Chapter 2
Artificiality and Naturoids

The use of the term 'naturoid' calls for the resolution of an ambiguity that involves the concept of 'artificial' in many contexts. From a linguistic standpoint, the term artificial (*artificiale* in Italian, *künstlich* in German, *artificiel* in French) covers a heterogeneous area which should be clarified before we proceed. In all languages, this concept seems to generically indicate all that is "man-made" or "not natural" and, at the same time, though more rarely, something which tries to imitate things existing in nature. Nevertheless, it is a fact that, while no one would speak of an 'artificial telephone', everyone understands the meaning of an 'artificial flower' quite well. We believe that this situation can be interpreted quite easily. Though it has never been rationally defined, the concept of artificial, as an adjective, refers to an object, process or machine which aims to reproduce some natural object or process. Since flowers exist in nature but not telephones, the adjective 'artificial' has no meaning if we attribute it to any object invented and built by man, i.e., an 'artifact', while it takes on full meaning when it is finalized to reproduce a natural object.

The Italian linguists Devoto and Oli have correctly defined the artificial as an object obtained by means of technical expedients or procedures which *imitate* or replace the appearance, the product or the natural phenomenon. Likewise, the imitation component is defined by the same authors as the capacity to get or to pursue, according to some criterion, varying degrees of similarity. The ambiguity of the question emerges, however, from the definition of the adjective 'feigned' which, according to Devoto and Oli, defines a product obtained *artificially* as *imitation*.

Undoubtedly men but also many animals, are familiar with the art of imitation and of deception. (But, by the way, who would have accepted, for instance, the expression 'feigned intelligence' rather than 'artificial intelligence'?). Anyway, the semantic weight of this feature on the concept of artificial, definitely seems to be too high.

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The *perspectiva artificialis* of Leon Battista Alberti and Piero della Francesca—but also the landscape paintings of the so-called Quadraturism school, born in the sixteenth century and enjoying success in subsequent periods (for instance, with Andrea Pozzo and his vault in Saint Ignazio in Rome), may be defined 'feigned', if you will, but only in the sense of something modeled, moulded by man as it is for the Latin origin of the verb *fingere*. However, the proper meaning of the term artificial is something that has often circulated in our culture in the most different fields, for instance in the following statement by Thomas Jefferson

> I agree with you that there is a natural aristocracy among men. The grounds of this are virtue and talents there is also an artificial aristocracy, founded on wealth and birth, without either virtue or talents; for with these it would belong to the first class. The natural aristocracy I consider as the most precious gift of nature, for the instruction, the trusts, and government of society. May we not even say, that that form of government is the best, which provides the most effectually for a pure selection of these natural *aristoi* into the offices of government? (Jefferson 1813)

To sum up, though in every naturoid there is a deceptive or 'illusory' component by definition, it is not its only component, because its main character is, rather, to reproduce something natural. While we may deceive people through various kinds of technological devices, such as conjurers and illusionists, but even designers and architects do, the deception coming from an artificial device is the most impressive since through it humans savor the power not only to dominate nature, but also to rebuild it at will. Thus, as described by Pliny the Elder, in the competition between the painters Zeus and Parrasio, the former was so skillful in drawing bunches of grapes that the birds themselves were attracted to them; the latter, in turn, drew a sheet which seemed to cover a painting so realistically that Zeus himself was deceived by it.

Likewise, as described by Nicholas Negroponte, adding realism to an artificial system may sometimes have very strong effects on man too. When in the 1970s one of the first teleconferencing systems was designed in order to make the emergency procedures of the US Government more efficient, a device was added to it, by means of which a moving plastic head indicated the person who was speaking at every moment, for instance the President. The result was that

> … video recordings generated this way gave a so realistic reproduction of the reality that an admiral told me that those talking heads gave him nightmares (Negroponte 1995)

In the above-mentioned examples and, overall, in the great intellectual achievements in painting during the Renaissance, it is very clear that the deceptive and 'illusory' component of the artificially reproduced things, i.e., 'fiction', is generated at different levels and with seemingly diversified meanings. Indeed, while in the case of painting the fiction is an intrinsic aspect of the object, in the case of the reproduction of the President's head cited by Negroponte, it is a secondary feature of the audio reproduction of his presence.

The famous desperate plea of that great sculptor who turned to his work and asked "Why do not you speak?" reinforces this point and the definition itself of naturoid we are proposing here. Actually, a naturoid, as an artificial attempt to

reproduce nature "using different means", seeks similarity, and, if it succeeds in achieving likelihood, deceives precisely because it is a matter of similarity and not of identity. Nevertheless, what is important is not the deception but, indeed, the accuracy of the reproduction in the eyes of those who have to use or adopt the naturoid.

In this sense, as affirmed Prof. Willelm Kolff—one of the most important artificialists of the past century, who designed the first artificial kidney during World War II, and who then worked in the field of the artificial hearts—an artificial heart tends to 'cheat nature' because the blood it pumps arrives to the concerned organs 'as if' it had arrived from the natural heart. Nobody, anyway, would reduce such a device to a 'feigned' heart.

The fact is that the deception to which common language refers is usually associated with artificial reproductions due to some of their external or 'aesthetical' appearances, such as the aspect we can perceive in theatrical scenery, the crying of a traditional doll, the appearance of an architectural remaking by Ulisses Morato de Andrade or—but with greater caution because we are dealing with great art—the artificial perspective of a painting by Piero della Francesca.

In conclusion, the term 'artificial' always implies the work of man. His 'art' in the broadest sense and the result cannot, therefore, but show traces of its origin: not nature but technology, even here, in the broadest sense of the word.

In this frame, the term 'naturoid' includes only a part of the artificial domain, in its broad sense of something 'man-made'. The fact to be artificial, i.e., 'man-made', indeed, is only the *necessary* condition for having to deal with naturoids. In order to be true naturoid, an object has to satisfy the second condition, namely a *sufficient* one: it must be designed to reproduce an object existing in nature.

Even the definition of artificial as something which is set against the natural—as was maintained by the Hellenistic culture—is being called into question here, because it surely does not apply to the special artificialistic area of naturoids. How would it be possible for the blood pumped by an artificial heart to be used effectively by a natural organism if it came from an object set against nature?

The true opposite of the natural is the conventional artifact, i.e., the product of conventional technology which, both in terms of material and, above all, in terms of its functions, leaves nature out. Actually, an object produced by conventional technology exploits some laws of nature, is subject to natural constraints and acts on the natural world intentionally trying to change it. It is sometimes beneficial and sometimes creates problems of various kinds, but those problems are different from those caused autonomously by nature.

A naturoid, on the contrary, cannot exist without something natural that it refers to and it tries to reproduce. Said differently, a naturoid has a sort of umbilical cord which links it to nature and, at least in its first stages of development, it does not attempt to change it. In fact, at least ideally, an artificial heart would leave the organism and its functioning unchanged. But, what really happens is that the ability of the technology of naturoids to increase natural heterogeneity, triggering something unexpected, depends on its conventional technology content. Recently,

it has been underlined that one of the most peculiar features of human technological activity is

> … an ability to engage in what can be called 'second-order instrumental action'—that is, making an artefact that only has utility in making, or by serving as a functional part of, another artefact (Aunger 2009)

The interesting thing is that, in making naturoids, humans are engaged in the very intriguing adventure of designing and building *second-order* devices that will be able to interact with 'machines' designed by nature and its evolution and not by themselves. Therefore, if the device will not work well, then humans cannot but change the design of the naturoid, without stating that the project of the whole 'machine' is not feasible, because it has existed and worked for a very long time in nature.

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