates his unidirectional relating of the two, meaning that occurrences at the ontic level (e.g., developing greener technologies) never carry over to the ontological level (which already structures our managerial encounter with such technologies).

However, the Anthropocene compels a reorientation of Heidegger's unidirectional relating of the ontic and ontological, because it brings into view the Earth as ontic-ontological condition of possibility for responsiveness to the call of being. In order to develop this point, we must first understand how responsiveness is always eco-logical: whether indifferent or attentive, we are always responsive to the whole of being in which we are already inescapably included or at home (*oikos*), whilst this whole is structured according to a specific *logic* or mode of appearance.[16] More pointedly, if the Anthropocene can be understood as the concretization of Enframing (§2.1), it can correspondingly be understood as our *oikos* inasmuch as it concerns our inclusion in a world that appears according to the *logic* of management. In this sense, the *oikos* is prerequisite for human responsiveness. Next, the Anthropocene can be understood as the coalescence of ecology and geology, meaning that the Anthropocenic *oikos* belongs to a specific geological epoch, and as such appears as the latest chapter originating out of the vastly elongated, deep

timely drama of the evolution of the Earth, which itself clearly exceeds its present appearance as the managerial ecology called the Anthropocene (cf. Clark 2011; cf. Szerszynski 2012). This offers a first characterization of the Earth as ontic condition of possibility for the Anthropocene. But further, as we have argued in §3.1, the epochal character of the Anthropocene is not merely geological insofar as it concerns the Earth as geological object, but is ontological insofar as it concerns the whole of being in which we are included, which is to say the *oikos* (qua managerial resource) in which we (qua managers) are at home. We can experience our inclusivity in this *oikos* most concretely via the Anthropocenic ecological demand, as it alarmingly signals the counterpart of the epochal origin of the Anthropocene, namely its end: the massive experience of global warming and associated urgent demand of planetary mangement are indubitably oriented towards (avoiding) the becoming uninhabitable of our *oikos*. In this way, the ecological demand of the Anthropocene not only compels an experience of our inescapable inclusion in an *oikos* that we must manage (cf. §1), it simultaneously allows us to concretely experience that this *oikos* has originated from the Earth at some point in time(cf. §2.3), and appears to be on the verge of collapsing back into it. This then offers a further characterization of the Earth as condition of possibility for the Anthropocenic *oikos* in which we are included. Now, provided that this *oikos* is prerequisite for our responsiveness, and provided that the Earth is prerequisite for the emergence and decline of this *oikos*, it follows that the Earth is neither merely a geological object, nor a being that is encountered according to a unidirectional, ontological mode of appearing. Rather, the Earth is itself the ontic-ontological condition of possibility for responsiveness to the call of being, and by implication for the Anthropocene as concretization of Enframing.[17] In thus revealing the Earth to have ontic-ontological status, the Anthropocene entails a reorientation of Heidegger's unidirectional relating of the ontic and ontological.

The implication for the question of the danger and saving power of Enframing, as well as for the associated comportment of releasement is that these must become Earthbound. At this juncture, it is worth considering that while Heidegger alludes to the threat of a nuclear world war and accordingly discusses the possibility of the "complete annihilation of humanity and the destruction of the Earth" (1969, 55–56), he resolutely refuses to associate these ontic dangers with ontological responsiveness, arguing that the ontological danger of Enframing remains, "precisely when the danger of a third world war has been removed" (1969, 56). However, if the Earth is the ontic-ontological condition of possibility of human responsiveness, then Heidegger's refusal must be refused. The Anthropocenic eco-

logical demand means that the destruction of the Earth and annihilation of humanity must be understood as our *oikos* collapsing back into the Earth, and since this *oikos* is prerequisite for responsiveness, such destruction and annihilation are not merely ontic dangers, but have ontological stature.

At the same time, with respect to the saving power, considering the Earth as ontic-ontological condition of possibility for our Anthropocenic *oikos* and associated identity as managerial geoforce implies that the ontic-ontological Earth can be observed to withhold the possibility of a wholly different eco-logy and human identity. Paraphrasing Heidegger, we might say that the Earth has granted a temporarily stable basis for the various anthropic ecologies—with the Anthropocene being the most recent—whilst withholding the possibility of a wholly different ecological structuring. Since we then become perceptive to how the present appearance of the Earth as managerial resource for us as planetary managers is not all-encompassing and does not exhaust what the Earth has to offer, the Earth itself can be taken to indicate the possibility for a different Earthly encounter. Parallel to Heidegger, for whom the danger of Enframing appears in concert with its saving power, the Anthropocenic Earth as Enframed whole appears in concert with its withheld ecological possibilities. Accordingly, and in contrast to Heidegger, neither the danger nor saving power is ontologically isolated, but becomes Earth-bound by way of the ontic-ontological Earth.

Hence, while the Anthropocene compels a concrete experience of our (dangerous) inclusion in the whole of Being characterized as Enframing, this very concreteness also demonstrates how the ontic-ontological Earth conditions this experience, thereby offering a glimpse at how it withholds a different ecological possibility. The Anthropocene can therefore be said to introduce us to the saving Earth.

4. Conclusion

In this paper, we have argued that the Anthropocene neither merely involves a geological or historical description of the Earth, nor a normative prescription regarding how to manage the Earth, but has ontological status insofar as the Earth appears to be managerially "at hand" (§1). We subsequently argued that the Anthropocene involves a concretization of Heidegger's notoriously difficult and abstract notion of Enframing (§2). We put forth the implication that questioning technology in the Anthropocene cannot be limited to the ontic domain of technological artifacts, but must address the essence of technology in terms of the whole of Being (§2.1, §2.2). Further, we considered the Anthropocene to have an ontological origin, which in turn implied that the question of responsibility with respect to the Anthropocenic

ecological demand at the ontic level already involves the question of responsiveness on the ontological level (§2.3). This in turn gave rise to a reconsideration of the danger and saving power of Enframing. We showed how with respect to the danger, the Anthropocene is radically ambiguous (§3.1). We subsequently argued that as a result of this ambiguity, Heidegger's thought concerning the saving power and comportment of releasement must be reoriented to become Earthbound. On the one hand, this brought the Earth under consideration as having ontic-ontological status. On the other hand, it implied the saving Earth.

The consideration thus offered neither saves us from the ecological threat witnessed in the Anthropocene, nor does it provide managerial means for practically dealing with the ecological demand. It does, however, offer a reflection on the horizon that orients both these ecological questions and managerial answers. Above all, it gives rise to a question concerning the human condition. In accordance with Heidegger, we have argued that due to the issue of human responsiveness, the anthropos in the Anthropocene cannot be reduced to the ontic level, i.e., listed as one geoforce amongst many (§2.3). Yet against Heidegger, we have argued that this responsiveness can no longer be isolated to the ontological level of being, but must in light of the Anthropocene be reconsidered in a telluric way, which is to say as deeply associated and coalesced with the Earth. The question then becomes how we should think the relation between technological humanity and the Earth. The arguments presented in this paper serve to guide this path of questioning by indicating two cul-de-sacs, as it neither suffices to equate the anthropos with Earth as geoforce and planetary manager, nor to completely unearth it as the "shepherd of Being" (Heidegger 1998a, 260). This then points to a future task for reflection in the Anthropocene: to examine the human as Earthling.

Notes

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1. Within the limits of this paper, we neither can nor need to elaborate on Morton's (object oriented) ontology to appreciate this observation. For his discussion of hyperobjects, see Morton 2013.
2. For an analysis of the Anthropocene and the weather, see Szerszynski 2010.
3. To clarify, the identity as managerial resource does not imply that a tree can no longer be impressive or beautiful to us, but rather means that such experience of beauty is inescapably bound up with the threat of global warming—thereby potentially inciting us manage the preservation of trees, or manage their multiplication as carbon-sink.

4. Given this immanence and "naturalisation" of rationality, the Anthropocene can be said to herald the arrival of Friedrich Nietzsche's program to "translate man back into nature" (1989, 161) via the famous transvaluation of all values.

5. Although it remains up for debate whether the industrial revolution can be seen as the origin of the Anthropocene, most authors agree that it is of decisive importance (cf. Steffen et al. 2011; cf. Lorimer 2016).

6. Don Ihde extensively discusses the technical embedding of science, see, for example, Ihde 2011.

7. Anticipating §2.1, we write "total" to accentuate the difference between the German "Totalität" and "Ganze." The former is ontic and concerns beings, the latter is ontological and concerns Being.

8. Compare Heidegger's example of the Rhine appearing as "water power supplier" *or* as resource for the "vacation industry" (1977, 16).

9. This additionally makes clear that rather than criticizing or disparaging such management, we interpret its inescapability as an indication for an ontological consideration of the Anthropocene.

10. This has become known as "The Empirical Turn" in philosophy of technology, i.e., a turn away from overarching analyses of technology in general, towards an artefact-oriented philosophical approach (cf. Achterhuis 2001).

11. A notable exception can be found in Mark Coeckelbergh's (2015) "Environmental Skill," which explicitly connects philosophy of technology with environmental thought. Coeckelbergh's analysis of modernity and its alienation serve to explain Winner's astonishment to a certain extent, but because of its different aims, Coeckelbergh's study does not elaborately question what we here discuss as the ontological dimension of technology (cf. Zwier and Gammon 2015).

12. For an elaborate discussion on Heidegger's philosophical method and the postphenomenological method of studying technologies, see Zwier, Blok, and Lemmens (2016).

13. Heidegger calls this the "history of Being" [Seinsgeschichte] (Heidegger, 1999). Given the scope of this paper, we cannot elaborate on the various "stages" of this history and the way they are interrelated, and solely focus on the epochal character of Being and how this is forgotten in the epoch of Enframing.

14. See, for example, Ihde 2010, 74–86. We have elsewhere argued that Enframing cannot be understood as a theory about technological objects (cf. Zwier, Blok, and Lemmens 2016).

15. Heidegger's questioning of technology can therefore itself be interpreted as an exercise in releasement, since he acknowledges the obvious importance of technological instrumentality (1977, 6), whilst also analyzing instrumentality to belong "to something higher" in retracing instrumentality to causality, bringing-forth, and ultimately truth (cf. Heidegger 1977, 5–12).

16. The language of Being And Time famously articulates this as "being-in-the-world," where our responsiveness to such being, whether authentic or inauthentic, is considered as a way of being-in-the-world (cf. Heidegger 2008).

17. Two remarks are in order here: First, it should be noted that this argument is indebted to a similar argument that Vincent Blok recently put forth in a discussion about Heidegger and Meillassoux concerning the Earth as uncorrelated being and as ancestral (cf. Blok 2016). Secondly, we should note that our present discussion of the Earth is primarily informed by our discussion of the Anthropocene, and cannot enter into elaborate exegesis of Heidegger's conceptualization of the Earth (e.g., in its strife with "World," or with respect to "the fourfold"). For an elaborate analysis of these points, see Blok 2016.

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