

# *Spelling the End of Nature? Making Sense of the Anthropocene*

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## *I. Introduction*

Since it first appeared a few years ago, the notion of the Anthropocene has been gaining ground in the field of environmental studies and seems now to be everywhere. Admittedly, the label is appealing, and the news it communicates is dramatic. The success, then, seems justified. However, there is something else. The Anthropocene might just be what we were waiting for, namely, a notion able to encompass and express a number of shared intuitions about the human place in the world and the state of the socionatural relations. In that regard, the Anthropocene provides a framework for discussing such relations from an interdisciplinary perspective, ranging from the natural sciences to the social ones and the humanities. To some extent, we had been discussing the Anthropocene before we had the concept, lacking, so to speak, the scientific validity that it seemingly provides to an old idea: that human beings are entangled with nature and vice versa.

Yet the coming of the Anthropocene, both literally and epistemologically, does not constitute the final conclusion of any conversation, but the starting point for one. Because if we acknowledge that human beings and societies are a major force in nature, that we have transformative powers that have reached this formidable degree, then we have to reflect upon (1) the meaning of this geological shift, as well as (2) the normative consequences it entails. Such is the topic of this paper, which tries to make sense of the Anthropocene by exploring how the latter is related to our understanding of nature and to the historical process that has led to the irreversible social entanglement described by it.

To begin, I argue that the Anthropocene gives credit to a view of nature that focuses on hybridization and environmental recombination as the main outcomes of the human adaptation to the natural world. Second, I explore some normative implications of the Anthropocene hypothesis, linking it to the human–nature dualism and to the claim that nature has ended. Finally, I suggest that a key part of this answer is the rethinking of the human domination of nature, an idea that resonates differently now that the Anthropocene has begun.

## *II. Nature in the Anthropocene*

The Anthropocene is an overarching concept that has appeared and gradually risen to prominence in the last decade, embodying scientifically the idea that the relationship between human beings and nature has shifted dramatically in the course of the last centuries. This hypothesis tries to capture the quantitative shift in the relationship between humans and the global environment, as provoked by the massive influence of the former in the natural systems that constitute the latter. Thus the term Anthropocene suggests that the Earth is moving out of its current geological epoch, called the Holocene, and that human activity is largely responsible for this exit, i.e., that humankind has become a global geological force in its own right.<sup>1</sup>

It is worth noting that the term Anthropocene denotes two different, albeit complementary, meanings. On the one hand, it is a period of time, one that, according to an increasingly large number of natural scientists, should be recognized as a new geological epoch. This is so because of the events that take place within it. But those very events, which may be summed up in the anthropogenic transformation of nature at a global scale, leads us to use the term in a different way: as an epistemic tool. In other words, the Anthropocene is a *chronology* that, by comprising a number of processes and phenomena whose common feature is the anthropogenic influence on the planet, ends up designing as well a given *state* of socio-natural relations.

What the science behind the notion suggests is that natural and social systems are coupled and the extent of the anthropogenic influence

1. Paul Crutzen and Eugene Stoermer, “The Anthropocene,” *Global Change Newsletter* 41 (2000): 17–18; Will Steffen, Jacques Grinevald, Paul Crutzen, and John McNeill, “The Anthropocene: Conceptual and Historical Perspectives,” *Philosophical Transactions of the Royal Society A* 369 (2011): 842–67.

on ecological systems and natural processes is unprecedented.<sup>2</sup> Climate change is the most spectacular outcome of this shift, but it is far from being the only one; disappearance of pristine land, urbanization, industrial farming, transportation infrastructure, mining activities, loss of biodiversity, organism modification, technological leaps, and growing hybridization are also on the list. Thus, it is a quantitative shift that constitutes also a qualitative change. Or rather it is the human *realization* of a change undergone some time ago. And it should be added that, even if the notion is finally not recognized by geologists or fails to capture the public imagination, the reality it describes will not fade away.

In this regard, as we shall see, the Anthropocene may be said to constitute the geological translation of the idea that nature has ended. Furthermore, the concept is consistent with a refined Darwinian view of the human development on the planet, since it does not rule out the possibility that this whole process, which has arguably made a laboratory of the Earth,<sup>3</sup> may end up being a huge human maladaptation with unforeseeable consequences. But that much remains to be seen. What seems to be clear is that, although there will be considerable room for normative disagreements about causes and consequences, the Anthropocene hypothesis is being embraced by most observers. It seems to have touched a nerve, we might say—that is, it has given name and scientific validation to a shared intuition about the state of socionatural relations and nature itself. I would even suggest that the Anthropocene has *confirmed* the plausibility of a particular view of nature and the corresponding relations between the social and the natural, a view that was *not* the one vindicated by classical environmentalism, but with which environmental thinkers must now come to terms.

But which is this view? Which is the understanding of nature and socionatural relations involved in the Anthropocene hypothesis or being supported by the latter? If we put it briefly, the Anthropocene confirms that society and nature are not two separate entities influencing each other, but rather that there exists a socionatural entanglement—that is, an irreversible, complex, and increasingly hybrid socionatural system. Yet,

2. Jianguo Liu et al., “Complexity of Coupled Human and Natural Systems,” *Science* 317 (2007): 1513; Erle C. Ellis, “Anthropogenic Transformation of the Terrestrial Biosphere,” *Philosophical Transactions of the Royal Society A* 369 (2011): 1010–35.

3. John Robert McNeill, *Something New under the Sun: An Environmental History of the Twentieth Century* (London: Penguin, 2000).

paradoxically, this does not mean that there remains no separation between human beings and nature. It is the fact that we have separated ourselves from nature in a certain way throughout history that has produced this deep entanglement. In fact, such separation allows us to be aware of the entanglement and gives us the possibility of rearranging socionatural relations in new and, in some regard, more refined ways.

In order to develop this point, let us take a reasonable starting point for isolating what nature is: nature is that which is not artificial. Thus we can understand it, following John Stuart Mill, as “all the powers existing in either the outer or the inner world and everything which takes place by means of those powers.”<sup>4</sup> Therefore, the concept of nature would cover all those entities and processes that come into being or exist without any human intervention. So natural entities are not the result of human intentions, but rather they exist independently from human designs or purposes. Nature can then be characterized as a self-generating and self-sustaining entity defined by its *telos*, i.e., by its ability to maintain its organization in the presence of external forces and to exert its own force on its environment while trying to maintain its integrity. Such teleology means that nature is autonomous from human beings. In turn, to many environmentalists, this should lead to the recognition of nature’s value and the corresponding protection of its integrity.<sup>5</sup>

Yet this criterion is inherently flawed. Although there is a sense in which nature consists of those causal powers not created by human beings, is this definition useful? Not very much. Since natural history is also social history, that is, one that has spread the human influence in so many ways that it is now difficult to tell whether man is *absent* or not from a given natural process or a certain natural entity. It is certainly reasonable to ask whether domesticated animals, human-designed rivers, or managed ecosystems are still natural. If we stick to a strict distinction between the natural and the artificial, they are not. In fact, we are realizing that not even the climate is completely “natural” anymore!

But this suggests that we should go beyond a definition of nature that relies on the absence of any trace of human influence. Nicole Karafyllis

4. John Stuart Mill, *Three Essays on Religion* (Amherst, MA: Prometheus Books, 1998).

5. Ned Hettinger, “Respecting Nature’s Autonomy in Relationship with Humanity,” in Thomas Heyd, ed., *Recognizing the Autonomy of Nature: Theory and Practice* (New York: Columbia UP, 2005), pp. 86–98.

has proposed the term *biofact* to name those entities whose origin and formation has been anthropogenically influenced, directly or indirectly, irrespective of the actual *visibility* of that influence.<sup>6</sup> This notion of the visibility of the anthropogenic influence is—as climate change again shows—more important than it seems, especially regarding the public reaction to certain policies and socionatural possibilities (like transgenics, aquaculture, or climate geoengineering). The wider historical process so referred is one of hybridization, i.e., the environmental recombination that results after humanly originated processes and artifacts have exerted a variable degree of influence on natural beings and processes. This is a two-way process, as well as a *productive* one. As Steve Hinchliffe puts it:

The metaphor of hybridity allows for something different, it allows for change in all parties as they relate to one another. And it allows for novelty to be produced. . . . Rather, in relating, the parties and the product must change too (this is the key to most relational thinking). Nothing remains unaltered in the event of relating.<sup>7</sup>

This is not surprising. As Biesecker and Hofmeister have been trying to underline, nature lives and is in itself productive, so that we should not see it just as a limit to human activity, but rather as forming an inseparable unity of productivity and re-productivity with the latter:

The productivity of nature is at the same time re-productivity. . . . The production system ‘Nature’ is then simultaneously starting point (productivity) and outcome (product) of the process of (re)production.<sup>8</sup>

In this context, hybrids are *processes* that connect society and nature as well as *products* that are nature-culture outcomes. We could then say that everything will become human, but in a general sense the reverse

6. Nicole Karafyllis, “Das Wesen der Biofakte,” in Nicole Karafyllis, ed., *Biofakte: Versuch über den Menschen zwischen Artefakt und Lebewesen* (Paderborn: Mentis, 2003), pp. 11–26.

7. Steve Hinchliffe, *Geographies of Nature: Societies, Environments, Ecologies* (London: Sage, 2007).

8. Adelheid Biesecker and Sabine Hofmeister, “Starke Nachhaltigkeit fordert eine Ökonomie der (Re)Produktivität,” in Tanja Egan-Krieger et al., eds., *Die Greifswalder Theorie starker Nachhaltigkeit* (Marburg: Metropolis-Verlag, 2009), p. 183. See also Adelheid Biesecker and Sabine Hofmeister, *Die Neuerfindung des Ökonomischen, Ein (re)produktionstheoretischer Beitrag zur Sozialökologischen Forschung* (Munich: Oekom, 2006).

is also true: everything remains natural. Anthropogenic climate change might then be the most telling example of such processes. In some cases, this hybridization is intentional, in others it is not. On the other hand, this hybridization process allows for multiple agencies distributed in networks and including non-human entities and processes.

However, neither naturalness nor hybridization is an absolute category. On the contrary, they are relative, depending on the degree of human influence exerted upon each biological process, natural being, or ecosystem. Thus nature is a gradable concept because it is a gradable reality. We should conceive the opposition between the natural and the artificial as a continuum: a deep-sea fish has not been as influenced by a Mediterranean one, whereas a fish cultivated in a fish farm remains more “natural” than a genetically modified one. Different degrees of intervention (either intentional or unintentional) thus express different kinds of socionatural interaction. Therefore, in order to determine how “natural” a being or an ecosystem is, we have to study its history and inner composition carefully.

Kate Soper’s well-known distinction between a *deep* and a *shallow* nature is very relevant in this context. Whereas the former refers to the causal powers and structures that operate constantly in the physical world and are the condition for any human intervention in the environment or the biological realm, the latter is that of our immediate experience in everyday life: animals, the natural environment, our bodies, the material resources.<sup>9</sup> A similar criterion is used by Dieter Birnbacher<sup>10</sup> to distinguish nature in a *genetic* sense from nature in a *qualitative* sense. The former refers to the moment of nature’s coming into existence without human intervention, whereas the latter alludes to the appearance of natural forms, which can be, and actually are, affected by human beings. Genetic nature’s description is *historical*, whereas qualitative nature’s description is *phenomenological*. Therefore, nature as an ahistoric essence is not the same as nature as a historic process. We are concerned about the constraints exerted by the former, as well as with our interactions with the latter.

9. It might be noted that the climate would actually be in between these categories, and therein lies its singularity: it is a complex system of causal powers that also influences our everyday life, providing us with certain life conditions upon which so many aspects of our lives depend. Kate Soper, “Disposing Nature or Disposing of It?: Reflections on the Instruction of Nature,” in Gregory E. Kaebnick, ed., *The Ideal of Nature: Debates about Biotechnology and the Environment* (Baltimore: John Hopkins UP, 2011), pp. 1–16.

10. Dieter Birnbacher, *Natürlichkeit* (Berlin: Walter de Gruyter, 2006).

Although the new light shed on nature by Darwinism provided it with a history of its own and redefined humans as natural beings, the deep entanglement of societies and their environments over time shows that human action has been a major force in nature's evolution, thus making it increasingly difficult to sustain a clear separation between these two realms. As Vera Norwood remarks, Western conceptions of nature had always portrayed the latter as the world out there to which humans adapt, but part of that adaptive move has always been to order nature, creating a second nature through hunting, domestication, and cultivation.<sup>11</sup> Whereas until the seventeenth and eighteenth centuries such activity assumed stability in nature first, during the modern era nature developed a contingent history and humans began to recognize their role as agents of environmental change. It is not by chance that such recognition coincided with a formidable leap in the human ability to influence nature, as the scientific and industrial revolutions exponentially increased the material means for doing so.

To embrace the idea of the Anthropocene is thus to advance toward an understanding of nature that is realistic and takes human influence on it seriously—before considering the moral implications of that influence, which in turn should probably be the departing point for any moral debate about the human behavior *toward* nature, as opposed to the ethical strategy that consists in adopting a moral viewpoint about such behavior in an abstract way and then imposes it onto reality. What the Anthropocene states is that there is no way back for human beings, because we are not just embedded in nature but actually entangled with it in an irreversible and complex way. We are living in the Anthropocene, and we should just start thinking within this new frame. However, it does not seem so useful either to claim that everything is natural or that the separation between humanity and nature has become untenable. I would like to argue that the *meaning* of the Anthropocene lies elsewhere, namely, that it validates a view of socionatural relations with deep normative consequences for the way in which we think about nature and also for the way in which we should rearrange our relationship with it.

11. Vera Norwood, "Nature," in Shepard Krech III, J. R. McNeill, and Carolyn Merchant, eds., *Encyclopedia of World Environmental History* (New York and London: Routledge, 2003).

### *III. Making Sense of the Anthropocene*

So far I have argued that the Anthropocene comes to confirm the plausibility of a view of nature that is in itself very dependent on the history of socionatural relations. Therefore, we should distinguish between what nature is *ontologically* and what it becomes *historically* after an increasing interaction with human beings and societies. Such an increase would have led to the actual transformation of nature into human environment and to a process of growing hybridization and recombination whose final result is an encompassing human influence on natural processes, ecosystems, and beings. Of course, the influence of the latter on human beings has to be taken into account as well, since every relation operates in both ways.

This last point deserves to be underlined. Nature is also a material force in human history. It is not only influenced by human beings, but it also influences them in turn in multiple ways. Nature is an unconscious but active agent that conditions human development and the shapes that the latter adopts, as much as it is conditioned by social forces. There is actually a co-evolution of humanity and nature, according to which social forces have been evolutionary forces and anthropogenic evolution has been a social force, as Edmund Russell argues. His expanded view of evolution as something that takes place daily on different levels—from the microbiological to the atmospheric—helps to make this point more salient.<sup>12</sup>

There are two important epistemological consequences stemming from the Anthropocene hypothesis: one is the idea that the human–nature dualism is untenable, the other is the proposition that nature has ended. They are closely related to each other and revolve around the just described understanding of nature, and both might be considered interpretations of the fact—the very fact of the socionatural entanglement—embodied by the Anthropocene. They both have normative implications and are worth discussing, insofar as they relate to the history of socionatural relations and to the situation to which such history has finally led. Besides, they are directly related to any meaningful environmental ethics and to any

12. By unwillingly changing the climate, for instance, we are forced to adapt ourselves to a phenomenon that exerts a massive influence on human life conditions. Yet the disturbed climate that acts as a constraint on us is not purely “natural” anymore, without ceasing to be so. Its current form is the product of our influence on it over the last centuries. Furthermore, we are also a part of nature; it just happens that we are a dominant species that goes beyond its ecological niche and transforms the environment. In that regard, there is nothing “unnatural” about climate change. Edmund Russell, *Evolutionary History: Uniting History and Biology to Understand Life on Earth* (Cambridge: Cambridge UP, 2011).

sustainability politics, because by helping to explain how human beings *are* related to nature it contributes to the reflection about how they *can* relate to it in the future. There is no naturalistic fallacy involved, since it is not a matter of an *ought* derived from an *is*, but of determining which are the ways in which human beings have been related to nature and why, so that the range of possible futures in the socionatural relation remains realistic.

On the one hand, we have the deceptively simple question of the human–nature dualism. How can any separation between human beings and nature be sustained in the light of the Anthropocene? The coupling of natural and social systems would precisely involve the opposite suggestion: that the human and the natural cannot be separated and have never been separated. Any distinction between realms would then be just a clever representation of the world that happens to meet human expectations as to what can be done with and to nature, but it possesses no rational ground whatsoever. Human beings are natural beings, and the fact that the social and the natural are so intermingled comes to show that we cannot escape to natural constrictions and planetary boundaries. In other words, the Anthropocene would put an end to the typically modern assumption of the human exceptionalism.

However, it might not be that simple. For one thing, the way in which socionatural history has unfolded complicates an outright refusal of the human–nature dualism. This is an important and subtle point that can be easily misunderstood. To begin with, it is difficult not to acknowledge that humans have in fact separated themselves from nature in a meaningful way. Human beings have proven exceptional, no matter what moral judgment such exceptionalism and its “products” may deserve. Yet it is hard to deny that humans have been able to transcend their own ecological niche and have developed very complex and successful tools for surviving and thriving as a species. Thus Peter Sloterdijk’s conclusion: “We could even say that humans can be described as those creatures that fail in being animals, in remaining animals.”<sup>13</sup> Such failure also manifests itself in humans’ ability to change the shape of their environment when adapting to it. They do so by creating an artificial, man-made world that sets them apart from nature—between the natural and the artificial realms. An evolutionary explanation of human behavior and culture is compatible

13. Peter Sloterdijk, *Regeln für den Menschenpark: Ein Antwortschreiben zu Heideggers Brief über den Humanismus* (Frankfurt am Main: Suhrkamp, 1999).

with the recognition of humanity's *exception*—that of a psycho-biological animal that is simultaneously inside nature *and* apart from it. This is a unique condition indeed, made possible by the relative indeterminacy and openness of human nature.

It can then be said that there was no original separation between humans and nature. Yet the human–nature division has become real with the passing of time, as human beings evolved and colonized and transformed nature in an ever-increasing sophisticated way. Such separation has been produced through processes such as the separation between the urban life and the rural life or a human socialization more and more detached from the latter. Dualism is not so much *ontological* as it is *historical*, i.e., an emergent order that is produced by human beings in the course of their adaptation to nature. Crucially, such dualism is originated in the practical realm of socionatural relations, where the entanglement between the human, the social, and the natural has never ceased to increase. Needless to say, humans are natural and remain subject to nature's laws, but they are also able to change some natural conditions that would have seemed immutable in the past, ranging from contraception to genetic manipulation. They are embedded in nature, but they can also detach themselves from nature.

Actually, this emergent dualism is completely consistent with the Anthropocene hypothesis. It is not ontological, since it cannot be. And it is an emergent quality of socionatural relations that is produced via a double-edged process: on the one hand, humans penetrate in nature and the latter is more and more transformed and coupled with social systems, thus creating the kind of entanglement that sustains the very notion of the Anthropocene; on the other, as this mutual imbrication is reinforced, humans separate themselves from nature both cognitively and symbolically. By dominating nature we mixed ourselves with it while at the same time we represent ourselves as being separated from it—which we actually are. This nuanced view of dualism allows us to avoid the conceptual trap of declaring dualism non-existent. It is a trap because it leaves so much unexplained, and carried to its logical end it would deprive human actions regarding nature of any moral or even political meaning. Moreover, it is the logical derivation of the Anthropocene hypothesis, because the degree of human colonization described by the latter could not have been reached without the aforementioned historical process: one in which human beings separate gradually from nature in the act of adapting themselves to it—by

adapting it to them. And thus the corresponding proposition that nature is socially constructed.

Traditionally, the idea that nature is socially “constructed” was meant to express that our perception of nature determines our relationship with it. In turn, this social condition would also mean that there is no *single* universal nature, because different contexts, cultures, social positions, and historical moments will produce disparate visions of nature. Yet if we talk about socionatural history, we refer to the human penetration into the environment through nature’s transformation, consumption, and use. In other words, the social construction of nature implies not only a cultural apprehension of nature, but also a physical reconstruction of it, a human impact in the surrounding world that never leaves nature unchanged.<sup>14</sup> The latter is literally reconstructed by human beings, and that is done in deeper and deeper ways, hence affecting realms of nature so far considered beyond the human sphere of influence. Of course, this social reconstruction produces unintended side effects as well, as climate change dramatically shows. Yet both the intentional and unintentional changes are expressed in the Anthropocene notion, which alludes to the final outcome of a process of reciprocal influence comprising (1) intentional human modifications, (2) unintentional side-effects of the latter, and (3) natural influences on human beings and societies. Therefore, it is not inappropriate to argue that the Anthropocene is actually the result of the social construction of nature rightly understood.<sup>15</sup>

14. Manuel Arias-Maldonado, “Let’s Make It Real: In Defence of a Realistic Constructivism,” *Environmental Ethics* 33, no. 4 (2011): 377–93.

15. Recognizing the role of humans as agents of natural change has led to the corresponding acknowledgment of the socially bounded and culturally constrained character of the socionatural interaction. It is true that every society is grounded on a given “socioecological regime,” that is, on a specific type of interaction between human society and natural systems. See Marina Fischer-Kowalski and Helmut Haberl, *Socioecological Transitions and Global Change: Trajectories of Social Metabolism and Land Use* (Northampton, MA: Edward Elgar, 2007). But instead of possessing unique features irrespective of the time and space in which it takes place, this relationship would vary from one social context to another, so that different understandings of nature would coexist, producing different patterns of interaction between humans and the natural world. See William Cronon, ed., *Uncommon Ground: Rethinking the Human Place in Nature* (New York: W. W. Norton, 1995), and Arturo Escobar, “After Nature: Steps to an Antiessentialist Political Ecology,” *Current Anthropology* 40, no. 1 (1999): 1–30. These patterns depend on a complex set of factors, including culture and history. Anthropologists and ethnographers have been especially active in pointing out the mediated character of the relationships between humans and nature.

Furthermore, the Anthropocene is the confirmation that nature has ended. Again, this is a provocative formulation that has to be carefully elaborated—yet there is more than provocation in it. If we leave aside the supposed end of nature as an idea or symbol, the most important sense in which this end can be argued for refers to nature's reality. The proposition is simple: As human intervention in nature has grown dramatically, it has become more and more difficult to speak of a nature that is free from human modification. Although nature was relatively independent from society, now, after history, it is not. The limits between the natural and the social are blurred. It can even be said that nature has morphed into human environment: the objective nature that existed long ago has been integrated into human history through labor and cultural appropriation.

To some, this process entails the end of nature. But the latter is not so much the philosophical undermining of nature's vitality that took place under the rule of mechanicism, as it is an actual process of human colonization of the natural world. Again, obviously, although there is no such thing as an ontological end of nature, it is not ontology that matters when socionatural interaction is considered. On the contrary, what matters is the multiplicity of particular relations between nature and human beings. In this regard, the end of nature has a twofold meaning: (1) natural processes can no longer be defined as independent from human influence, and (2) natural forms and processes have been influenced by humans to a very high degree. Sometimes, human intervention is manifest; sometimes, it is not. Some other times, as with the climate, is not even planned. But that hardly makes a *philosophical* difference: what separates the rainforest from an urban park is only a matter of degrees. From this point of view, nature cannot be defined any longer by its independence from human beings and society.

There is no shortage of concepts to express this. It had been said that we live now in a "post-natural world,"<sup>16</sup> made of a "created environment,"<sup>17</sup> which has put an end to the antithesis between nature and society, so that nature is no longer understood outside society and vice versa.<sup>18</sup> Therefore, a trait that was exclusive to mankind, namely, the hybrid position between nature and artifact, now encompasses nature at large. Needless to say, the interaction between nature and society has always existed, but it is the

16. Bill McKibben, *The End of Nature* (New York: Anchor Books, 1990).

17. Anthony Giddens, *The Consequences of Modernity* (Cambridge: Polity, 1991).

18. Ulrich Beck, *Risk Society: Towards a New Modernity* (London: Sage, 1992).

intensity of it that is unprecedented. This is precisely what the Anthropocene demonstrates—that the idea of nature as an independent entity is untenable in view of the degree in which natural and social systems are entangled. Earl Ellis concurs:

From a philosophical point of view, nature is now human nature; there is no more wild nature to be found, just ecosystems in different states of human interaction, differing in wildness and humanness.<sup>19</sup>

Apparently, it could be said that the Anthropocene hypothesis fits *too well* in a number of assumptions about the socionatural relation. Because it does. But there is nothing suspicious about it, because those assumptions were already built upon the intuition that something like the Anthropocene—minus the name—was taking place. By linking the Anthropocene to these conceptualizations (an emergent dualism stemming from human exceptionalism, the social reconstruction of nature, and the proposition that nature has ended), we do more than make sense of the Anthropocene itself. We realize that the Anthropocene makes perfect sense.

#### ***IV. Rethinking Human Domination in the Anthropocene***

If we take the Anthropocene hypothesis seriously, what are the practical consequences that follow from it regarding the rearrangement of socionatural relations? More to the point, does the Anthropocene entail a substantial change of our understanding of such relations and nature itself? These are relevant and complicated questions, with no simple answers. My view is that the Anthropocene stresses the need for a postnatural understanding of nature and socionatural relations—a shift that does *not* preclude a call to the protection of what is left of nature. Those who claim that the Anthropocene is not just a scientific issue, but also a moral and hence a political one, are right.<sup>20</sup> Yet we need to understand what the Anthropocene says about socionatural relations before we can articulate a moral answer to it.

By recognizing the extent to which society and nature are entangled in an irreversible way and the fact that human beings have become major forces in natural change (without ceasing to be influenced by a natural environment that is also a force in social change), the Anthropocene confirms

19. Ellis, “Anthropogenic Transformation of the Terrestrial Biosphere,” p. 1027.

20. Michael A. Ellis and Zev Trachtenberg, “Which Anthropocene Is It to Be? Beyond Geology to a Moral and Public Discourse,” *Earth’s Future* 2, no. 2 (2014): 122–25.

that a human retreat from nature is but a delusion. Society and human beings are mixed up with nature, and nature itself is not what it used to be before socionatural history took place. Paraphrasing Marx, human beings have not just thought about nature, they have transformed it. And they will keep doing it, because that seems to be their way of being-in-the-world, insofar as that is the way in which they have *been* in it.

Now, we reach a tricky point. I suggested earlier that no naturalistic fallacy was involved in this way of reasoning. But if we claim that the occurrence of the Anthropocene is a confirmation for keeping business as usual regarding socionatural relations, we would be relying on such a fallacy. Therefore, it is important to stress that, although the Anthropocene *does* confirm that no human retreat is possible anymore, a policy of retreat (for instance, via a radical mitigation against climate change) might be defended. For those who regard our past relations with nature as both mistaken and avoidable, a correction of the former might be precisely the point. In other words, a change in the human way of being-in-the-world would constitute a philosophical and political program for radical green change.

Yet it could as well be argued that the Anthropocene gives us a wider perspective about the human relations with nature. As I have suggested, the end of nature has *already* occurred, as the logical consequence of a process of human colonization of nature that should be considered “natural” rather than a matter of choice or a historical contingency. And it seems more realistic to depart from here than to propose a complete change in the human relation with the natural world. The latter can and should be refined, but it is doubtful that it will be radically reshaped. A more promising normative claim for the Anthropocene would then be to refine our domination of nature, which neither is nor can be absolute or perfect, in order to achieve sustainability while maintaining the best features of our liberal, pluralistic societies. But what does it mean exactly to refine the human domination of nature?

To classical environmentalists, domination is but the culmination of the old separation between humanity and nature, which places the former above the latter—a separation that can be traced throughout philosophy’s history in the writings of Plato, Descartes, and others.<sup>21</sup> But now, the extent

21. See William Leiss, *The Domination of Nature* (London: McGill-Queen’s UP, 1974), and Val Plumwood, *Feminism and the Mastery of Nature* (London: Routledge, 1993).

of human domination is such that it could end up being equal to nature's annihilation. As Kirkpatrick Sale recently put it: "It is this extraordinary dominance by one single bipedal species that has brought us to the present imperilment of the earth. . . . [W]e are headed toward *ecocide*."<sup>22</sup> The reason is that human domination is depicted as a historic *contingency*, i.e., something that has happened but that might not have happened at all. In other words, human domination is a particular historical development among many others, so that socionatural relations could have adopted a different shape, for instance, the shape of a harmonious coexistence between human and natural communities. It could all have been different had mankind chosen *not* to dominate nature.

Yet human dominion of nature is rooted in the human *adaptation* to the physical environment; it is made of necessity rather than choice. For humans to acquire some relative autonomy from natural constrictions, dominion is a necessary precondition. It is *afterward* that we can *choose* the extent and shape of such dominion—as we are doing *now*. Therefore, the human dominion of nature is a part of the wider human adaptation to environmental conditions, wherein an antagonistic relationship is established that does not exclude cooperative or even symbiotic dimensions. Human emancipation, in turn, has less to do with dominion than with the particular *use* of that dominion. This is precisely the first step in rethinking domination: to dismiss the idea that it is a mere historical contingency, something that could have not happened. Although cultures can differ in their impulse toward domination and in their feeling of kinship to nature, history has always involved human domination of nature in various degrees.<sup>23</sup> As Maurice Godelier puts it:

*human beings have a history because they transform nature. It is indeed this capacity which defines them as human. Of all the forces which set them in movement and prompt them to invent new forms of society, the most profound is their ability to transform their relations with nature by transforming nature itself.*<sup>24</sup>

22. Kirkpatrick Sale, *After Eden: The Evolution of Human Domination* (Durham, NC: Duke UP, 2006).

23. Rupert Sheldrake, *The Rebirth of Nature: The Greening of Science and God* (London: Rider, 1990), p. 26.

24. Maurice Godelier, *The Mental and the Material: Thought, Economy, and Society* (London: Blackwell Verso, 1986), p. 1.

Thus, inhabiting the planet means humanizing it through labor. A non-dominated nature existed only *before* humanity itself existed, since “once we begin to speak of men mixing their labour with the earth, we are in a whole world of new relations between man and nature, and to separate natural history from social history becomes extremely problematic.”<sup>25</sup> Still, that does not mean that any form of domination is sustainable, nor that a public debate about it is out of order. On the contrary. As Kate Soper has recently suggested:

It is, in other words, one thing to recognize the relative autonomy of our political powers respecting the use of nature and our technical capacities to act on them, but it is another to suppose we could ever escape the constraints our nature imposes on what we can enjoy or experience as practically feasible or morally acceptable.<sup>26</sup>

It is hard to deny that human beings have acquired a great deal of knowledge of nature and a growing control of socionatural interactions *so far*. Needless to say, this has not been a peaceful process. The humanization of nature has entailed the sometimes merciless exploitation of animal species, and many ecosystems and extensions of pristine land have been destroyed. However, it is maybe too easy to condemn the past of the human specie, without taking into consideration that they—us—were not living in the comfortable social world that we inhabit *thanks* to that very past. In short, humans could not help but act in the way they did, faced with a threatening natural world while trying to find ways to thrive and prosper. If we pity the natural world in the face of past human excesses, we should also extend this feeling to humans themselves.

By adopting this view, an important change of perspective takes place, since it is *now* that we have gained the necessary perspective to develop a moral view of this past dominion. Only then can we try to *refine* that dominion, since we enjoy the comfort that affords us the luxury of thinking beyond survival. To put it bluntly, we can moralize our relations with nature only after our dominion of the latter has reached a certain point. Naturally, it could also be argued that the reason behind our ecological enlightenment is not so much a complete dominion but rather the evidence

25. Raymond Williams, *Problems in Materialism and Culture: Selected Essays* (London: Verso, 1980).

26. Soper, “Disposing Nature or Disposing of It?” p. 14.

that the latter has failed. Such failure would be dramatically displayed by climate change, a side effect of the human exploitation of nature that is happily taken by many commentators as some kind of “revenge” by nature on the arrogant, hubristic human species. To many environmentalists, in fact, domination is a form of anthropocentric delirium. In short: “Nature’s control is a dream, a delusion, a hallucination.”<sup>27</sup> For once, there are natural processes that remain inaccessible to us, interactions whose consequences we cannot predict, phenomena of such a range that we cannot influence them. The Anthropocene could actually be the proof of how dangerous it is to mess with nature, whereas climate change would be the most telling example of that general idea.

Admittedly, human domination of nature is complicated by the Anthropocene. It signals a number of planetary boundaries that must be respected, it points to several uncertainties regarding the coupling of social and natural systems, and it alerts about the possibility of reaching tipping points.<sup>28</sup> But, on the other hand, this is the logical consequence of our gain in knowledge: the more that we know about socionatural relations, the more uncertainty we must face. As Daniel Innerarity puts it, we might rather be “ignorance societies” instead of “knowledge societies,” that is, we are societies that “make progress not by increasing their knowledge but by learning to manage various forms of ignorance: doubt, probability, risk, and uncertainty.”<sup>29</sup> Such is the language of the Anthropocene, the music of contemporary socionatural relations. But the hardness of the task is no reason for abandoning it. Increasing our control of nature *and* refining it in order to reasonably protect natural forms is a feasible program for environmental political theory and society at large.

Of course, the domination of nature cannot be completely accomplished. But why must domination be *absolute* to be domination? There can be domination even though it is not complete and unlimited. The human ability to handle natural conditions may be *enough* to exert an effective control over them. It suffices that it is what Reiner Grundmann has called

27. Eric Katz, “The Big Lie: Human Restoration of Nature,” *Research in Philosophy and Technology* 12 (1992): 267.

28. See Johan R ockstrom et al., “A Safe Operating Space for Humanity,” *Nature* 461 (2009): 472–75. The notion of planetary boundaries has been proposed, and it actually entails the renewal of the limits-to-earth perspective that has permeated environmental thought since its inception.

29. Daniel Innerarity, “Power and Knowledge: The Politics of the Knowledge Society,” *European Journal of Social Theory* 18, no. 1 (2012): 5.

a *conscious control* of nature.<sup>30</sup> Thus the fact that an absolute dominion is out of reach becomes irrelevant if enough dominion is exerted. Nature's processes and entities do not have to be thoroughly manipulated for that dominion to be carried out. Likewise, a domination so conceived does not have to be equated with nature's *destruction*, inasmuch as it can designate its active and conscious *transformation*. In fact, the history of socionatural relations is the story of human stewardship and human–nature symbiosis *as well*.<sup>31</sup> Is this not a form of domination? After all, the latter refers to an uninterrupted process of dialectic interaction between society and nature.

Thus seen, domination is but the control—a transformative control—of the human interaction with nature. Insofar as a conscious and deliberate purpose is applied to an inherently dynamic relationship, domination acquires a *reflective* condition that makes full sense in the context of a refined socionatural relationship (one that dominion itself has made possible). Maybe the problem lies partly in the word and the connotations it possesses. We might then talk about human *control* of nature. We could even say that a blind domination of nature is replaced by a conscious effort to exert control over the socionatural entanglement.

This project is directly related to the search for sustainability. The latter concept has gained complexity as more and more challenges have been added to it, from climate change to the loss of biodiversity and the respect of planetary boundaries. As Rasmus Karlsson has recently argued, there seem to be, on a theoretical level, two principle options or strategies to achieve it, either (1) through the development of advanced technologies that would allow humanity to transcend its planetary boundaries, or (2) through the political and economic enforcement of those boundaries.<sup>32</sup> Naturally, some combination of them could also prove useful. However, the limits imposed on us by nature are not fixed or unchangeable. They have been historically challenged and enlarged as human beings have developed new technologies and refined their knowledge of natural systems' inner workings. Yet is it not a lesson of the Anthropocene that we cannot go back to any state of purity, nor even one of frugality? We live in a world of almost ten billion people who, as the economic crisis shows,

30. Reiner Grundmann, *Marxism and Ecology* (Oxford: Clarendon Press, 1991), p. 2.

31. See Joachim Radkau, *Natur und Macht: Eine Weltgeschichte der Umwelt* (Munich: C. H. Beck, 2000).

32. Rasmus Karlsson, "Ambivalence, Irony, and Democracy in the Anthropocene," *Futures* 46 (2013): 1–9.

want to enjoy a certain quality of life. Thus it seems that the challenge of the Anthropocene is to use human ingenuity to set things up so that the planet can accomplish its twenty-first-century task of respecting *and* enlarging planetary boundaries.

This involves posing some uncomfortable questions that have to do with the extent to which human control of nature can and may be exerted in order to achieve sustainability, as well as about the political means by which this decision can be made. Sustainability is then taken as the central concept *and* practical goal around which the reflection on socionatural relations revolve. In this regard, a postnatural sustainability involves a conscious control of a complicated socionatural relation and an acceptance of the role that science and technology have to play in our attempt to rearrange this relation.

If we conceive of sustainability as the attempt to exert a conscious control over socionatural relations, instead of claiming that nature itself should be controlled, then we would be in a position to refine such dominion without falling into the trap of believing that society can still be separated from nature. The socionatural entanglement is a *fact* rather than a normative ideal or a simple hypothesis. What climate change shows is how deep such entanglement has become. Therefore, correcting the side effects of the humanization of nature involves the management of a system that has emerged from socionatural interactions and mixture. This, in turn, is a technologically mediated process: we would not even know about climate change had we not possessed the scientific instruments that stemmed from the same process that provoked it in the first place. It is here that the notion of *technonatures* can be usefully employed. It is a term proposed by White and Wilbert in order to emphasize the central role that social power has played in the constitution of landscape and our environment, thus casting a skeptical eye “over the idea that a politics of the environment can be usefully grounded in terms of the rhetoric of defending the pure, the authentic, or an idealized past.”<sup>33</sup> This term, according to White and Wilbert,

seeks to highlight a growing range of voices ruminating over the claim not only that we are inhabiting diverse social natures but also that knowledges of our worlds are, within such social natures, ever more

33. Damian F. White and Chris Wilbert, eds., *Technonatures: Environments, Technologies, Spaces, and Places in the Twenty-first Century* (Ontario: Wilfrid Laurier UP, 2009), p. 5.

technologically mediated, produced, enacted, and contested, and, furthermore, that diverse peoples find themselves, or perceive themselves, as ever more *entangled* with things—that is, with technological, ecological, cultural, urban, and ecological networks and diverse hybrid materialities and non-human agencies.<sup>34</sup>

As mentioned earlier, this perspective also underlines the fact that agency is not confined to human beings, because non-humans of all kinds can also be active in the production and reproduction of our world.<sup>35</sup> Human strategies to deal with this entanglement cannot be the traditional ones advocated by classical environmentalism. The Anthropocene itself can be said to be a technonature. Hybridization, fungible capital, ecological restoration, technological interventions, even climate engineering—these are the instruments that the control of socionatural relations in the Anthropocene seems to demand.

In sum, nature has ended, but the Anthropocene is born. Environmental thought should not shy away from the challenge posed by the latter.

34. *Ibid.*, p. 6.

35. The climate is a suitable example of this. It has always been a major environmental factor in shaping the social life and has forced humans to adapt to very different conditions. As a result of industrialization, it was unintentionally altered by human beings in a way that is forcing them to adopt radical measures if the catastrophic consequences of an ever-growing Earth temperature are to be avoided. It can be thus said that climate has become an agent of environmental *and thus* social change. Moreover, just as the natural world has become *the* human environment, climate itself has *become* a technonature, as it has been influenced—and is measured and studied—by technological means.