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RESEARCH ARTICLE

Non-technical approach to the challenges of ecological architecture: Learning from Van der Laan

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Abstract
Up to now, ecology has a strong influence on the development of technical and instrumental aspects of architecture, such as renewable and efficient of resources and energy, CO_2 emissions, air quality, water reuse, some social and economical aspects. These concepts define the physical keys and codes of the current 'sustainable' architecture, normally instrumental but rarely and insufficiently theorised. But is not there another way of bringing us to nature? We need a theoretical referent. This is where we place the Van der Laan's thoughts: he considers that art completes nature and he builds his theoretical discourse on it, trying to better understand many aspects of architecture. From a conceptual point of view, we find in his works sense of timelessness, universality, special attention on the 'locus' and a strict sense of proportions and use of materials according to nature. Could these concepts complement our current sustainable architecture? How did Laan apply the current codes of ecology in his architecture? His work may help us to get a theoretical interpretation of nature and not only physical. This paper develops this idea through the comparison of thoughts and works of Laan with the current technical approach to 'sustainable' architecture.

1. Introduction

Ecology has not just demonstrated environmental problems, climate change, and alarming events in biological processes that affect living beings. It has also confirmed the need for a different relationship between human beings and their world—with the environment in which they live, and above all, with other humans and nature.

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In the past, several thinkers, including Thoreau, Huxley, and Whitman, focused on this aspect of ecology. Other thinkers, such as Gandhi and Tolstoy, devoted themselves to a philosophy of non-violence and movements and philosophies declared as ethical-ecological. This viewpoint is expressed by Naess (2006) in the Deep Ecology movement, which is the "ecosophy" defined by Guattari (1990) and argued by Serres (2004). All of these movements advocate a necessary change in our current point of view: from the generalized anthropocentrism of our developed world to non-anthropocentrism. We must delve deeper into this transformation and redefine where the "natural" limits are; this is the new paradigm. This paradigm appears to be a confrontation between two points of view; one considers the planet a materialistic instrument only, and the other is steeped in the vision of man belonging to nature.

A paradigm to this extent requires a critical reflection in architecture. We need a new interpretation of architecture. If architecture is conceived as the natural space where man lives, what is the architecture of the new relationship of mankind with nature? What could be an authentically ecological architecture? How might a new non-anthropocentric point of view affect architecture?

2. Architecture and nature in the current context of ecology

A relationship has always existed between nature and architecture. The human body as a natural reference has been present in the harmony of columns, classic orders, and buildings. Several authors, such as Filarete, interpreted the birth of architecture as the protection of man against nature's adversities, even iconographically.[1] Other relationships with nature have been of adoration and observation. Stonehenge was a solar calendar temple to observe and worship nature. Landscape gardens and the Baroque were attempts to dominate nature and introduce it into architecture. For other architects, nature is the source of admiration, imitation (Ruskin), and inspiration. For the Enlightenment architects, such as Ledoux and Labrouste, nature is reinterpreted in light of the scientific knowledge of an era. The relationship between nature and the modern movement continues to be examined. According to Alejandro de la Sota, the relationship between architecture and nature is that of a student and a teacher.

> *"Architecture, abstract art, is, may be, natural: studying Nature is good for architects… Nature teaches us, shows us architecture and forms, materials and even how to treat them."* (De la Sota, 1956)

All of these relationships (imitation, admiration, and interpretation) come from outside nature, as if architecture were external to it. The assumption is that the relationship between nature and architecture is the interaction between different elements that are foreign to each other. At best, it has been a relationship of tolerance, in which the other is accepted as different and not as the other part of a whole. The assumption is that architecture interacts with nature, but it "is not" nature. In addition, based on the recent ecology paradigm, nature (the natural environment) is an element damaged by our activity and our way of inhabiting the planet. Thus, what must the correct relationship between nature and architecture be?

To address environmental problems, "ecological" or "green" architecture[2] emerged and is developing through diverse "eco-logics" (Guy and Farmer, 2001). This green concern has many technical, health, and social aspects to deal with, as well an ethical context (Woolley, 2000). An architecture has been designed according to this paradigm. This architecture has fundamentally practical characteristics and is based on scientific, economic, and social parameters. Even now, this architecture strongly influences the development of technical and instrumental aspects. We know how construction activities affect the Earth's crust and the atmosphere. We also know that these activities are often detrimental to biodiversity. We have analyzed the effect of energy consumption on the environment, the use of renewable energy, the consumption of water and other natural resources, the management of waste, the embodied energy of construction materials, and so on. All of these efforts are technical applications of the paradigm and the practical application of mathematics and the laws of physics and chemistry.

These approaches are a practical means of bringing us to nature, and these are applied knowledge. However, is there another way of bringing us to nature? Where is sensible, theoretical, artistic, intellectual, creative, imaginative, and abstract knowledge? The current green approach "*is lacking because it doesn't give us meaning, and it is lacking because it doesn't really help us regain a relationship with nature*" (Dawson, 2016a). Two scenarios exist: one only considers the physical and material world, whereas the other is steeped in a vision of man with a psyche, a soul, a nature. A truly ecological architecture must be highly comprehensive if it is to express our actual relationship with nature. Ecology has shown us that our relationship with nature is not only a materialistic challenge. We need a critical revision that includes changes in ethical values and aspects in our lifestyles.

> *"It's not about sustaining physical nature: it's about building a world that answers to our own perception and our own psychology. And then, if we become more at home in our own skin, we'll treat physical nature with more respect."* (Dawson, 2016a)

Therefore, our architecture cannot continue to be erected with the same criteria as when we ignored it. We must know how to build the space for human beings that surpasses temporal circumstances and carry it out in harmony with the environment. Technical issues are not sufficient. Architecture

[1] Adam, terrified, covers his head with two hands when he is expelled from Paradise: that is the origin of the primitive cabin form, according to Averlino Filarete. Arnau, J. 1998. *La teoría de Arquitectura en los tratados*. Ed. Tebas Flores. Madrid

[2] Because 'green' and 'sustainable' are extremely wide ranging and there are not a consensus and official definitions, we will use this terms as Guy and Farmer do in *Reinterpreting Sustainable Architecture: The Place of* Technology: those design which approaches are identified as a significant barrier to solving what are considered to be problems such as global warming and other environmental impacts. Guy and Farmer interpret six ecological approaches: eco-technical, eco-centric, eco-esthetic, eco-cultural, eco-medical and eco-social.