



Получена: 14.05.2021 г.

Приета: 16.08.2021 г.

ON THE EDUCATIONAL NEED FOR RESEARCHING BIOFORMS IN STUDYING ARCHITECTURE AS AN ARTISTIC PHENOMENON

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Keywords: bioforms, form-finding, abstract, meaning, process, project, education, structuralism, theory of architecture, conceptual, art, architecture, analytics

ABSTRACT

The paper argues on the need for educational research on bioforms in studying architecture – concerning its meaningful side and conceptual load as an artistic, cultural medium and not as a product of the mere built in the conventional architectural design terms. The focus realm of the paper and its corresponding conditional methodology is a particular niche in the immersive theoretical knowledge field of architecture. The problems concerned do question the following: why and how researching bioforms is essential; where the process of the joint educational model and its significance lies; is it obsolete as a structuralist approach in a current digital postmodern era; and what are the explicit boundaries of its theoretical scale. This paper is an integral part of a practical scientific study project (filed under contract No BN –232/20) in 2020 with academic staff from different departments of The Faculty of Architecture at UACEG in Sofia. For best results in understanding, common morphological knowledge of the highly philosophical and social studies side of architecture might be of some use along with basic theoretical training in semiotics.

1. Introduction

Before beginning on the topic of bioforms and its consequent levels of eventual resulting and/or responsive form-finding, there is a specific question to be addressed within an

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accidental possibility of significant misunderstanding. This question is: are bioforms architecture themselves? To answer shortly, no. As abstracts stand for rather virtual (not digital) thought construct equivalents, they only represent an individual basis for specific architectural theoretical thinking and analytic approach but can hardly produce final architectural results on their own. Simply put, they lack artistic and/or poetic author's interpretation.

2. Orienting architecture in terms of processes, projects, and authentic authorship

2.1. Process-based and project-based architecture

Supplying with a basic understanding of the question in the introduction part above, peripheral and somewhat digital yet external research on the topic could be used – as found in most of the papers of Architectural Design magazine, volumes 74, 76, 78 [1 ÷ 3], distinguishing processes of examination and development growth phases prior to designing projects. Nevertheless, it is still commonly believed that processes could be used successfully directly as projects, as some significant world architectural practices (as the one of ZHA recently and the one of Frei Otto in the past, for instance) show results not only during the second half of the 20th century (“pre-digital” blobs, folds) but even in last decade. However, part of their (un)built examples seem to be so innovative and futuristic in terms of mere optimization and convention that they actually become obsolete as a form of an unhappened future or could only emerge as architecture in isolated ideological realms – as they do in a particular type of Foucault's political heterotopias set [4]. There they do not need to address any of the current objective massive world problems (environmental sustainability, pollution, low-cost design, social issues) and some of the subjective and philosophical ones – which are not to be preferred or underestimated (moral deprivation, cultural loss, and equalization in terms of globalization). Today, more than ever, architecture needs its conceptual origins based on thought and meaning as its virtual (not digital) artistic nature is one of the keystones of human culture. With all the writings on blobitecture from 1999 [5] and interaction from 2009 [6], architecture barely scratches the surface of the prediction that the once claimed architecture should have been already far gone from the state of *what-it-is* to the state of *what-it-is-doing*. That never happened in the immense scale of the suggestion in the last 15 years.

Of course, investing resources in the opposite thesis works like a self-feeding mechanism. That is why defenders of the process-like architecture seem to be sensitive and even aggressive on the topic. Yes, probably the best way to validate a scientific research process on a process is to use its theoretical results right away and to prove that it works in practical terms – with a standard shortcut right to a project, efficiently. It happens, but it is relatively easy to be fascinated by technology rather than meaning – as technology supplies real-time responsive results and feedback while meaning seems to be ancient, hardly alive, or moving. Technology is a controlling agency at this point, while meaning could be quite deep and thus unreachable and obscure, but still, as written in the small manifest book of ten architectural commandments by Kadinov, philosophy gains higher priority over form and function [7]. One would say technology is a boost, but it acts as fuel only in its creators' lifespan because as conditional pilgrims, only they truly understand it as inventors and engineers; they understand how it works precisely in its core. If a sign, it is instead a mere icon

for them rather than an untraceable symbol – using Peirce’s semiotic system. In the words of Buñuel, cinema started as a technological fair and circus act; generations had to gradually pass before it could have become cultural media, as was the peak in that state in the 1970s. In other terms, one does not have to be a biologist like Lindenmayer to sense poetic meaning in mathematical fractals, but on the other hand, he, Lindenmayer, indeed could not do so. Quite frankly, it should be quite the opposite: when generating any digital form of art with the tool of a personal computer, for example, its core, its CPU must stay mainly virtual (hold it – not digital) to the author – virtual as in cognitively not knowing how it works, but still using it. In the field of pure vernacular architectural traditions, more similarities to explain the mechanism of that act could be found in the latest work of Tsigov in the research of the life and work of his tutor Berberov [8].

2.2. The unknown known

When used as a process-based paradigm, architecture certainly proves and advances things – mostly from the objective realm – but it also develops quite questionable structures of social understanding and interaction systems. It is in the position of producing a unique form of mathematically complicated morphological fast fashion, while architecture is slow in its metabolism and heavy by default. There is a whole set of initially architectural notions and terms widely applied on virtual (not only digital) constructs, mainly on media-based and computational aspects, which are not to be “seen”, confronted, and perceived directly. Even the term “architecture” itself is directly used to signify organization, like in 32-bit or 64-bit architecture. That linguistic mechanism of such borrowing uses architecture as proof of authenticity and a strong guarantee for high-efficiency standards as architecture stands for intransitivity as a social and cultural anchor. In other terms, by producing process-like architecture-like results, one stands in front of the temptation opportunity to validate it as architecture because it serves quite similar purposes and uses similar language. The potential catch here is that it is most likely that one generates forms with only conventional meaning (and not artistically meaningful ones) or, what is worse, with no meaning at all, which also might be already invented by an anonymous “author” in terms of algorithm recipes (tutorials), available 3D models or even final images. In the context of social interaction, the measure of good design becomes its accessible attractiveness, and the corresponding amount of replication in the field of digital media, known as “sharing”.

To not fall as an architect in this media vortex, as McLuhan would have put it, one must first seek meanings, for meanings are the messages one would prefer to convey to the visitors or the participants of his architectural creation and phenomenon. The above is a highly complicated task as *meanings and ideas initially do not possess their bodies* or forms; they are entirely abstract in terms of space. They are morphologically inactive, not yet activated, and they resemble ghosts. They do not have an actual impact in the physical world at that point. Also, signs or traces of their presence are tough to spot as the architect’s vision is preoccupied with the self and the prêt-à-porter imaging media conventional content. Possible salvation for the sake of authenticity would be to look for ideas “in the back of the head” among the things one does not know that he or she knows, but still knowing them, in Žižek’s terms [9] that is the unknown known, situated in the upper right corner (2)(a) of Table 1 below. Content of that toned in grey quadrant might be available, but at this point, it is latent for both the reasons of its virtual idea nature and its unconscious awareness. In other words, it is masked and hidden; something must resemble it to remind of its latent presence and potential future impact.

Table 1. Combinations between known and unknown

	<i>(1) The known</i>	<i>(2) The unknown</i>
<i>(a) known</i>	<p><i>(1)(a) The known known</i></p> <p>things that one knows that he or she knows</p>	<p><i>(2)(a) The unknown known</i></p> <p>things that one does not know that he or she knows</p>
<i>(b) unknown</i>	<p><i>(1)(b) The known unknown</i></p> <p>things that one knows that he or she does not know</p>	<p><i>(2)(b) The unknown unknown</i></p> <p>things that one knows that he or she does not know</p>

3. Bioforms indirect usage

3.1. Phenomena and corresponding meaning

As bioforms could be continually evolving, they might be examined and explained through their presence as processes. Thus, the former questions related to the direct usage of processes as architecture apply to bioforms. It is essential that the following lines concern a particular form of methodology and not methodics as defined by Mironski in his monographic study from 2018 [10]. The usage must instead be seen as research than as a recipe as in a finite set of methods. To put it simply, it could provide a specific training frame, but not to be exact on the exercises themselves.

All non-manmade phenomena are authentic by default and pure on the one hand, and in structuralist terms, they signify specific meanings. Those are quite abstract and masked as conditionally new, but of great importance here is to be understood the meanings themselves are not new, pure, and authentic – only their embodiments are, which is entirely enough, as architects are not philosophers. The hidden agenda is how to train one’s mind to see the meanings behind phenomena. This relationship seems relatively easy to consume, but it should be used indirectly because one could easily fall in the trap of form, object, and corresponding technology of their appearance.

3.2. Turtles: from idea to space

Years ago, as a tutor in public buildings, the following meeting occurred: a confused diploma student of a fellow tutor did not know how to proceed (or even start) with his project. The student had indeed found something intriguing suitable for a basis for his project but did not know how to use it. His project assignment was for a building for an ecological institute to observe the Vitosha mountain near Sofia; it was to be designed in the mountain. In the pre-architectural research, the student found a sustainable colony of a specific breed of turtles living in the mountain. Turtles belonged to a relatively uncommon species to inhabit the Vitosha mountain. Nevertheless, they had formed sustainable families, populations, couples

with the help of campers, hikers, and tourists. Here is the mechanism explained as written in the official website of The National Park of Vitosha [11], translated in English:

*There are many cases when people find turtles, take them home, setting them apart from their natural environment, and after enjoying them for a while, they release them on Vitosha mountain, often thinking that they are "saving" them. Thus, however, they doom them to certain death without even realizing it. Such "released" turtles are the reason for finding single specimens in different parts of the mountain. The southern side of Vitosha mountain is dominated by lowland and hilly areas overgrown with sparse forests and shrubs. Here, along with the appropriate climate and altitude, there are excellent conditions for the species' living and development. In this part of Vitosha mountain, five male and five female spiked turtles (*Testudo hermanni*) were found, as well as several eggs. The turtles found are of reproductive age and relatively large for their species. This Vitosha population is isolated at a great distance from the nearest neighboring ones and is especially valuable because it is one of the few for this part of Bulgaria.*

The story was impressive and provoked eagerness how it was going to evolve in the development of the project. Oddly enough, the student's proposition of a building had inherited the form of a single turtle. To avoid that, one must first see what is behind (or above, actually) that turtle sustainability process, i.e., to convert and "undress" it to a specific abstract message corresponding to the primary discovered embodiment. And then schizoid enough – as if he or she was a different person, to find a different back path to a new form, to "re-dress" it, based on the higher abstract meaning, as seen in Figure 1 below (steps 2 – 3, step 1 is about "finding the turtle"). It is important to underline here that the examined process, i.e., turtles' sustainability or turtles themselves before the abstract conversion, do not share any standard morphological features with the final architectural result, which used a set of T-shaped walls to form inner project space as quite a conventional built space. T-shapes emerged to re-materialize abstract meaning as for the student they showed furcate, forked growth when stopped or blocked by an obstacle – that is, the uncommon repositioning of turtles at the new hostile at first sight environment.

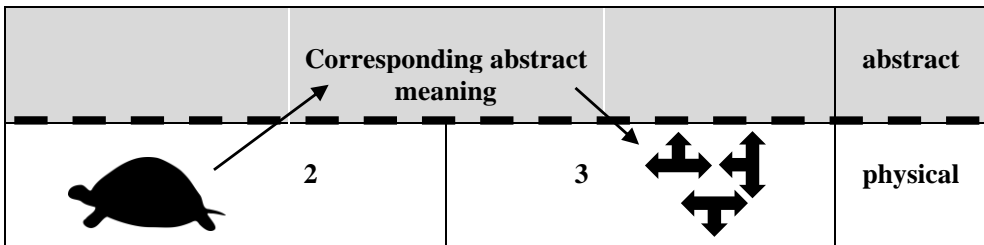


Figure 1. "Undressing" the form to its abstract meaning and "re-dressing" it back to a possible new embodiment

The conversion mechanism stays symbolic in Peirce's semiotic terms for the architectural public and does not need to be explained cognitively; furthermore, it even has to be left unexplained for the sake of suggestive meaning. That way architectural public in the form of visitors and/or participants consume a particular ideology-based matter while using the architectural result as a mere facility for observing the mountain, which is what Žižek incorporates in his famous toilet usage model [12]. When asked about the form of OMA's CCTV headquarters in Beijing, Koolhaas explains it rather vaguely, in postmodern terms of replication and openness (and not as a possible hollow, yet creased or three-dimensional

initially flat TV frame – in the context of mass-media getting physical and non-virtual). Simultaneously, a stronger emphasis was somewhat put on structural integrity and optimization as objective terms.

3.3. Valkov's triad of fundamental characteristics of form and its possible valences

While focusing on already found processes and evolving systems as the particular one from the turtles' example, a non-manmade original form as an object with system behavior could also be approximated to an idea. Crucial for such mechanism is the understanding of Valkov's triad of fundamental characteristics of form, which is to be found initially in his major study "The Architectural Metaphor" from 2006 [13] and developed subsequently in his DSc thesis published in 2020 as a PDF e-book in Bulgarian [14]. It provides the notion of the structure by which Valkov means the highest morphological code that organizes form and conveys the message. Valkov's triad of structure, configuration, and materiality is generated to explain artistic form, but it could efficiently study semiotic levels of messaging of non-anthropogenic original forms in nature – such as bioforms. The highest level of structures is usually not seen or confronted directly as a visual representation; it stays rather virtual (again, not digital), which corresponds mainly to meaning as it is ripped off similarly and also highly purified. In other words, structures could easily be matched with words. Moreover, partially with names, to bring the topic to a higher nuanced level of poetics – as names are quite ambiguous, having both primary usage (for addressing, signifying) and secondary meaning (for deeper non-material values and hidden nuances of thought and intimate attitude, which are symbolic in terms of long-lost connections between the signifying and the signified). What is more, by being virtual, they could easily bound with an idea from the abstract realm from the top level in Fig. 1 above. It is of great significance here that a specific group of words (and especially subgroups of names) do not exclusively possess their own form. They are formless, which makes them very suitable to stay in the grey level area of Fig. 1 above.

4. Conclusion

While researching, interpreting, and working with bioforms at The Department of Drawing and Modelling at UACEG, students are accustomed to approximate certain non-anthropogenic forms to the level of their order-based morphological structures and subsequently interpret them morphologically to a certain point of formal development. It is a step before finding meaning in them; it is an in-between exercise that trains students in structuralist thinking over a chosen form. Nor choosing the initial form, or the following transition of a structure towards meaning – through structure renditioning, or even re-materializing back in the built world – none of those are relevant in this limited in-between interval phase. Nevertheless, precisely this phase of the architectural form-finding trains future architects to work with their own future models as if they were initially foreign and thus authentic to them in the social sense. Basically, bioforms research makes students think analytically in terms of structures and be prepared later in their architectural education to match them with meaning, after which to convert the meaning back to an architectural form.

Acknowledgment

This paper is considered part of a scientific research project led by Orlin Ivanov, Ph.D., Chief Assist. Prof. at The Department of Drawing and Modelling of The Faculty of Architecture at UACEG in Sofia, filed under contract No BN-232/20. The activities are supported by The Research, Consultancy and Design Centre (RCDC) at UACEG.

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ОБРАЗОВАТЕЛНАТА НЕОБХОДИМОСТ ОТ ИЗСЛЕДВАНЕТО НА БИОФОРМИТЕ В КОНТЕКСТА НА АРХИТЕКТУРАТА КАТО ХУДОЖЕСТВЕНО ЯВЛЕНИЕ

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Ключови думи: биоформи, формообразуване, абстрактно, смисъл, процес, проект, образование, структурализъм, теория на архитектурата, концептуално, художествено, архитектура, анализиране

РЕЗЮМЕ

Настоящата публикация разглежда образователната необходимост от изследването и работата с биоформи в контекста на следването по архитектура, като се концентрира върху смисловата страна и възможността за концептуален заряд на архитектурата като културна среда и не толкова в качеството ѝ на сграден продукт в контекста на конвенционалното схващане за архитектурно проектиране. Разглежданата в публикацията област и кореспондиращата ѝ условна методология представлява конкретна ниша от обширното теоретично поле на архитектурата. Засегнатата проблематика поставя въпросите за това защо и по какъв начин изследването на биоформите се явява важен елемент от архитектурното образование, където в условията на образователен процес следва да се позиционира прилагането на изследването, има ли място то в дигиталното ни съвремие на постмодерното – в качеството му на структуралистки подход, и кои са границите на неговия теоретичен обхват. Публикацията е допирна част от периферията на научно-приложен проект (с договор № БН/232/20 с ЦНИП на УАСГ), разработен от членове на различни катедри на Архитектурния факултет при Университета по архитектура, строителство и геодезия. Публикацията разчита на наличие у читателите на обща теоретична основа от морфологичен характер в нейния условен контекст на архитектура – доколкото последната предоставя философско и социокултурно разбиране на формата като семиотичен феномен.

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