

Teleology as a bridge between nature and transcendence

Mariano

Artigas

Comunicación presentada en la Fifth European Conference on Science and Theology (ESSSAT VIII), Freising-Munich (Alemania), 23-27 marzo 1994. Publicada en: Niels H. Gregersen, Michael W. S. Parsons y Christoph Wassermann, editores, "The Concept of Nature in Science & Theology", Part I (Ginebra: Labor et Fides, 1997), pp. 46-51.

Doubtless, teleology is a good candidate for a bridge between nature and transcendence because of its connection with order, rationality and design (Oakes 1992). Even non believers are shocked when they reflect on the specificity of our world such as we know it through recent scientific progress (Davies 1992). Natural order strongly suggests the existence of a superior design which may explain why nature possesses a high degree of order and rationality. It is generally admitted that many natural processes show a teleology-like behaviour; this holds especially in the biological realm, but also the underlying physico-chemical level exhibits many kinds of directionality. The more science progresses, the more we know about natural directionality, which is the basis of the teleological argument (Mayaud 1986), and this could be interpreted as a reinforcement of the empirical basis of that argument.

Nevertheless, it has been argued time and again that teleological activity can only be recognized in the context of rational actions, so that its attribution to natural agents would imply an illegitimate anthropomorphism. Besides, scientific progress also means that we know better how nature works, so that it would seem to make unnecessary the recourse to super-natural causes. Furthermore, natural causes by themselves are neutral with respect to goodness: they lead to good results but also to bad ones, and this is sometimes seen as incompatible with the existence of a supernatural design. Therefore, if we pretend to use teleology as a bridge between nature and transcendence, we should clarify the exact meaning of this bridge.

The situation can be viewed under a new light if we consider the worldview that corresponds to the present state of science. For the first time in history, we dispose of a representation of nature that, although can be improved in many respects, is rigorous, reliable and also complete, as it includes the different levels, from microphysics to astrophysics and living beings, and relates them showing their continuity, graduality and unity. Within the mechanistic image, even man was expected to be explained through physicalistic concepts and teleology was discarded as unscientific. Instead, recent progress emphasizes the role of holism, morphogenesis, information, synergy, tendencies, and other features closely related to teleological explanations. Besides, theories about self-organization show that this situation is not a privilege of the biological level but also holds at its physico-chemical basis (Nicolis 1989). Therefore, the current scientific worldview seems to provide new insights on teleological thinking.

Thoughts about teleology can be articulated in four successive steps. The first refers to the existence of ends of processes. In the second, such ends are qualified as goals of tendencies. These goals are considered, in a third step, as natural results that possess

perfection and goodness. Finally, the fourth step consists in examining whether the perfection of nature implies some kind of rationality that leads to the existence of a superior plan or design.

The first step is centered around the specificity of our world. Natural activity is very specific and can be represented as the development of internal dynamisms entwined with structuration. Natural processes (unlike artificial ones) result from an internal dynamism which is (unlike rational activity) entwined with spatio-temporal structures (of course, rational activity somehow depends on these structures but also transcends them). Matter and laws are not only mutually related; they are two dimensions of the same reality which has, at the same time, dynamical and structural characteristics. Natural dynamism is displayed according to structural rules and produces organized entities, which in their turn are the origin of new forms of dynamism.

The correlation between dynamism and structuration can be fully appreciated when we consider the role of patterns. Patterning is a central feature of natural activity; it is possible to imagine universes different from ours, but in our world we find patterns everywhere (Bresch 1987): although not everything consists of patterns, everything is organized around them. Patterns are like attractors in space (configurations) and time (rhythms), so that we can speak about «ends» that have characteristic configurations and are reached through characteristic processes.

The term «end» represents the first stage of teleology, and a neutral one, as it does not imply any value-judgment. Of course, there are many natural processes and they are mutually entwined, so that sometimes it may be difficult to determine concrete ends of concrete processes. However, our universe is very specific and displays a great amount of directionality in the form of tendencies and cooperativity; therefore, and this is our second step, many ends may be considered as «goals» of natural tendencies.

This does not mean that every possible end is really a goal predetermined by nature, because goals are achieved contingently, depending on circumstances. Indeed, we live in a contingent world. To realize this, it would suffice to pay attention to the enormous complexity of nature, whose outcomes depend in a great extent from the precise values of different conditions, as the theories of deterministic chaos show. Nevertheless, directionality is present everywhere in nature, and any scientific progress can be considered as a better knowledge of the directional and selective routes followed by natural processes. Recent progress provides so many illustrations as we desire about the directionality of natural processes; molecular biology is an especially fertile field for these phenomena, which are omnipresent in morphogenetic theories and in the ambit of self-organization.

We can advance a third step if we note that our contingent and very specific world contains many outcomes that have a high degree of perfection. This is of a particular relevance, for with it the major problems about teleology begin, because we meet here for the first time an explicit reference to values.

Teleological thinking heavily depends on the possibility of speaking about values (Bedau 1992), but any talk about goodness, values and perfection may easily be labelled as anthropomorphic. Nevertheless, as a matter of fact, natural goals often possess values; this is the case when we consider many biological features that are convenient for their

owners, and especially when the entire system of nature is considered as a succession of hierarchically related levels that make human life possible.

To speak about perfection in nature is not to say that everything is good under any perspective, or that we are able to determine the convenience of any process. There is disorder: the concept of order is relational, so that we can always speak about order and disorder according to different points of view. But if we admit that human existence is a good and that it implies values, we can consider our world as a highly specific set of conditions that make our existence possible, and this is enough. Here, scientific progress is most relevant, because science provides us now with a great amount of knowledge about the close interconnection between the different natural levels, that are organized in continuous degrees of complexity so that the different organizations can be seen as conditions of possibility for the existence of life and of man.

If nature achieves valuable results through goal-directed processes, it seems possible to attribute rationality to nature. Surely, an unconscious rationality, but a real one. This leads us into our fourth step. Indeed, many goals are reached through subtle concatenations that suppose storing, coding, unfolding, transferring and integrating information, and all this points to some kind of rationality (Wasserman-Kirby-Rordorff 1992). It can be safely stated that nature is, under this perspective, highly rational; we can find proofs of this in any field of biology. The higher levels of organization are reached through few basic components and laws; it seems almost incredible that so much is achieved with so little, and this shows the richness of the specificity of our world. Nature is full of very complex processes which consist of many subtle and precise concatenations. This permits to label these processes as rational, because they clearly show an ordination of means toward definite goals. Information and synergy are two basic clues in this context.

This way of reasoning does not involve any kind of anthropomorphism, as far as our worldview is based on objective pieces of scientific knowledge. And the concepts of goodness and value used in our argument do not involve any commitment about absolute ethical values (although are compatible with them): we only need to recognize the successive stages of complexity and organization involved in the different levels of nature.

It is possible then to conclude that nature operates as if it were planned in order to achieve definite goals. Indeed, the more science progresses, the better we know the rationality of nature. And rationality points toward purpose. If we admit rationality in nature and that natural beings cannot act rationally by themselves, we arrive at the conclusion of the teleological argument. It can be safely stated that the present scientific worldview enlarges the empirical basis of the argument. However, in order to fully reach its conclusion, we must take into account the difficulties it meets.

It is especially worth noting that there is no incompatibility between a divine plan and the contingency of a natural order which includes disorder on the one hand, and emergence and creativity on the other. On the contrary, these characteristics fit well with a world that is the result of a free divine creation, provided we do not restrict creation to a unique act that took place in the past or that would substitute natural agency. Divine agency should not be thought in opposition to the agency of creatures; on the contrary, natural causality becomes unintelligible without its radical foundation.

Divine agency makes possible the deployment of created causes, also by means of processes such as evolution, and allows us to understand how emergence and creativity in our world are ultimately possible.

Unless one accepts a pseudo-scientific naturalism, it is easy to see that scientific explanations do not fully account for the very existence of nature. Indeed, the entire scientific enterprise relies upon some basic ontological presuppositions that cannot be justified through the methods of empirical science. Nor is difficult to perceive that divine agency is fully coherent with the complexities involved in natural processes and the limits of materiality, so that there is no opposition between a divine plan and the contingency of a natural order which includes disorder as well as emergence and creativity.

In particular, the processes implied in the evolutionary worldview are compatible with teleology and in some respects require it. Evolution would contradict only the existence of a divine agency conceived as an immediate act of creation extended from the very beginning to everything that exists now (Moreno 1990). Besides, progress in molecular biology suggests that evolution is partly directed by laws. And, above all, God can play with loaded dices without compromising his success.

Under the perspective of a super-natural design, everything will have a meaning. Obviously, we cannot know this plan in all details, but we can know the existence of something without knowing everything about it. Unless we accept some kind of pantheism, logical reasoning leads us to accept that, if nature is blind by itself, there must be a superior cause of its rationality and that, as this rationality is inherent to natural processes and outcomes, its cause must be responsible of its very existence. Then, the teleological argument truly arrives at a personal Creator.

Even when the relevance of natural teleology as a bridge between nature and theology is accepted, it is sometimes argued that the teleological argument is not a real rational proof and that we can only know divine design by revelation (Oakes 1992, 544). This is obviously true if we think about particulars of the divine plan. But, if we only refer to its very existence, it seems possible to know it by rational argument. Scientific progress does not solve the basic problems, but if we reflect about it together with its presuppositions and implications, we can find a very well paved route for the rational knowledge of God the Creator.

References

Bedau, M. (1992) "Where's the Good in Teleology?" *Philosophy and Phenomenological Research* 52, 781-806.

Bresch, C. (1987) "What is Evolution?", in: S. Andersen - A. Peacocke (eds.), *Evolution and Creation*, Aarhus University Press, Aarhus, 36-57.

Davies, P. (1992) *The Mind of God. Science and the Search for Ultimate Meaning*. Simon & Schuster, London.

Mayaud, P. N. (1986) "That in View of Which" *Epistemologia* 9, 309-342.

Moreno, A. (1990) "Finality and Intelligibility in Biological Evolution" *The Thomist* 54, 1-31.

Nicolis, G. (1989) "Physics of far-from-equilibrium systems and self-organisation", in: P. Davies (ed.), *The New Physics*, Cambridge University Press, Cambridge, 316-347.

Oakes, E. T. (1992) "Final Causality: A Response" *Theological Studies* 53, 534-544.

Wassermann, C. - Kirby, R. - Rordorff, B., eds. (1992) *The Science and Theology of Information*. Editions Labor et Fides, Genève.