Nature and Technology: Towards an Antinaturalistic Naturalism

Luca Illetterati

> *Nous sommes des êtres naturels qui avons dette de techné pour payer la physis qui est en nous; le germe de physis qui est en nous doit se dilater en techné qui est autour de nous. On ne peut accomplir son essence sans faire rayonner les organisateurs que l'on a en soi*[1].

1. *Introduction*

In this article, I would like to problematize the dichotomy of nature and technique that marked most philosophy in the 20th century. In his essay on the concept of *physis*, which in many respects constitutes one of the most influential approaches to the relation between nature and technology in the 20th century, Heidegger condemns what he stigmatizes as a typically modern «technical» approach to nature. Modern metaphysics, says Heidegger:

> Conceives of "nature" as a "technique" such that this "technique" that constitutes the essence of nature provides the metaphysical *ground* for the possibility, or even the necessity, of subjecting and mastering nature through machine technology[2].

Here, I would like to show what I consider to be the inadequacy of Heidegger's position. I believe that, in denouncing the limit of an understanding of nature that reduces it to a technical artefact, Heidegger emphasizes a fundamental aspect of modern philosophy. On the other hand, by further affirming the radical opposition between nature and technology, Heidegger's perspective is ultimately incapable of understanding the nature of technology per se.

In my argumentation, I would like to show the need for a different theoretical framework to think about the conceptual relation between

[1] G. Simondon, *Sur la technique*, Presses Universitaires de France, Paris 2014, p. 24.

[2] M. Heidegger, *On the being and conception of φύσις in Aristotle's Physics b, 1*, in «Man and World» 9 (3), 1976, pp. 219-270, p. 220.

nature and technology. In particular, I would like to point out the necessity:

1. of deconstructing the dualism between nature and technology;
2. of radically re-conceiving technology as nature-like;
3. of showing that the naturalization of technology can be achieved only through a sort of denaturalization of nature.

My argument consists of three points. I will first focus on the classical distinction between natural beings and artefacts that Aristotle proposed in his *Physics*. This distinction lays the foundations of the traditional approach to the ontology of nature and the ontology of artefacts for most Western philosophical thought. I will then point out some problems inherent to the modern conception of nature. In early modern philosophy and science, artefacts became the models through which natural items were conceived in the first place. This was, in other words, the establishment of an artefactual approach to nature. In my discussion, I would like to mention three moments of decisive theoretical tension in the history of modern philosophy. These moments, which mark divergences from the Cartesian and Galilean framework, correspond to the names of Leibniz, Spinoza, and Kant. Finally, I will conclude with a proposal for the naturalization of technique. What I would like to claim is that a naturalization of technique requires the development of a conception of nature that is hospitable to all those concepts (subject, freedom, normativity) that are classically conceived in opposition to nature. This notion of nature is what I call a denaturalized idea of nature. To develop this denaturalized idea of nature, I refer to the philosophy of nature developed by Schelling and Hegel, which provides us with the conceptual tools necessary to overcome the typical modern dichotomies between subjectivity and nature, freedom and nature, and technique and nature.

2. Physis *and* techne

As is well known, the second book of Aristotle's *Physics* begins like this: «Some things are due to nature; for others there are other causes»[3]. Things that are by nature, says Aristotle, are «animals and

[3] Aristotle, *Physics: Books 1 and 2.* Translated with Introduction and Notes by W. Charlton, Clarendon Press, Oxford 1970, 192b, p. 23.

their parts, plants, and the simple bodies, such as earth, fire, air, and water»[4]. The fundamental feature of these entities is that «each has in itself a source (*archè*) of change and staying unchanged, whether in respect of place, or growth and decay, or alteration»[5].

Understanding this passage implies understanding the specific meaning of movement, of *kinesis*, in Aristotelian thought. In particular, what one has to consider is that the different types of movement that Aristotle mentions are irreducible to that unique mode of movement that tends to be conceived of within the conceptual horizon of modern physics – namely, the movement of a body in space. This type of movement is only one of the many species of *kinesis* for Aristotle, and it is not the one that most characterizes the way of being of entities that are *by nature*. Among those that Aristotle lists, local movement is that type of movement which is more immediately technically reproducible and, therefore, less characteristic of *physis* in its most specific way of being. It is precisely to explain the sense in which the entities that come from *physis* have the principle of movement in themselves that Aristotle introduces a definition of technical entities:

> A bed, on the other hand, or a coat, or anything else of that sort, considered as satisfying such a description, and in so far as it is the outcome of art, has no innate tendency to change, though considered as concurrently made of stone or earth or a mixture of the two, and in so far as it is such, it has. This suggests that nature is a sort of source and cause of change and remaining unchanged in that to which it belongs primarily of itself, that is, not by virtue of concurrence[6].

Unlike natural entities, technical products or artefacts do not have the origin of their movement in themselves, but in something other than themselves. Aristotle further clarifies the sense in which what is by nature is structurally and, therefore, ontologically different from the product that has its origin in art, using what appears to be a disarming commonplace: «further, men come to be from men, but not beds from beds»[7]. Let us consider the bed.

First of all, it is clear that the existence of the bed requires that it be *produced*. To be produced, it is necessary that it be *designed* by an entity that is different from the bed itself, that there be, therefore, a *pro-*

[4] *Ibid*.
[5] *Ibid*.
[6] *Ibid*.
[7] Aristotle, *Physics*, 193b, p. 25.

ject, and that this project finds its effective realization through a *process of construction*. Secondly, the bed will be a concrete bed; that is, it will really be fulfilled as a bed only when the work of the craftsman who is called to realize the project is *finished*. The bed is actually a bed only when the material of which it is composed has been worked and transformed by the builder and, therefore, only when the production process is concluded. As Gilbert Simondon says, the technical object is produced when it is detachable, i.e., it is constituted and put out by the one who produces it («c'est-à-dire à la fois *constitué* et *mis hors* de l'agent constituent»)[8].

Let us now consider the human being, conceived here not in its anthropological difference, but as an expression of natural entities. The pattern of action that presides over the coming to being of humans is completely different from that presiding over the coming to being of the bed. Whereas, in the case of the bed, as we have seen, its *archè* is in another by itself, its *eidos* is in the one who designs it. The process of its realization is separated from its being there as a bed. However, the human being — and this applies for Aristotle to all things that are *by nature* — has instead its own *archè* in itself — that is to say, in an entity that has the same nature as what comes from it. Along with its *archè,* it also has its own *eidos* in itself. Moreover, in the human being, in contrast with what happens in the bed, the process of its realization cannot be separated from its being there. The human being, like all living beings, is what it is only in the very process of its realization, so much so that at the very moment in which it ceases to be the process of itself, it also ceases to be. In a certain sense, it can be said that, unlike the technical product, which is actual only when the process of its realization is finished, the natural entity is only as long as it is the process of its realization.

This point is particularly relevant: the specificity of humans with respect to beds, that is, of the entity that is by nature as opposed to the technical entity, lies not only in the fact that the origin of *physis* is internal to the *physis* itself, but, above all, that even the action that is involved in the way of being of natural entities presents itself as an action radically different from that involved in the production of any artefact. The action that is active in the *physis* is an action that cannot be understood on the model of the *poiesis*, which, according to Aris-

[8] G. Simondon, *Sur la technique* cit., p. 28.

totle, is the basic structure of the *techne*. Where *poiesis* produces something that is always different from *poiesis* itself — in such a way that the product and the production process are two absolutely separate and structurally different moments — the natural entity, instead, is realized and is fully itself in the *very activity of its being*.

Through these arguments, Aristotle thus arrives at a determination of the way of being of the entity that is by *physis* and that is *physis*, distinguishing it first of all from the entity that is by *techne* and forming two distinct ontological domains: that of the natural entities and that of the artefacts. If, on the one hand, *physis* is what comes to being from itself, that is, it has the principle of movement in itself, in order to be, artefacts, differently from natural entities, need three distinct conditions which,

1. *the project*, which as such belongs to the *designer*;
2. *the material* with which one intends to produce a certain entity, material that, in the last instance, is an entity of nature;
3. *the actual production process*, in which the material is forged according to the *design*.

If this is kept in mind, it is clear that saying that *physis* is the principle and cause of the movement of natural entities does not imply — as Heidegger rightly points out — that the *physis* is a kind of motor capable of setting in motion those entities that, for this very reason, would belong to it. Rather, *physis* is a sort of organizing principle capable of giving shape and structure to something that, in itself, would be formless and disorganized. To think of *physis* in these terms — as a motor or as a principle of organization — would mean to think of it in some way in technical-poietic terms, that is, through a categorical system that is precisely what *physis* manifests itself against. Arguing that the entities that are «by nature» have the *archè* of their own movement in itself, Aristotle essentially says this: in *physis*, we do not have to deal with an operation of a productive type. To say, therefore, that the entities of nature have the *archè* of their movement in themselves means that they are not *products*.

This clear distinction between natural entities and artefacts seems to be weakened when Aristotle puts forward an explicit and powerful parallelism between the working of *physis* and that of *techne*. This sort of analogy arises in the context of Book II, where the concept of purpose comes into play.

Aristotle explicitly recognizes that it is necessary to present arguments about the possibility of natural purposiveness. In the case of the artefact, the presence of the end and the purpose is quite evident, since technique is an intentional activity that has as its explicit end the production of a certain entity aimed at a certain purpose. On the other hand, the same does not happen in nature, where, if an end is to be recognized, it must be recognized independently of the recourse to an external intentional agent in reference to which the end can be thought.

Without dwelling on Aristotle's arguments about the necessity and legitimacy of purposiveness in nature, what is important for the discourse we are proposing here is that, according to Aristotle, purpose in nature is quite evident if we look at the way of operating of those entities that are non-human animals and even at the way of plants. They act in a manner consistent with their purpose without this operation being considered a *technical operation* — which necessarily requires intelligence as an *archè* — but also, consequently, without this operation being considered a deliberative action. This is the case, to recall some of the Aristotelian examples, of the swallow when it makes its nest, of the spider when it makes its web, of the plant that makes the leaves grow around the fruit to protect it, or orients its roots downwards for the purpose of feeding. However, if such an operation is neither *techne* nor action as a result of deliberation, «the "for something", then, is present in things which are and come to be due to nature»[9].

It is on this level that one inscribes the possibility of grasping an analogy between *physis* and *techne*, and that is precisely because both function in view of an end:

> Thus if a house were one of the things which come to be due to nature, it would come to be just as it now does by the agency of art; and if things which are due to nature came to be not only due to nature but also due to art, they would come to be just as they are by nature[10].

This correspondence between the work of *physis* and that of *techne* does not invalidate Aristotle's main thesis, according to which *physis* implies a reference to a structurally different act from the work that characterizes *techne*. Such a correspondence does not erase the differences between the way of being of *physis* and that of *techne*.

[9] Aristotle, *Physics*, 199a, p. 40.
[10] *Ibid*.

Physis and *techne* are both characterized by doing work for an end. However, the fact that both work for an end does not mean that they engage in the same work. The fact that, in *techne*, the *telos* of a process is different from the process itself is not simply an accessory element that would be irrelevant to the determination of the sort of operating that is at stake in *techne*. The mode of action of *techne* is *poiesis*, which is always in view of an end that is necessarily *other* than the action itself, so that the *telos* is reached and realized just when its production finishes and disappears. *Physis* is also directed towards an end, but the end towards which it tends is not something else than itself — it is the *physis* itself. *Physis*, therefore, tends towards self-realization; this means that the end of the process is not different from the process itself. The work of *physis* can never be thought of as poietic work because there is no separation between the production process and the product, which is typical of artefacts.

But what is even more important for comprehending the Aristotelian discourse is that the possibility of an analogy between nature and technical procedure is rooted in the belief that technology works by imitating nature. The ontological primacy, therefore, belongs completely to nature: the model that is imitated is only *physis*, and as much as Aristotle recognizes that technology can accord with *physis*, helping it, and even bringing to fulfilment what it seems to leave unfinished, it is not even conceivable that *physis* imitates something like *techne*.

In this sense, finalized processes that characterize *physis* are different from working for an end, which characterizes *techne*. Because of this, and because *techne* imitates the work of *physis* without the reverse being true — for Aristotle, *physis* cannot imitate *techne* — the analogy between *physis* and *techne* can in no way be thought, in Aristotle, as a form of overlap.

To conclude this brief overview of the Aristotelian text: in Aristotle, natural items and artefacts are two different things in the sense that they have a different genesis and function differently. More specifically:

i. Natural items are autopoietical and self-conservative structures, while artefacts are always produced from something other and do not reproduce.

ii. Natural items are processes whose end is not different from the process itself; artefacts are directed to an end that is always in something other.

iii. Technology proceeds by imitating nature, and precisely because it imitates nature, it can also intervene in it and integrate it.

3. *The modern reversal of Aristotelian ontology*

These fundamental traits of the Aristotelian conception have been radically challenged by the modern scientific revolution. In modern science, the artefact model of nature is the norm. However, as opposed to a monolithic and compact image of modern philosophy in the Heideggerian style, the relationship between nature and artefact in modern philosophy is rather complex and charged with tension. To highlight this theoretical tension, I will consider four key episodes of modern philosophy and science:

a) the technicalization of nature in Galilei and Descartes;
b) Leibniz's defence of the difference between natural and artificial;
c) Spinoza's criticism of the understanding of nature as an artefact;
d) Kant's problematic concept of a «technique of nature».

a) Galilei & Descartes: Nature as an artefact

From a certain point of view, it can be said that the modern conception of nature (a conception made possible by the Judaeo-Christian idea of nature as a work of God) is conceived on the model of technical items. Or rather, the theoretical framework for understanding nature becomes a technical-craft model. Therefore, nature is increasingly thought of as an artefact, as a product of technology.

In modern thought, the world is a work of art, and the artefact becomes the paradigm through which to think about nature. Technical intervention is no longer, as in Aristotle, a kind of work that integrates nature by imitating it. Nature itself becomes an artefact, a product of technology. The great book of nature of which Galilei speaks, a book written not with the letters of the alphabet, but with mathematical-geometric characters, is the work of the all-powerful Artist, that is, it is the technical product of that great architect of the world who is God. In some ways, what makes the knowledge of nature possible is precisely the ability of the human being to understand the work of God as the work of a craftsman, or to think of nature as an artefact produced in accordance with precise rules — namely, the laws of mathematics.

Within modern thought, we see what could be called a movement towards the technicalization of nature. The world is an extraordinarily complex artefact, as it is produced by an omnipotent god, but the difference between human artefacts and divine artefacts is now a difference of degree and not a difference of kind.

The clearest representation of this framework can perhaps be found in Descartes. Here is Descartes in the *Discourse on Method*:

> This will not appear at all strange to those who know how wide a range of different automata or moving machines the skill of man can make using only very few parts, in comparison to the great number of bones, muscles, nerves, arteries, veins, and all the other parts which are in the body of every animal. For they will consider this body as a machine which, having been made by the hand of God, is incomparably better ordered and has in itself more amazing movements than any that can be created by men[11].

The natural item and the artefact are both *made by hand*. The difference between the machines produced by *human industry* and those made by the *hands of God* is a difference of complexity or of degree rather than a difference of kind (i.e., a difference of ontological status). With Descartes, a radical reversal of the Aristotelian analogy between technology and nature seems to take place. If, in Aristotle, it is technology that imitates nature, in Descartes, the progress of nature becomes understandable only on the basis of a technical model.

b) Leibniz: Artificial organisms and natural machines

The Cartesian approach is not the only approach within modern thought. Of course, it is the approach that forms the basis for all modern science and, in many ways, also of contemporary science. But within modernity, there are also accounts that do not fully adhere to the Cartesian explanation.

Leibniz is a good example. The Leibnizian approach seeks to defend the Aristotelian point of view, and thus the distinction between nature and artefact, within the modern framework. His position is extraordinarily interesting, precisely because of its peculiar ambiguity. Leibniz writes in the *New System of the Nature of Substances*:

> I am as ready as anyone to do justice to the moderns; nevertheless, I think they have carried reform too far, among other things, in conflating natural

[11] R. Descartes, *A Discourse on the Method of Correctly Conducting One's Reason and Seeking Truth in the Sciences.* Translated with an Introduction and Notes by Ian Maclean, Oxford University Press, Oxford 2006, p. 46.

> things with artificial ones, through not having sufficiently grand ideas of the majesty of nature. They take the difference between nature's machines and ours to be only that between great and small…I think that this gives an inappropriate and unworthy idea of nature, and that it is only my system which shows the true, and immense distance there is between the least productions and mechanisms of divine wisdom and the greatest masterpieces produced by the skill of a limited mind — a difference which is not merely one of degree, but one of kind. It needs to be recognized, then, that nature's machines have a truly infinite number of organic parts (*organes*) and are so well provided for and proof against all accidents that it is not possible to destroy them. A natural machine is still a machine even in its smallest parts; and, what is more, it always remains the same machine it was, being merely transformed by being packed up in different ways; sometimes extended, sometimes contracted and as it were concentrated, when we think that it is destroyed[12].

On the one hand, Leibniz criticizes the modern approach for making a sort of overlap between the domains of nature and technology — or rather, for crushing the way of being of natural entities into that of artefacts. The modern approach tries to show that the difference between one and the other is not merely a difference of degree, as it appeared in the Cartesian quotation above, but one of kind. On the other hand, Leibniz considers the most complex natural entities, i.e., organisms, as *machines of nature*. In the same way, he conceives of machines as *artificial organisms*, thus creating a powerful parallelism between the natural and artificial domains. Certainly, for Leibniz, natural machines are the products of the self-organization of their parts. They are autopoietic and can preserve themselves both as individuals and as a species. The artificial organisms that are organized by external agents are, therefore, not *sponte agens*. However, in both cases, a natural machine is ultimately just a machine. And the machine cannot but refer to the idea of a *craftsman*.

c) Spinoza: Technicalization as anthropomorphization

Extraordinarily original on this point is Spinoza's criticism of the artefact model of nature. In the first Appendix to the *Ethics*, Spinoza

[12] G.W. Leibniz, *Système nouveau de la nature et de la communication des substances, aussi bien que de l'union qu'il y a entre l'âme et le corps*, in *Die Philosophischen Schriften von Gottfried Wilhelm Leibniz*. Edited by C.I. Gerhardt, Weidman, Berlin 1875-1890, pp. 481-482, tr. ing. in *Leibniz's "New System" and Associated Contemporary Texts,* a cura di R. S. Woolhouse & R. Francks, Oxford University Press, Oxford 1997, pp. 14-15. On the topic, si veda A.M. Nunziante, *Il normativo e il naturale. Saggi su Leibniz*, Padova University Press, Padova 2019, in particular pp. 35-49.

shows how all the prejudices that prevent us from grasping the truth of things depend, in their basic structure, on just one:

> All things in Nature are like themselves [the humans] in acting with an end in view. Indeed, they hold it as certain that God himself directs everything to a fixed end; for they say that God has made everything for man's sake and has made man so that he should worship God[13].

According to Spinoza, the prejudice at the basis of all prejudices is that of thinking of God, and therefore of nature itself, as if it were operating according to the same logic — which is fundamentally the logic of the poietic-technical production — that is proper to the behaviour of humans.

Humans, Spinoza says, «act always with an end in view, to wit, the advantage that they seek»[14]. It follows from this that everything they do is done for an end, that is to say, for profit. For this reason, they tend to consider everything in relation to this: «they look on all the things of Nature as means to their own advantage»[15]. In this perspective, everything is perceived as something that serves, as *something for*, or as something that finds its meaning and its *raison d'être* in its usefulness for humans[16]. The one who thinks of the world in this way obviously cannot but wonder how this is possible. Since humans are not themselves responsible for the purposive nature of things, they must assume «that someone else… produced these means for their use»[17].

In other words, just as the products of technology are produced to satisfy needs and find their *raison d'être* in their usefulness, when one considers natural entities as means for the usefulness of humans, one can only think of them as products of a technique — in this case, the divine technique. If God also operates technically, he operates with a view to an end. From this, it would follow that if he has produced everything that is «in view» of humans, he can only have done so for his own benefit, that is, to bind humans to himself. According to Spinoza, this perspective on the world — the idea that the world has been organized in such a way as to have as its purpose the satisfaction

[13] B. Spinoza, *Complete Works*, a cura di Michael L. Morgan, Hackett, Indianapolis/Cambridge 2002, p. 239.
[14] *Ibid*.
[15] *Ibid*.
[16] *Ibid*.
[17] *Ibid*.

of the needs of humans — «negates God's perfection»[18]. In fact, when one thinks that God is working for an end, one also affirms, implicitly but necessarily, that «he must necessarily be seeking something that he lacks»[19]. When we produce something, even the most apparently useless items, this production responds to some of our needs. If we produce machines, it is because we know that these machines facilitate or even allow operations that would otherwise be difficult or impossible for us. This is true, according to Spinoza, for whatever activity humans undertake in the world. Since the nature of humans is appetitive, they always act — even when they do not seem to — with their own preservation in mind.

What Spinoza tries to dismantle is, therefore, the undue extension to the whole of nature of a mode of activity (the mode that aims to achieve a goal) that is, instead, typically human. What he criticizes is the possibility that we might think of nature and, in general, of the reality that does not have the human as its origin, using a conceptual structure — the structure that supports the technical production generated by appetite. However, this structure is valid only in relation to the forms that characterize the action of the human and that have, precisely, the human as their origin.

d) Kant: The technique of nature

The Kantian *Critique of the Power of Judgement* is a fundamental text on the problem of the relationship between technique and nature. Kant, on the one hand, tries to think about the purpose of nature without falling into the artefact model, and therefore without thinking about it in terms of external purpose. On the other hand, he remains prisoner to the typically modern idea that thinking about the purpose of nature means thinking about an intention as its origin. But this contradiction — the determination to think of nature without recourse to the idea of a mind as its architect and the need that remains to think of it on the basis of the artefact model itself — also constitutes the platform that allows post-Kantian thought to recover Spinoza in an anti-dualistic key and to radically rethink the concept of nature.

In his *Critique of the Power of Judgment,* Kant tries to save the teleological point of view by moving away from the Spinozistic idea

[18] B. Spinoza, *Complete Works* cit., p. 240.
[19] *Ibid.*

that a teleological approach to natural entities is an anthropological approach. The distinction between internal and external purposiveness that Kant proposes in the third *Critique* aims precisely at this. According to Kant, Spinoza is right in pointing out that to think of the natural entity as aimed at humans is nothing more than an anthropologization of nature considered as an entity built by someone for the benefit of someone else. This is true, however, if the purpose through which nature is conceived is an external purposiveness. Considering it instead according to its internal purpose means considering it as stemming from a lawfulness that is intrinsic to nature and not external to it.

However, to explain the way of being of internal purposes, Kant uses a concept of the *technique of nature*, which would seem to refer to the external purpose rather than to the internal purpose. The notion of the *technique of nature* expresses, in Kant, the inherently teleological features of organic nature: «we could call the procedure (the causality) of nature a technique, on account of the similarity to ends that we find in its products»[20].

The expression «technique of nature» therefore indicates an account «where objects of nature are sometimes merely *judged*, as if their possibility were grounded in art»[21]. Kant, who insists on the irreducibility of the living being to a merely mechanical understanding, seems to think of the work of nature in analogy to *production*, that is, through that activity from which something such as an artefact, a machine, or a product of technology acquires reality and meaning.

This tension emerges clearly when Kant discusses the relationship between *causality according to ends*, which can be traced in the practical dimension, and the concept of *natural purposiveness*. In the general introduction to the *Critique of Judgement*, Kant asserts:

> this concept is also entirely distinct from that of practical purposiveness (of human art as well as of morals), although it is certainly conceived of in terms of an analogy with that[22].

The practical end presupposes the idea of a free will, and since such a presupposition in the context of nature is unlawful, natural purposes must be completely different than practical ends. Yet, at the

[20] I. Kant, *Critique of the Power of Judgment,* edited by Paul Guyer, translated by Paul Guyer and Eric Matthews, Cambridge University Press, Cambridge 2000, p. 262.
[21] Ivi, p. 7.
[22] Ivi, p. 68.

same time, natural purposes can only be thought of according to an analogy with practical finality, since this is the only model of causality of which we can legitimately speak. It is no coincidence that in the introductory paragraph to the «Critique of Teleological Judgment» (§ 61), Kant explicitly argues that he considers teleological evaluation legitimate in natural research under these conditions:

> Teleological judging is rightly drawn into our research into nature, at least problematically, but only in order to bring it under principles of observation and research in *analogy* with causality according to ends, without presuming thereby to *explain* it[23].

But again, to stress the difference between natural purposiveness and technical-practical purposiveness, Kant explicitly discusses those natural ends that are organized entities of nature. He highlights all the difficulties of an interpretation, even if only analogical, of the living being with reference to the way of being of the artefact: «one says far too little about nature and its capacity in organized products if one calls this an *analogue of art* (*Analogon der Kunst*)»[24].

When we think about nature's organized products by analogy with art and technique, says Kant, we think about these kinds of products not as self-organizing products, but necessarily in relation to an architect, a rational entity that could only be outside of these products and from which they would receive the organization that distinguishes them. In other words, to think of the products organized by nature by analogy with the products of art would mean, for Kant, to take away from those products their specific way of being, or what makes them precisely what they are — namely, self-organized structures. These entities are the cause and effect of themselves. They organize themselves and, precisely because of their way of being, have in themselves, and in no other way, the purpose towards which they tend[25].

However, although Kant explicitly claims that the assumption of an analogy with the technical-practical way of acting is insufficient and inadequate for understanding the way of being of natural organized entities, this model plays a decisive role in his theory of teleo-

[23] I. Kant, *Critique of the Power of Judgment* cit., p. 234.

[24] Ivi, p. 246.

[25] «Strictly speaking (*genau zu reden*) the organization of nature is therefore not analogous with any causality that we know». I. Kant, *Critique of the Power of Judgment* cit., p. 246.

logical judgment as it applies to the world of living nature. In this sense, it seems that one can also find in Kant an implicit assumption of an artefact model of nature, although this contrasts with many of his statements. This does not mean, of course, that according to Kant nature is an artefact produced by someone; it is about thinking of living nature *as if* it had been designed by a designer. If the artefact model constitutes, for Kant, an epistemologically productive strategy, he does not attempt to engage with it on an ontological level. However, the assumption behind the artefact model — that is, the assumption of the explanatory structure underlying the hermeneutics of artefacts as a methodological model for the investigation of nature — is not indifferent to what concerns the very way of being of nature. It would be indifferent only if one thinks that what this model manages to bring to light is a mere construction of the interpreting subject without any connection with the actuality of what is being interpreted.

4. *Naturalisation of technique and denaturalization of nature*

In this Kantian tension, however, there is a clue to something that deserves to be considered further. On the one hand, the notion of the technique of nature is, in Kant, a purely regulative model that allows us to think of nature in analogy to artefacts. On the other hand, it could also lead to a dissolution of the idea of technique as an exclusively anthropological practice and, therefore, as a poietic modality of the object's genesis.

If we return to the Heideggerian philosophy of technology and to the way he thinks about the relationship between technique and nature, it seems aimed at a thought of *physis*, understood as a place other than technique and as a denunciation of the dangers of the technicalization of nature. The technicalization of nature finds its metaphysical foundation, according to Heidegger, in modern Cartesian subjectivism and, more generally, in western metaphysics as a whole. But in this way, Heidegger continues to move within a sort of hiatus between *physis* and *techne*, which places technique (and with it, the human being as a technological animal) outside the realm of nature. We can only overcome this dichotomy when we begin to think of technique no longer as a human fact, reducing it to pure work and then to *poiesis*, or as an action that contrasts with the action of nature. It is not

a question of thinking of nature as a technological product, but rather of recognizing technique as a natural phenomenon.

> The problem with the artefactual model is that thinking about nature technically means we tend to think about it *poietically*. The challenge, instead, is to think of technique as belonging to the *praxis* of nature and not as a *poietic* reduction of nature. In *Politics*, Aristotle argues that «life consists in action (*praxis*), not production (*poiesis*)[26].

Ascribing to life the concrete form of *praxis* means that life is not a movement towards something external to it, that it is not a sort of place or condition from which living results. To say that life is *praxis* means that the essence of life is living: life is, at every moment of itself, the fullness of itself, the fulfilment of its being. Put in non-Aristotelian terms, this means life is identified with the process of its own constitution. And in this process of one's own constitution, life is technical. Not in the sense of *poiesis*, that is, as a production that has its origin and sense in another by itself, but in the sense that technique is what life is constituted through; it is the way through which life exists. In this sense, technique is not opposed to nature. It is not an action by which the human is opposed to nature, but a natural action that can never simply be reduced to a poietic action.

In short, it is a question of thinking of technique as nature without reducing nature to a poietic technique.

The proposal on which I would like to work involves regaining a Spinozian dimension in addressing the problem laid out above. Naturalising technique is, in many ways, the opposite of anthropologizing nature; in turn, conceiving nature as technical is a form of anthropologizing. Naturalizing technique implies, if anything, a radical naturalisation of the human being, a thought of the human being as internal to the dimension of nature. The clear risk in this naturalization is a reduction of the human being to a natural object and, in this sense, to an outflow of freedom. But this is only if we continue to think of nature in terms of its opposition to freedom. In his famous preface to the *Phenomenology of the Spirit*, Hegel writes that it is a question of thinking of the absolute (or rather, the totality, the being) not only as a substance (this is, for Hegel, Spinozism) but just as decisively as a subject[27]. In some way, I think we should think in similar terms: we

[26] Aristotle, *Politics*, a cura di C.D.C. Reeve, Hackett, Indianapolis-Cambridge 1998, 1254a, p. 7.

[27] Cf. G.W.F. Hegel, *Phenomenology of Spirit* Translated and edited by T. Pinkard,

should think of nature not only as nature but, just as decisively, as freedom. It is not a question of extending freedom to nature, but of thinking of freedom as constitutive of nature. Putting this in different words, our goal should be to think of freedom not as the opposite of nature, but as a way of being of nature that forces one to re-determine the very concept of nature.

This sort of naturalisation of technique therefore implies a different thought of nature; it implies what I would like to call a «denaturalization of nature». By the notion of denaturalization, I mean a liberation of nature from its conceptualization in terms of otherness and opposition to everything that we traditionally think of as human — that is to say, nature understood as the other of freedom. Denaturalizing nature means freeing it from a reductive conception that reads it in purely physical-chemical terms.

In this direction, that is, in the direction of a denaturalization of nature that allows at the same time a naturalization of technique, I believe that important indications can be found within the reflections on nature in classical German philosophy — in particular, in the peculiar naturalization of subjectivity that is undertaken in the philosophies of Schelling and Hegel.

In Hegel, for example, the notion of the subject finds its first concrete articulation not within the philosophy of the spirit, but precisely within the philosophy of nature, in relation to the animal organism. The animal, in its inward activity, has a movement that, in moving outward, always has in itself its objective and its centre. This makes it a *subject*[28].

Subjectivity is not *out* of nature. *Subjectivity is in nature.* Hegel's conception of nature makes room for subjectivity. The structure of subjectivity and the consequential freedom are not the outcome of some kind of *infection* of spirit by nature, or of an external influence that infiltrates something that would otherwise remain unscathed from this type of dynamics. According to Hegel, animal subjectivity is a way of

Cambridge University Press, Cambridge, 2018, p. 12.

[28] Cf. M.J. Petry (Ed.), *Hegel's Philosophy of Nature*, London, George Allen, 1970, in part. § 359 and Remark, pp. 141-144. See on this: A. Gambarotto and L. Illetterati, *Hegel's Philosophy of Biology. A Programmatic Overview*, in «Hegel-Bulletin», 2020, pp. 1-22; L. Illetterati, *Nature, Subjectivity and Freedom: Moving from Hegel's Philosophy of Nature*, in I. Testa, L. Ruggiu (Eds.), *"I that is We, We that is I". Perspectives on Contemporary Hegel - Social Ontology, Recognition, Naturalism, and the Critique of Kantian Constructivism*, Brill, Leiden-Boston 2016, pp. 181-201.

being that tends to go beyond nature itself and overcome the strict necessity that, even for Hegel, is the main feature of nature. What is interesting, however, is that this movement of overcoming nature is not a movement outside of nature. It is nature itself — so to speak — that requires and makes necessary a redefinition of the concept of nature.

For Hegel, the inadequacy of physical reductionism (and of strict naturalism) does not appear out of anti-naturalistic assumptions, but from the radical consideration of nature's essence. Finding the genesis of subjectivity in nature prevents us from thinking its relation to nature as disjunctive. In that scenario, subjectivity is something that would appear only *after* nature and within the social practices and dynamics connected to it[29], or as the bursting in of a supernatural principle on a natural layer. However, understanding nature as the place where the subject literally takes shape prevents it from being thought as simple exteriority with no freedom.

Thinking about the subject and about freedom in a radically naturalistic way prevents us from seeing nature and spirit as juxtaposed, as if a determined-by-necessity nature was opposed to an independent supernatural reality.

In Hegel, but also in Schelling, the opposition to a physicalist reduction of nature does not produce a spiritualistic ontology, nor a reduction of reality to the mind. The appearance of subjectivity within nature and the determination of animal subjectivity through relations that require freedom constitute proof of the need to abandon (also in a therapeutic sense) all the dualisms and abstractions that are at the origin of many forms of reductionism.

The possibility of thinking technique as internal to nature without reducing nature to a technical-poietic process requires what I would like to call an antinaturalistic naturalism. This is a sort of oxymoron that indicates the need for a new naturalism that is, at the same time, a radical criticism of the reductionist metaphysics of naturalism. Yet it

[29] The argument here highlights the limits of the interpretation of Hegel's philosophy, which emphasized the social dimension as the original place where the structures of subjectivity and freedom are revealed. It is in many ways around this problem that the controversy between John McDowell and Robert Pippin develops. *Nature Leaving behind* (R. Pippin, «Leaving Nature Behind, or Two Cheers for Subjectivism: On John McDowell», in *The Persistence of Subjectivity: On the Kantian Aftermath*, Cambridge University Press, Cambridge 2005, pp. 186-205), what Pippin wrote against McDowell implies a conception of subjectivity and freedom in Hegel that is intended to show the elements that break nature and that are irreducible to any form of rationalism. Equally apparent in Pippin in his polemic against Devries' emergentist Hegel.

is a naturalism and not an anti-naturalism because it also implies a radical critique of all forms of supernaturalism. With respect to some forms of contemporary naturalism and different forms of reductionism that overlap with contemporary naturalism, I would say that they are not sufficiently and radically naturalistic. They assume an abstract and limited conception of nature, and precisely for this reason, they are not able to account for subjectivity and freedom, and therefore for technique, as an intrinsic feature of life itself.

Abstract

L'obiettivo del contributo è quello di problematizzare la dicotomia tra natura e tecnica che ha segnato una parte consistente della filosofia del XX secolo. In particolare, si intende qui mostrare la necessità di un modello teorico che consenta di riarticolare il rapporto tra natura e tecnica. Tale modello richiede: 1. una decostruzione del dualismo tradizionale tra natura e tecnica; 2. una concezione della tecnica non antagonistica rispetto alla natura; 3. un processo di denaturalizzazione della natura.

Ciò che si intende evidenziare è che un processo di naturalizzazione della tecnica richiede lo sviluppo di una concezione della natura che sia ospitale rispetto a tutti quei concetti (soggetto, libertà, normatività) che sono classicamente concepiti in opposizione alla natura. Questa nozione di natura è ciò che viene qui indicata nei termini di un'idea denaturalizzata della natura.

The aim of the paper is to problematize the dichotomy between nature and technology that has marked a substantial part of the philosophy of the twentieth century. In particular, the intention here is to show the need for a theoretical model that allows to rearticulate the relationship between nature and technology. This model requires: 1. a deconstruction of the traditional dualism between nature and technology; 2. a conception of technology that is not antagonistic to nature; 3. a process of denaturalization of nature.

What is meant to be emphasized is that a process of naturalization of technology requires the development of a conception of nature that is homelike to all those concepts (subject, freedom, normativity) that are classically conceived in opposition to nature. This notion of nature is what is referred to here in the terms of a denaturalized conception of nature.

Parole chiave: Natura, Tecnologia, Tecnica, Finalità, Soggettività

Keywords: Nature, Technology, Technique, Purposiveness, Subjectivity