OPINION

HOW SCIENTIFIC ATTITUDES CAN HELP GET ARCHITECTURE OUT OF ITS PRESENT MESS: THREE SIMPLE RULES TO FOLLOW

Luís Borda-de-Água[*]

CIBIO – Research Center in Biodiversity and Genetic Resources, Portugal

As other authors of this series on architectural education, I share a dismay towards the present state of architectural practices. Being a practitioner of ecology, I am interested in (and upset about) the impact and the sustainability of human activities and, naturally, that includes the construction of buildings and other structures such as dams, roads or railways (Borda-de-Água *et al.*, 2017). But what interests me in architecture is not so much its impact in the physical world but on our psychological health, i.e., in the quality of our lives, through the sheer inhumanity of the environments being created. By inhuman environments I mean environments that they are devoid of some basic characteristics that are intrinsically needed for human psychological well-being (Sussman and Hollander, 2015).

Partially because of my profession, I'm interested in evolution and how living organisms co-evolve and adapt to their environments. In this respect I expect architecture to provide environments that are suitable to our most basic needs as human beings, including behavioural ones that have evolved for the last millions of years, and which characterize us as a species. Unfortunately, I do not think this is a concern among most architects, at least not from a sound scientific perspective. For this reason, I believe modern architecture and urbanism have become just an additional environmental problem, one that I would describe in some cases as *visual pollution* and in others as *environmental maladjustment* or *environmental discomfort*. In any case, this creates a heavy burden that we are leaving to the next generations.

I believe that any change in architecture practices has to include education. It is not my purpose to offer specific suggestions on the curricula of architecture degrees, but I believe some very general guiding principles from science can also be applied to the education of future architects. These are three dicta by Richard Feynman, a 20th century Nobel prize-winning physicist who was also known for being an excellent teacher; he was one of those people with the rare ability of expressing deep thoughts in simple language. These three thoughts enshrine the most basic learnings that any student of science or engineering should know, even if unconsciously, and I suggest they should also be taught to students of architecture.

[*] *Luís Borda-de-Água, CIBIO – Research Center in Biodiversity and Genetic Resources, Campus Agrário de Vairão, R. Padre Armando Quintas, 4485-661 Vairão, Portugal, e-mail: lbagua@gmail.com*

First dictum:

"For a successful technology, reality must take precedence over public relations, for Nature cannot be fooled." (Feynman, 1986)

In the above sentence, and for the present purposes, substitute the word "technology" by "architectural movement" and add "human" to "Nature". Indeed, no matter what sort of public relations or publicity is employed to promote a project, ultimately, human nature cannot be fooled. The ideas of the proponents of Modern architecture were tested and the results are all around us, but the fact that most people show a strong dissatisfaction reveals that it is time to abandon the experiment. This conclusion is attested by the number of famous architects who have won the "Carbuncle prize", an annual "prize" given by the magazine *Building Design* to "the ugliest building in the United Kingdom completed in the last 12 months" (Carbuncle Cup, 2020).

Moreover, it may be time to consider the removal of the products of Modern architecture, meaning buildings and other structures, even if this is a costly proposition. It is my conviction that the products of Modern architecture will be considered in the near future as an issue of public health; metaphorically speaking, most buildings which we associated with Modern architecture will be seen as the visual equivalent of open air sewers, and will be dealt accordingly. The question is, when will we start addressing this serious visual pollution issue? Which leads us to the Second Dictum.

Second dictum:

"*What we need is imagination, but imagination in a terrible strait-jacket.*" (Feynman, 1965)

Defenders of Modern architecture present it as a liberating endeavor, one that allows the creativity of the architects to emerge and rule (Intelligence Squared, 2008). Therefore, any requirement to follow a set of (old) rules is seen as a restriction to the imagination. I argue that it is quite the opposite. When controls (i.e. Feynman's "straight-jacket") are removed, imagination does not become free, it becomes unnecessary, because then everything goes. In fact, I have observed that imagination among Modern architects is directed towards lengthy verbal justifications about what was done and why. These justifications are often very elaborate, using a mixture of philosophical insights, but for me they are of no value because the associated final physical products are just banal, and I think they are banal because, in fact, they didn't require any truly creative effort. And finally, we have:

Third dictum:

"*Science is a way of trying not to fool yourself. The first principle is that you must not fool yourself, and you are the easiest person to fool.*" (Feynman, 1974)

This is probably the most important of the three thoughts. Following this dictum is tremendously demanding because it is a constant attack on one's ego. It demands what I describe as self-honesty, and accepting that our thoughts need to be checked because they are not necessarily correct. To be clear, I'm convinced that scientists are just as

honest as everybody else, and that scientists' dreams of fame and glory are no different from those of other professionals. It is the correct application of scientific procedures that requires self-honesty.

In the natural sciences, checking our work implies confronting the results of our models with experiments or observations. It would be naïve to assume that these checking procedures lead always, or immediately, to conclusions that are black and white, acceptance or rejection, but at least there is a goal: our models should conform with reality. When it comes to architecture, what are the equivalent checking procedures? I do not know, but I assure you that recognition by your peers is not enough, and sharing self-congratulatory prizes is not enough either, especially when the products that lead to these prizes are at odds with what everybody else thinks and feels. In fact, I cannot think of a better way of fooling ourselves.

On the other hand, a courageous attempt to better understand how humans are affected psychologically by their natural and artificial environments is an obvious step. Such knowledge will necessarily lead to boundaries in design practice. Yet it is the acknowledgement of, and respect for, these boundaries that will be ultimately force us towards making a valuable contribution to society.

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