

**Bruno Latour and the ontological dissolution of nature in the social sciences: a critical review**

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**Abstract**

The concept of nature is central in any reflection about the relationships between humans and their environment. It is frequently under attack, which created a divide in academia that might partly explain the science war of the 1990s and that is still latent. This article is an attempt to make a step ahead in this debate. It responds to the anti-essentialist critique of nature formulated by Bruno Latour in his influential book *Politiques de la Nature*. It shows that nature as an objective nonsocial reality must be conceptualized and studied if the relationships between humans and their environment are to be properly understood and managed. It proposes a definition of the word nature that is compatible with both an essentialist view of nature and the nonseparation of nature and culture. Eventually, it argues that such a return to an essentialist view of nature does not imply the use of nature as a benchmark to measure morality.

Keywords: nature, social constructionism, critical realism, Bruno Latour, epistemology.

## **Introduction**

Nature is a concept of great importance in Western culture and civilization (Merchant 2003): It lies at the core of the Christian myth of Genesis, where it takes the form of an Eden from which humans were excluded after they committed original sin. It frames the ideal of the Enlightenment, according to which the purpose of science is to control and domesticate natural forces, for the benefit of humankind. It is invoked to justify environmental discourses whose core arguments are that humans have disrupted the fundamental balance of nature, and must restrain their desires if this balance is to be restored. Nature, in all these settings, is considered as a world out there that is ruled by immutable laws and that is not the outcome of human activities. It is nonsocial by definition and is opposed to the cultural world.

This essentialist conception of nature has frequently come under attack, the last wave emerging out of intellectual movements such as postmodernism, social constructionism, and postconstructionism (Harraway, 1991; Cronon, 1995; Macnaghten and Urry, 1998; Braun and Castree, 1998; Castree and Braun, 2001; Latour, 1987, 1993, 1999). As a result, nonsocial nature is increasingly absent from the scope of inquiry of the social sciences. It is replaced by new concepts such as social nature, second nature, produced nature, or hybrid nature. These new “natures” are seen as the outcome of human agency, or of a hybrid form of agency, usually called relational agency, that involves both human and nonhuman “actants”. As a consequence, the distinction between an objective nature and its subjective representation tends to be seen as irrelevant, the former being the consequence of the latter as much as the other way around. Only the softer versions of social constructionism<sup>1</sup>, which significantly lost influence after the advent of the “strong program” (Bloor, 1976), unambiguously escape from that rejection of nature-culture dualism.

This new conceptualization of nature stimulated the deconstruction of environmental discourses that claim to ground their legitimacy on an objective morality that would reflect an objective natural order. Such moralization on behalf of nature has proved to be socially harmful, especially in developing countries, where it continues to be used to justify coercive environmental policies, in disregard for and ignorance of the relations of local people with

their environment (Keller, 2008; Pollini, 2007, 2011; Pollini and Lassoie, 2011). But besides its social and political utility, the anti-essentialist critique of nature can also lead to its own biases in the analysis of environmental changes (Pollini 2010). It raises epistemological and ontological questions that must be clarified if a synthesis is to be achieved among knowledge about nature, the idea of nature, and the use of the idea of nature, *i.e.*, if the relations between humans and their environment are to be improved and if progress is to be made toward a sustainable society.

Many authors (Gross and Levitt, 1994; Soule and Lease, 1995; Soper, 1995; Murphy, 1997; Demeritt, 1998; Hacking, 1999) have already analyzed the ontological and epistemological issues posed by the anti-essentialist critiques of nature. The debate, however, is far from settled, as shown by the diverse views expressed in recent issues of this journal (Woodgate and Redclift, 1998; Evanoff, 2005; Hill, 2006; Vogel, 2006; Chapman, 2007; Keeling, 2008). This article, which presents some affinities with the work of Murphy (1997), is aimed at providing some clarifications for a broader consensus. It will attempt to disentangle the political and heuristic functions of the anti-essentialist critique of nature.

The first section analyzes the concept of nature as an objective truth and its anti-essentialist critique. It focuses on the work of Latour (1987, 1993, 1999), who explicitly rejected the notion of nature and continues to exert great influence in the social sciences. The second section proposes definitions of the words nature, culture, and the environment that are compatible with both an essentialist view of nature and the nonseparation of nature and culture. In the conclusion, I suggest that the way nature works must be understood if humans are to make informed choices about their future, in accordance with the morality of any of their cultures. This implies adopting a dialogical model in which nature, culture, and their interactions are conceptualized, as a condition to avoid both the naturalization of culture (exemplified by sociobiology) and the culturalization of nature (exemplified by the concept of social nature).

## Nature as an objective truth

The deconstruction of nature as an objective truth takes its roots in two important intellectual movements: postmodernism and social constructionism. In this section, I analyze the attempt by Latour (1999) to discard the notion of nature, in his highly influential<sup>2</sup> book *Politiques de la Nature*.

Latour might be one of the most influential recent figures in social constructionism, although he took a relative departure, often called postconstructionism, from this movement. He considers the production of scientific knowledge to occur within complex networks of human and nonhuman entities that he calls “actants”. Ideas compete within these networks, and the accepted theories, in the end, are those supported by stronger networks, not necessarily those that match with nature. To the contrary, Latour defines nature as being produced by these networks. As he puts it, since “the settlement of a controversy is the *cause* of Nature’s representation not the consequence... *we can never use the outcome – Nature – to explain how and why a controversy has been settled*” (Latour, 1987, 99; emphasis in original).

This excerpt unfortunately lends itself to multiple interpretations, which reflect and/or explain the confusion and tensions in the academic debate about nature. It is unclear, as also noted by Sokal and Brickmont (1997), whether Latour speaks of real nature or of nature’s representation. For most biophysical scientists, the cause (or one of the causes) of the settlement of controversies is real nature, whereas the consequence of the settlement is simply the representation of nature, which, most would agree, is socially constructed. If Latour had explicitly made this distinction, his assertion would cease to appear to be a Copernican revolution and critique would probably not have “run out of steam” (Latour, 2004). But Latour’s analysis of “science in the making” would then not differ significantly from Merton’s (1973) earlier account of the social construction of knowledge, an approach the proponents of the “strong program” (Bloor, 1976) criticized and rejected. This might explain why the most radical interpretations of Latour’s work were preferred. Law (2004), for instance, argued that Latour really meant that the representation of nature is the cause of real nature, and that this conception must be accepted in spite of its highly counterintuitive character. Latour’s detractors quickly took advantage of the metaphysical paradoxes<sup>3</sup> to which this leads. Gross and Levitt (1994), for example, made the commonsense argument that rain doesn’t stop falling just because people agree that it isn’t raining. But in spite of these critiques, the radical interpretation of Latour’s work persisted. This signaled the end of the distinction between nature and its representation, and of any essentialist conceptions of nature, in several branches of the social sciences. As a consequence, confusion or paradoxes

continue to plague debates between social and biophysical scientists studying the relations between humans and their environment.

Latour attempted to answer these critiques. He explicitly recognized that a world exists out there that has its own rules. His more recent work reintroduced a form of causality arising out of nature, through processes often referred to as relational agency. But at the same time, Latour (1999) maintained that distinguishing between an objective nature out there and the representation of this nature was irrelevant. He explicitly proposed eliminating the notion of nature, using arguments that raised new paradoxes.

His first argument is that nature represents a threat to politics, because its objective character is translated into supposedly undisputable claims, thereby putting an end to public debates. The fact that knowledge about nature is used to claim undue authority is obviously true. But it is not necessary to reject the idea of nature as an objective truth in order to open political debates. It is sufficient to reject any claim to have certain knowledge about that truth. In other words, the rejection of the dominant epistemology (positivism, or classical empiricism, according to which the true nature of things can be known) does not imply the rejection of the most intuitive ontology (the distinction between a unique and objective nature and its multiple representations). Popper (1966), whose book *The Open Society and Its Enemies* starts, like Latour's (1999) *Politiques de la Nature*, with a critique of Plato's myth of the cave (a foundational text of positivist epistemologies), proposes the acceptance that all knowledge is uncertain as a remedy to hegemonies and authoritative knowledge.

Latour's (1999) second argument is that environmentalism deals not with nature but with hybrid nature-culture objects that are the outcome of social practices. This hybridity would render the concept of nature meaningless.

Before analyzing this argument, a clarification is required. Latour, here, does not question nature defined as the objective world out there, as was the case in the first argument. He rather questions nature defined as the dimension of the world that is not the outcome of social processes, in contrast to culture. These two conceptions of nature are unfortunately often amalgamated, another cause of confusion in the debate. For a clearer distinction between these two meanings of the word nature, it would be more appropriate to speak about realities and representations when dealing with the world out there and knowledge about it; and to speak of nature and cultures when dealing with the objects that constitute this world.

This clarification being done, Latour's second argument can also be disputed because even if no objects remained in the world that were purely natural (an assertion that is itself disputable), saying that an object is the outcome of social processes does not mean that this

object does not include any nature. It does indeed, and language has captured this fact: saying that an object is “natural” is simply stating something about its high degree of naturalness, relative to other objects. An urban dweller traveling in the countryside will feel surrounded by nature, while a forest dweller traveling in this same countryside will feel surrounded by a cultural or anthropogenic landscape. Most environmentalists are concerned not with pure nature, but with the natural content of hybrid objects, and by the extent to which humans can afford to reduce this content without exposing their societies to collapse or threats. The question they ask is, as Odum (1969) puts it, how much can we afford of a good thing (culture) without sacrificing too much of another good thing (nature)? Only the most radical branches of deep ecology, which are highly criticized by many environmentalists, call for a return to pure nature. Keeling (2008) shows the fallacies toward which one can be conducted by not differentiating between the abstract meaning of a concept and its practical meaning in everyday language and in particular contextual settings. He shows that saying that there is no wilderness, in the sense that no place is devoid of human activities, is as empty as saying that there is no justice on the ground that there is no absolute or perfect justice.

Latour’s (1999) third argument reflects his attempt to depart from social constructionism. Latour argues that social constructionism, with the exception of strong versions that equate nature (in the sense of an objective world out there) with its representation, strengthens the separation between the social and the natural worlds, because it maintains the distinction between a world out there that continues to unfold its own history, and a society that “constructs” a parallel history by creating social representations. Latour proposes to move ahead of this dualism. He proposes a new conception of the world in which the social, instead of an arena in which humans make statements about the “nature” of a nonhuman world whose rules are defined once for all, is a collective of humans and nonhumans whose properties are not fixed and that expands by recruiting and socializing an increasing number of nonhuman objects. This conception actually reflects the way any society works. The “world” that matters for humans in their everyday lives, including in the practice of science, is only a subset of the real world. It is a subset constituted of humans, nonhumans, and hybrid things that are objects of knowledge and practice; *i.e.*, with which humans have already established cognitive or physical relations. This “subworld” is continuously changing by the addition, but also exclusion, of new elements, following processes that Latour described with relevance. But one can ask whether this contingent “world” is actually the one that fundamentally matters. Unknown objects not yet recruited by Latour’s collective can have effects on humans and their societies, even if these effects are not perceived. Recruited

objects can also carry unknown properties that have unknown and unobserved effects. It can thus hardly be said that the objective world “out there” is not entirely part of the collective. Some of the objects that constitute it are cognitively absent, but are substantially present nevertheless. The existence of an unknown (unrecruited) realm thus has to be explicitly postulated, which might precisely be the function of saying that a domain exists (which is often called nature, but which I prefer to call reality, in order to avoid the confusion between the nature/culture distinction), that is ontologically distinct from the representations or social constructions produced through the interaction of humans with nonhumans. If this conceptualization were not made, then we would not be prepared to anticipate disasters provoked by processes about which we are ignorant. We would have no reason to take precautions when facing the unknown, because we would claim that the world that matters is simply the world we know: the one made of objects that we have already recruited. And we would have no reason to care for nature, this reservoir of the unknown.

Latour nevertheless recognizes the existence of an objective domain “out there,” in the form of a reservoir from which new objects are regularly recruited. But he minimizes the importance of this objective domain. As he puts it,

there is indeed an external reality, but there is really no need to make a big fuss about it (Latour, 1999: 38). [...] When the newly recruited nonhumans show up to enrich the demography of the collective, they are quite incapable of interrupting discussions, short-circuiting procedures, canceling out deliberations: they are there, on the contrary, to complicate and open up these processes (*ibid.*).

This assertion appears to be quite disputable. Aren't disasters, for example, the unexpected consequences of unknown processes generated “out there”? Don't they interrupt our discussions? Don't they force us to fundamentally put into question the deliberations about our world? If a controversy about how to manage nature has been settled before a disaster arrives, doesn't this disaster leads us to reopen the controversy, and to resettle it in a different way? The citation above also appears to be quite contradictory with Latour's own model, for two reasons. First, it still postulates that there is a world out there made of nonhuman objects to be recruited by the collective. We can wonder, then, where do these objects belong, if not to the nature that Latour discarded? Second, the citation reveals a world where there is no overall separation between humans and nonhumans, but where some nonhuman (natural) objects, those that have not yet been recruited, are totally separated from humans (and hence from culture), as they are not even members of the collective. So beyond the claim to put an end to the separation between nature and culture, Latour seems to raise a

stronger barrier between a mostly natural world that is not yet known and the hybrid objects that constitute his collective.

Zimmerer's (2000) conception of conservation shows how the lack of consideration for a noncognized world, which might be the logical consequence of adopting a model that separates recruited and nonrecruited things, can lead to the absence of care about nature. He argues, in a widely cited article<sup>4</sup>, that "the making of today's conservation territories belongs **fully** to the production of nature and space" (Zimmerer, 2000: 360; my emphasis). From an attitude that consists in conserving a realm that preexisted human beings, conservation thus becomes the production of a socially designed biophysical and cultural world that can only reflect the knowledge we have about the world. It should indeed not be called conservation anymore, because something that is produced is by definition not conserved. Zimmerer's proposition might illustrate what Proctor (1998) called moral relativism, *i.e.*, the attribution of an identical legitimacy to all representations. The consequence is that the world as it is, with the rules it might have, is no longer a matter of concern unless it is known. This conception could lead to the production of a totally anthropogenic world that would reify our partial knowledge and that might be as flawed as our representations are<sup>5</sup>. While producing this world, humans could ignore natural laws and be overly driven by their short term needs and desires. And if this desired world actually failed, there might be no way to return to the natural world that preexisted it, unless pieces of it were kept in some places, which is precisely the role conservation should play.

It could be argued that nature does not always work, or, at least, that it does not always work correctly for humans, and that a desired world would then be a better place than a "conserved" world. One can hardly dispute the eradication of smallpox, for example, in the name of nature conservation. But to say this is not to refute the previous arguments. It simply means that this argument does not exist alone. Between the tendency of societies to produce a cultural world that they wish to control and whose natural content is reduced, and the tendency of the natural world to produce disasters that pose a threat to societies, humans have to find their own way. This requires an assessment of the implications of both natural and cultural processes and necessities, which is precisely why we should distinguish between nature and culture.

To summarize Latour's third argument, the distinction made between a socially constructed collective and a reservoir of unrecruited objects out there substitutes for the ontological distinction between an objective reality and its subjective representations. This could encourage a conception of politics in which only the world that is known and desired is

considered, as in Zimmerer's conservation territories. Policies designed within this conception might fail to consider what is located beyond the limits of knowledge, and thus lack the proper tools to address the possibility of mistakes. This can be illustrated by an example.

Let's suppose that a scientist comes back from the world out there with a new nonhuman object to add to the collective, such as atmospheric CO<sub>2</sub>. If we adopted the conventional distinction between nature and its representations, data about atmospheric concentration would be regarded as the "words" of nature registered on a scientific apparatus, although it would be acknowledged that these words could be misread or misinterpreted, for various social or cultural reasons. Because of these potential biases, a category of persons (scientists) trained to read these signs, and detached, as far as possible, from social networks not relevant to their task, would be responsible for providing the most objective reading. Once this reading was achieved, new ways to organize the collective would be defined accordingly, and this is where politics could play a legitimate role. The decisions that would be made would relate to the world considered comprehensively, not simply to these new facts about CO<sub>2</sub> provided by scientists. Issues such as limits to knowledge and uncertainty would be raised in the process of establishing links between the newly discovered facts and a broader social and natural world that remains partly unknown, but whose laws nevertheless operate and determine our future. Taking precautions is a type of political decision that can be associated with recognizing that the unknown world out there is part of the collective; that knowledge about the world is never exhaustive and can be wrong. Democratic control over science, which can be equated to confronting collective experience with the detailed but narrow observations made by one particular social group (scientists), could be another answer to uncertainty. The conceptualization of an unknown world out there, that we commonly call nature and that no representation can comprehensively capture, in spite of the fact that we are part of it, might justify taking such precautions and calling for collective experience.

If we adopted, now, the model proposed by Latour, decisions could only be based on existing knowledge, and would only consider the fate of objects that are already present in the collective. This could lead to the absence of precaution in face of the unknown (not to be confused with uncertainties, which could still be addressed). Collective action would be at risk of being framed within a closed system of established knowledge, which could be detrimental to public debates and encourage coercion by scientists, or by any expanded social group that claims to produce or manage more objective knowledge. The solution that Latour might be suggesting is to include all concerned actors in the social group that produces knowledge. Consistent with this, Actor Network Theory (ANT) argues that only actors should

synthesize the ingredients of the social and that only their objections are the source of falsification (Latour 2005: 249). But how can objective syntheses and falsifications be produced democratically by such an all-encompassing group? If it can't, which actors will play more roles in bringing objections and proceeding to settlements? How will these more influential actors arise, or what will be the criteria for acknowledging the legitimacy of their claims? Hasn't science been created precisely to solve these problems? If so, it has certainly failed its mission. But creating a new canon of science derived from the way it actually works, by rendering the "machines" that produce scientific knowledge more encompassing and more "democratic", might in the end legitimate the transformation of the production of knowledge into a subjective activity. The consequence may be a drift toward a science that is increasingly political, no abstract model being available to justify resisting this drift.

*Politiques de la nature*, which may be Latour's response to the critiques formulated by Gross and Lewitt (1998) and others, remains influential, despite the many unsolved paradoxes and questions it raises. Why is this so?

The first reason might be that Latour's work enabled undisputable methodological advances in the social study of sciences. *Laboratory Life* (Latour and Woolgar 1979) was a landmark case study in the ethnography of science, and *Science in Action* (Latour 1987) elaborated a method whose relevance can hardly be disputed. It was indeed highly inspirational in my own academic adventure (Pollini 2007). Proceeding as if the categories nature, culture, and society did not exist, for methodological purposes, has the advantage of creating a blank slate upon which real-world objects, their connections, and the processes that lead to their formation can be mapped according to what they really are; not according to what they are expected to be. This exercise, which characterizes ANT (Latour 2005), can give some fresh air to sociology because it enables the creation of new categories that may better reflect the ever-changing configurations of our world than categories created decades or centuries ago. But saying that proceeding as if Nature did not exist, for methodological purposes, is not the same thing as rejecting once and for all the notion of nature. The recognition that an essential nature exists, and that its understanding is particularly relevant in the present configuration of our world, could indeed be the conclusion of conducting an ANT exercise that initially postulated, for methodological purposes, that such a Nature does not exist. In sum, this first explanation of the popularity of Latour's work justifies the esteem given to his contributions from a methodological standpoint, but not the ontological positions criticized in this paper.

A second explanation could be that Latour's work is misunderstood by its detractors. Such misunderstanding exists obviously, at least for some aspects of his work. Some passages of his recent books are quite obscure for many readers, and they are for me. But misunderstanding exists also among scholars who are sympathetic to Latour's concepts, who continue to debate whether an objective reality exists or not, or whether a distinction needs to be made between the real world and its representations, and between nature and culture. Cronon (1995: 458), for example, recognizes the existence of an objective nature when he writes that nature is "a material reality that sets limits [...] on the possibility of human ingenuity and storytelling." But elsewhere in the same book, he says that he explicitly seeks to critique the view that the thing described by the word nature "is *not* of our own making" (Cronon, 1995: 34; emphasis in original). Eden (2001: 82) wonders whether a cultural turn occurred in social constructionism that decentered natural agency into the social sciences, and whether nature, becoming a "product of culture" (*ibid.*), could then "cease to exist" (*ibid.*). If this occurred, environmental problems could become "merely fictions wrought of constructions" (*ibid.*) and it would not be necessary to solve them (*ibid.*). Eden (2001: 83) concludes that "as well as the recognized 'cultural turn', we also need to perform a 'natural turn'". I wonder what would be the difference between this "natural turn" and a return to the essentialist conception of nature.

Latour's wide influence thus does not seem to be matched by a similar level of understanding or agreement about his ontological model. This leads us to a possible third explanation for his influence: it might be, using Latour's (1987) words, that the hype created around his counter-intuitive ontology favored the construction of a "strong rhetoric", facilitated the "recruitment" of large "networks" of scholars searching for radically new ideas, increased his "authority" thanks to the multitude of "citations" of his work, and led to the construction of "machines" in charge of carrying his findings among academic circles. The paradoxes, ambiguities, or obscurity of certain arguments may maintain a situation of intellectual excitement that calls for more debates, which contributes to strengthening these networks. Latour's increasing influence may thus be a great illustration of science in action as he described it. But it may be that "nature", that is, the reality of how true knowledge is produced, will be stronger in the end than the machine he built and will determine how the controversy about his model will be settled, as when David used his slingshot against Goliath, to again use Latour's (1987) words. Nature as an ontological category can be dissolved within our conceptualization of the world, but if it reflects something that exists, and if this thing has specificities that do matter for our future, then it may be given attention again, especially if

politics that do not consider it fail. The fact that sociologists who specialize in the study of environmental disasters (Murphy, 2004) tend to reject Latour's models and to adopt a critical realist stance instead may be the first sign that this is going to happen.

### **Refining our definitions of nature, culture, and the environment**

We saw that the tendency to conflate realities and their representations is paralleled by a lack of distinction between the natural and the cultural dimensions of the world. In this section, I propose new definitions of the words nature, culture, and the environment in an effort to restore and clarify this distinction, as a preliminary to proposing new avenues for dealing with the relationships between humans and their environment. In order to achieve this, it will also be necessary to clarify what we mean exactly by distinction.

Scoones (1999: 487), referring to the evolution of environmental discourses under the influence of social-constructionist or postmodern authors such as Latour (1993), Haraway (1991), or Escobar (1999), argues that there is a “dissolution of nature-culture **distinction**”; an “increasing recognition of the need to go beyond the restrictive nature-culture **divide**” (Scoones, 1999: 497; my emphasis). Here Scoones uses the words distinction (to distinguish: “recognize, show, or treat as different”<sup>6</sup>) and division (to divide: “separate into parts”<sup>7</sup>) interchangeably, whereas considering things as distinct does not imply viewing them as separate. To give just one example, we can distinguish words from sentences in a text, but this does not mean they are separate.

The confusion between these two terms, which is very frequent in writings dealing with “social” or “second” nature, may be the corollary of the conflation of realities and representations that characterizes the social-constructionist literature. Nature and culture can be regarded as conceptually distinct (in the represented world) although they are not separate physically (in the material world). When considering a hybrid object, one has to wonder “hybrid of what?”, which implies distinguishing between nature and culture. Equating the nonseparation of these two principles to their nondistinction leads to the impossibility of analyzing the interactions between natural and cultural contents within such objects. The concept of relational agency, which is associated with that of hybridity in the writings of Latour and his followers, masks the specificities of natural and cultural processes in hybrid objects. These specificities could be, for example, the ability to make choices and the moral implication of these choices in the case of cultural processes, and the absence of morality and choices in the case of natural processes. If these specificities are recognized, the concept of

symmetry, central in Latour's (1993) model and the direct consequence of not distinguishing between nature and culture conceptually, no longer makes sense.

Hence nature and culture need to be distinguished, but are not separated from each other. But how, then, should we define these concepts? How can we make an ontological distinction between nature and culture that does not lead us to view them as separate? I will propose a definition that might help us move ahead. But first, we must analyze what seems to be the most widespread definition of nature. According to Soper (1995: 15),

in its commonest and most fundamental sense, the term "nature" refers to everything which is not human and distinguished from the work of humanity. Thus nature is opposed to culture, to history, to convention, to what is artificially worked or produced.

This widespread definition poses two problems that probably explain much of the confusion in the debate. First, it places humans outside of nature, whereas humans cannot be considered entirely cultural, because they are not the product of their own work, at least in the first place. Second, it implies that there is currently no natural object on the surface of our planet, because everything visible has been affected, to a larger or lesser degree, by human actions.

The solution to these two problems is to consider that nature is a dimension of things, not these things themselves. This was suggested by Terrason (2002), for whom nature is present everywhere because it constitutes the basic material for all things. According to Terrason, nature exists to a larger or lesser degree in all things. The lumber used to build a house still contains some nature, but less than the tree that has been cut to make it. A frozen fish stick contains some nature, but less than the fish caught to make it. Even a highway or a nuclear power plant contains some nature, in the structure of the sand and rocks that have been used to build them. These examples show that as soon as humans put some culture into things, they reduce their natural content and increase their cultural content. Nature can then be defined as the dimension of the world that is not the outcome of human agency, while culture, inversely, is the dimension of the world that is the outcome of human agency. These two dimensions are exclusive, meaning that everything that is natural is not cultural and conversely, but are also inseparable, because the natural world is the substratum upon which human agency produces culture. The destruction of nature, thus, is the diminution of the

natural content of things in favor of cultural content. In other words, the corollary of the destruction of nature is the production of culture. There is a tradeoff between the two, as Odum (1969) suggested when he asked how much we should get of that good thing (culture) without imperiling that other good thing (nature). Or, as culture itself is a production of nature, we can say that nature has the capacity to destroy itself, by the creation of more culture. But no moralization should be attached to these assertions: saying that nature is transformed into culture says nothing about whether either of the two is better than the other. Only humans can decide whether something is good or bad. Nature itself carries no moral, an argument that Greenwood (1984) explored in greater depth<sup>8</sup>. The essentialist conception of nature is thus perfectly compatible with rejecting the use of knowledge about nature as a benchmark to measure morality. Knowledge about nature can only tell us whether a decision will lead to the expected outcomes, while morality tells us what kind of outcomes we should be looking for. The first is dealing with addressing necessities, while the second is dealing with making choices.

Many societies did not distinguish between nature and culture, as was recently demonstrated by Descola (2005). This might be because in these societies there is still a certain balance between nature and culture; enough of a good thing (culture) is obtained without losing too much of another good thing (nature). Or, as mentioned earlier in discussing Latour's (1999) model, culture, in these societies, does not yet wield significant influence beyond the frontiers of the collective it has created. But when recruitment becomes pervasive to the point that the things that are recruited might disappear, or become dysfunctional, like when recruitment concerns the biosphere and atmosphere of the whole planet, then it becomes necessary to create concepts that distinguish between the recruited and the nonrecruited realms. Languages, which are designed to render the world intelligible, coin new concepts when new interactions with the world require it. To give just another example, Inuit people (and alpinists) have a rich vocabulary to name the different types of snow conditions, because understanding these types is a matter of survival for them. Consistent with this, attention to nature emerged or acquired more momentum when humans encountered the limits of their biophysical world: when deforestation led to the aridification of small islands in the

seventeenth century (Grove 1995); when colonists closed the frontier in North America (Marsh 1874); and after the publication of pictures of our planet taken from outer space, in the 1960s. When these limits were encountered, humans, through their common sense, started to believe that a world that is mainly the outcome of their choices and desires would be quite different from a world that is mainly the outcome of natural tendencies. They started to wonder whether their choices always took account of natural necessities, some of which they may not even know. So they started to question the impact of their activities on the natural world, as well as the reverse impact of this transformed world on their own nature.

It is worth now discussing another key concept: the environment. This concept must not be confused with nature. As we saw, nature is a dimension, a quality, a principle, more than a thing. The environment, on the other hand, has a physical reality. We can touch our environment, but we cannot touch nature. We can simply touch natural objects or objects having more or less natural content. What is it, then, that we call the environment? The etymology of the word is meaningful. The environment is just what surrounds us. The French verb “*environner*” in English is translated as “*to surround*”. Hence we can speak of the natural environment but also of the cultural, the social, or urban environment and so on. When we speak simply of the environment, we speak of something that contains all these dimensions. We speak, indeed, of this hybrid object that is made of nature and culture. The environment is, by definition, an anthropocentric concept, in contrast to nature, which refers, by definition, to an otherness, or to the otherness, the mysteries, within ourselves. The environment, as well as its representations, are socially constructed, at least in part, whereas nature, by definition, is not socially constructed (only its representations are). The thing that the social constructionists call produced or second nature might thus just be the environment.

### **Conclusion**

The issues treated in this article have been debated for as long as humans have questioned the cause of their knowledge and struggled to understand their world. They will probably never be definitively settled, and such settlement is not even desirable, as it would close our minds to questioning further who we are and where we live. A tentative logical framework, however, is required if we are to collectively produce knowledge about our world,

join the views produced from various angles, and make the right decisions about how we manage our environment, *i.e.*, make decisions whose expected outcomes will be realized.

This article showed that in many cases, disagreement about what is nature and how we relate to it can be explained by a lack of clarity in the meaning of words, or by differences in the definitions given to these words. It defined nature as the dimension of the world that is not the outcome of human agency, in contrast to culture. Given that an increasing number of objects are hybrids containing both a natural and a cultural dimension, a distinction between nature and culture is required if we are to understand how our world works. Human agency and natural laws both contribute to the shaping of real-world objects. Because each operates in its own way (following subjective desires and by making choices in the case of human agency, or as a consequence of powers contained in structures in the case of natural laws), the two cannot be seen as symmetrical and must be understood in terms of their specificities.

Academia will continue to hotly debate the meaning of the word nature, whether we can know how nature works, and whether we can normatively define what “natural” means. But laypeople in their everyday lives are rarely involved in such debates and tend to agree on what nature is. They usually consider that nature is more present in the American West than in New England, and that breast-feeding is more natural than feeding infants with formulas. They are aware that nature creates necessities and that their decisions and choices need to be made accordingly. Even scholars adopting radical essentialist or anti-essentialist conceptions of nature might not differ significantly in the way they interact with the natural world in their ordinary lives. No human being in full possession of his or her mind makes decisions based on desires alone, nor on considering natural constraints or necessities alone. But why is it, then, that different conceptions of nature are produced when humans move from muddling through their world to producing knowledge about their world? I will close this article with a few thoughts on this issue.

The reason might be found in Aristotle’s statement that things are one in substance but two discursively (Dumont, 1992). When struggling to find our way in the natural world, we must deal with the substance of things, which requires seeing things from all possible perspectives that have relevance. Experience shows us that if we do not do so, we make mistakes and do not fulfill our expectations. When our main motivation is to produce knowledge, on the other hand, we prefer to focus on one aspect of a problem, because this makes it easier to handle. It enables us to produce models with strong internal coherence, in which the effect of manipulating certain variables can be predicted. Thanks to this great internal coherence, we can develop a rhetorical power that, in academic spheres, is highly

valued. The outcomes are closed systems of knowledge that have limited operational value, because the world they attempt to depict is, in contrast, an open system. The “noise” that makes that world more real than the model is rejected at the outset. More than this noise, entire domains of knowledge are in fact excluded from the model, just because they are beyond the radar of the scholar’s discipline. In the social sciences, nature as a category distinct from culture is often excluded, while in the natural sciences, society as a realm with specific mechanisms is overlooked. The consequence of these symmetrical exclusions is that when we produce knowledge about nature, we tend to naturalize culture, by claiming that it follows natural patterns that have to be discovered, or that it should be reshaped in order to follow patterns dictated by nature. And when we produce knowledge about culture, we tend to think that nature does not exist, that it is a mere outcome of culture; a social construction.

The next step, then, should be to return to a genuine commitment to understanding realities, *i.e.*, open systems, by synthesizing and opening the multiple models and narratives we have produced out of these realities. The resulting representations will still be uncertain and incomplete, and only the long-term future will tell us whether they are right, when we will observe the success and failure to which they lead us. But if, in the short term, we better connect our academic and philosophical questioning to real-world endeavors, such as building the bricks of a more sustainable world, we might end in settling the controversy about the dialectic of nature and culture faster than expected, just as we settle it now in conducting our everyday lives.

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<sup>1</sup> The soft versions of social constructivism do not lead to epistemological and ontological revolutions. They are concerned with understanding the social processes that drive the production of knowledge and consider these processes as biases to objectivity that need to be detected in order to produce more objective knowledge. They are compatible with the adoption of classical empiricist and critical realist epistemologies. Latour's work is usually considered as reflecting the "strong program" in the sociology of science, but can nevertheless be used by adepts of the soft program, as I did in my own research, in which case it has only methodological implications. In this article, I am not disputing the relevance of methods such as Actor-Network Theory proposed or supported by Latour. I am simply exploring ontological justifications for maintaining the category "nature" in language. Maintaining this category could indeed be the conclusion of conducting an ANT exercise (see page 10).

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<sup>2</sup> *Politics of Nature* has 604 citations in Google Scholar (December 2010). Other influential books developing similar arguments are Donna J. Haraway's *Simians, Cyborg, and Women* (4834 citations); William Cronon's *Uncommon ground: toward reinventing nature* (287 citations); Philippe Descola's *Par-dela nature et culture* (288 citations); Noel Castree and Bruce Braun's *Social Nature: theory, practice and politics* (201 citations).

<sup>3</sup> These paradoxes characterize what Hacking (1999) called linguistic idealism, a doctrine derived from the philosophy of Berkeley and according to which "only what is talked about exists." This doctrine has never been explicitly adopted by social constructionists, although it often seems implicit in their writing if taken to the letter, as in Latour's citation above.

<sup>4</sup> 153 citations on February 6, 2010, according to Google Scholar.

<sup>5</sup> We can parallel this process to what already happened in the social sciences, where the reification of an incomplete and probably flawed model of society (the so-called "free market") led to major global malfunctions (climate change, unprecedented social inequalities).

<sup>6</sup> Oxford dictionary on line.

<sup>7</sup> Oxford dictionary on line.

<sup>8</sup> I have a paper in preparation on this subject. To anticipate a little bit, nature has no morality because it does not make choices and builds as much as destroys. To say that nature has an essence that can be defined normatively says nothing about whether this essence and respecting these norms is good or bad. Moreover, such norms can only be tentatively defined, because all knowledge is uncertain (Popper 1963).