

# Technological and Industrial Colonisation

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## INTRODUCTION

When we began the research project that we are still directing in Anantapur, a small region in central India, our first intent was to draw up a map of the historical connections between the traditional construction in that area, (mainly factory work: walls, arches and vaults) and those existing in certain areas of Spain with similar roots. Our idea was to record and understand the traditional construction processes in Anantapur and subsequently to propose a model that would be compatible with those traditions as far as possible, incorporating new industrial technology and based on recent experiences in Spain.

We soon saw that evolution of the sector in that region, like others with similar characteristics, had already given rise to a peculiar combination of innovation and tradition that could not be turned back. The study then changed in focus: it was addressed to understanding how and why those innovations had come to be added to the traditional, how tradition had evolved as a result of these innovations and the advantages and drawbacks of the resulting model of integration. The experience of certain colleagues and professors in areas with similar levels of technological integration – ranging from Guinea, to different regions of North Africa – was essential, as it enabled us to draw up comparisons with other models. Using all of the foregoing, we have attempted to create a database focused on understanding these occurrences, both in Anantapur and in other areas; a database that in the end became a record – incomplete, of course - of how and why certain traditional techniques have disappeared.

We believe that the history of construction, a discipline outwardly addressed at documenting and understanding earlier building techniques, should record not only the emergence of these, but also their disappearance. Truly knowing a procedure means to understand where, how and why it emerged, as well as where, when, how and why it vanishes. Many studies include all types of information claiming to show the first emergence of this or that technique at this or that engineering or architectural milestone. However, we live in times in which the ends, the *deaths* of these techniques, procedures, materials, are more numerous than the birth of new ones. The History of Construction must encompass and record the techniques that have vanished, or are about to do so; their disappearance (or, even more important, their restructuring) and the reasons behind it are an integral part of this history.

The considerations taken into account in this study are based on incomplete initial data, which could hardly be otherwise. The examples in the outlying areas selected and the historical connections

established with other areas located closer to the hub of innovation are only a small part of a whole that is too broad to encompass, and undoubtedly offer a biased view. The intention of this essay is not to offer a general summary of the current state of affairs, but rather to propose an analytical model that enables us to see, from this perspective, what problems and solutions gave rise to these processes, offering specific data on certain areas.

The final goal of this record of disappearances and restructuring, and of the whole study in general, is to comprehend the reality of the area and thereby draw up general proposals for improvement. To do this, we have founded our work on certain prior criteria:

- The way in which a people builds is a reflection of their world and represents the manner in which their society is expressed and interpreted.
- The system of building provides a way to create and understand a people, and as such, is essentially cultural.
- The same thing is done in different ways depending on the place and time. The whole of the different ways of doing things comprises our heritage.

## **INDUSTRY AND CONSTRUCTION TECHNOLOGY**

The introduction of technological innovations in the construction industry in areas located far from where they were developed – a process that began with the Industrial Revolution – is a notably widespread phenomenon today. The adaptation of certain of these innovations to the particular characteristics of each area has generated, and will continue to generate, numerous difficulties, as the conditions under which these *technological grafts* occur are not always the most suitable. Modern-day technology is installed in any medium with no prior analysis to enable its adaptation to the pre-existing realities of each region.

The problems detected as a result of this process are particularly patent: industry in many of the areas receiving technological innovations may lack even a minimal infrastructure (essential in the new scheme of processes) or qualified labour (which is accustomed to other procedures and organised according to different criteria) and nonetheless, buildings are erected using new technological models, or combining these models with traditional elements. The problems that these constructions subsequently cause can range from minor pathologies to massive collapses, of which we have unfortunately seen too much when there are natural disasters.

It is important to remember that the technological insertion processes referred to above currently affect large areas of the world, including the developed, developing and under-developed nations. The problems mentioned are, of course, not new; what is new is their scale: generalisation (globalisation?) of construction technology is unquestionably one of the most significant of revolutions, given its speed and scope in the history of the sector. And it is probably the factor that best defines the current era.

## **Globalisation**

There appears to be a general consensus that considers what we know as *globalisation* (a term coined recently by a number of studies) as a worldwide social phenomenon, which has arisen from the growing capacity for the exchange of information. Its most obvious expression is a certain trend toward homogeneity in the way things are done in different cultures. It is a process in evolution, in which many cultural traditions are being blended with other practices from faraway places, creating a mixture that affects language, religion, art, technology and, in general, all the areas related to our needs and life styles.

Certain studies (Robertson 2005, or Ferguson 2005) believe that globalisation is nothing more than a new form of colonialism, a type of modern and complex machinery with which to exercise world power. Within the views put forward by these studies, the use of technology is considered a fundamental element: we are witnessing a stage of *industrial technological colonisation*, an era in which technology and the information it puts in motion has replaced violence, and even money, as the controlling factor.

However, other essays underline certain contradictions that are implicit in the concept of globalisation. For these authors, the trend toward uniformity has created a reaction in the affected cultures. The majority of these cultures appear to be reluctant to undergo total homogenisation and therefore have now placed greater importance on different languages, customs or religions. Thus, in a world of “culture without space” (Alsayyad 1999) global homogeneity and certain characteristics of local cultures, often emphasised far beyond their true importance, will co-exist. What these studies really attempt to do is to understand how this blend works, how the two sides interact; to what degree globalisation can serve as a platform for differences, and how emphasis on differences may be packaged, prepared and used by various political and commercial trends for homogenising purposes.

### **From Technology to Construction: Equalisation or Differentiation?**

Thus, there will be spheres in which globalisation appears have certain *equalising* effects (whether imposed or not), while in others, it assists in making *differentiation* more evident. This contradiction is hardly new, and can be seen in other *globalising* epochs in history (from the Romans to other colonising peoples, although this has not been sufficiently documented):

A comparative historical study that contrasts the current processes of interaction of technology, globalisation, the economy and communications with past experiences of similar transformations would be very beneficial for academic thought [...] Up until now, the few attempts of which I am aware have paid insufficient attention, in my opinion, to the radically new processes in technology, finance, production, communications and politics, and therefore [...] it is unclear why the present is only a repetition of past experience, apart from the opinion that there is nothing new under the sun.

(Castells 1998)

As mentioned previously, what has changed in globalisation is its scale. But, within this framework, what has occurred in construction technology? Is it by and large accepted, even equalised, as seems to have happened in other areas of technological uniformity? Or, has it maintained its association to the traditional and fallen within the scope of local differences, like dialects, clothing or rituals?

There are strictly practical factors in favour of the equalisation, globalisation of construction technology. The possibilities it creates for mechanisation, organisation of the work process and the economics of projects all speak in favour of the introduction of the new systems - so much so, that these systems seem to be the *best* in certain environments (we will discuss this further later). The new architectural options, the safety of the new buildings and aesthetic factors (strictly an area for cultural studies) that construction technology has brought about are also strong endorsements for globalisation.

The deeply rooted origins of construction, however, must be taken into account when supporting differentiation. The trades, systems and methods displaced by the new technologies are as ancient and specific as many of the languages and rituals acclaimed by the globalised. However, these traditions are only rarely deemed important to preserve. The work of Fathy and buildings in clay are only isolated examples. The new construction technologies are generally embraced relatively quickly (in the areas covered in this study) and the trades related to traditions vanish more easily than religions or rituals.

Is there a basis to considering construction technologies as part of a people's roots? Fontana argued that the purpose of the construction of a regional identity is to strengthen it *against outsiders* (Fontana 1995). An identifying feature does not exist alone, but rather in comparison with others that are presumably the opposite. Manuel Castells recently developed this concept, establishing three ways of creating an identity related to different social positions and different ways of confronting convention. (Castells 1998)

Local construction traditions are undoubtedly identifying features, but the new construction technologies and their related industries are not their *opposite*. In many of the areas covered in this study, we found no awareness that there is anything to react against. Technology is a transversal element, and this makes differing cultures much more permeable to it.

### **Mechanisms of Introduction**

How are these technological and industrial innovations introduced into the affected areas? We have focused primarily on two main channels, based on the views contributed by two, well-founded models of analysis. On the one hand are the studies that emphasise the influence of institutions and the instruments of established power in the affected countries on this process. On the other are those that defend the theory that through the various current channels of globalisation, this colonisation has begun to emerge in the individual scope.

Some years ago, Professor E. Said (Said 1990) decried the western concept that the East (and, in general, any other area not included in the “official” West) is not free. For Said, what we know as the East is only a projection, a somewhat literary concept pre-established long ago and, of course, false. The studies done by Western scholars – according to which the Orient is a field of knowledge they alone define, which only they are entitled to analyse and only of interest to them; a vicious circle with no apparent escape route – are not actually intended to learn about the other area, but rather to confirm their own prior view of it.

Said believed that the problem, after the ostensible end of the colonial era, lies in the fact that it is now those in power who actually project this view of Eastern societies, who have taken on the role of the advocates of culture in the Western sense. The task of the elite in these areas, particularly after the introduction of a market economy, seems to be to promote a certain *modernization*. Said criticizes some of these modernising policies, which often are unnecessary, and studies the way in which they are used to introduce a series of Western elements.

Although Said does not discuss it specifically, in the construction sector the trend clearly supports this idea: regulations affecting the sector imposed by governments are based (when not simply a direct translation) on the regulations in place in countries with differing technological development. The process of evolution of local regulations does not generally take the traditional procedures into account, whether to preserve or adapt them. In Spain, a country with an extensive tradition of factory construction, the sheer volume of the regulations dealing with controlling work in steel or concrete is thirty times greater than devoted to factory construction; the scant regulations on this subject barely make any reference to the construction of arches or vaults.

Certain post-colonial studies reflect at length on the channels for the introduction of global elements into non-Western contexts. These studies consider that today’s easy means of transportation and the exchange of information are the primary causes of this phenomenon, and deem these factors to weigh far more than governmental actions. In the opinion of some of these authors, Western customs are introduced directly at the individual level – similar to an *inoculation* – without the assistance of official institutions, through emigration to the wealthy countries, work in Western factories built in Eastern countries, and television, the Internet, etc. This capacity of Western civilisation to enter directly into the individual sphere is what gives this phenomenon the impetus decried by analysts.

## **PROPOSALS**

### **Prior Considerations**

When considering the complex phenomenon of technological colonisation, it is important to first consider the following issues: First issue: How does a technological introduction affect the existing reality in a colonised environment? Second issue: What measures should be taken to adapt the

introduction? Both the cultural and technical effects of the suitability and quality of the action should be taken into consideration. Third issue: Considering the multi-directional process of colonisation, what is the next horizon in the West where we will see a continued process of colonisation?

Of course, given the current uncertainty, it is difficult to envisage specific measures, but thought must be given to this matter. In this respect, mere rejection of evolution and progress is inadmissible, as is unthinkingly taking actions that may be irreversible.

### **First Issue**

The first issue reflects on whether the influence of technological colonisation may be formulated so that it encompasses tradition, or its possible loss. Tradition is considered to be a cultural asset that is manifest in our architectural heritage and trades.

Our architectural heritage must be preserved, but we must know how to do it. This means that we must have access to the trades that created this heritage, which in turn represent the way things are done in a given society, the way the world is expressed, felt and understood by the members of that society. Their buildings tell us much about who these people are and a good idea of what they are like. Take, for example, the barrel vault, a simple form that is easy to imagine and to manipulate in the mind; each society and era has made it differently and carried its form with them to other places. Man has always travelled with his knowledge, teaching or learning along the way.

The first issue is then, how can tradition be protected? The response to this difficult question leads initially to the following considerations:

- The importance of preserving trades, ensuring that they do not vanish as have so many species in the animal world.
- The need to preserve a historical heritage, which requires the preceding point. This concept of protection is even more important because of its relatively recent adoption in the so-called Western world. Thus, the colonisers have a greater awareness of the risks involved in the actions to be taken.
- And, even more difficult to express is the need to create a bridge between what is here now and what is to come, to avoid a total break or confrontation between past and present and, above all, to attempt to create new forms to strengthen what went before. The main problem here lies in the fact that while we are at one level, the next is still unknown.

All of this is quite complex, but calls for an attempt to learn, to maintain a very open mind, to be able to try to reach back to the origins and to understand the intentions, feelings and customs of old.

The “heritage-trades” combination requires long-lasting institutions and organisations with a common goal linking the two elements of the whole, as tradition creates tradition, and requires, above all, continuity. It is also worth reflecting on our current concern with the sustainability of our present work as a way to view a feasible future and to understand that the present carries the past, and its heritage, on its shoulders.

## **Second Issue**

To be concerned with the impact on cultural models and promote the demand for quality and safety in technological colonisations. The concept of quality is progressively more associated with safety, and nowadays, with durability. It is often said that we do not appreciate what we have, and perhaps that is why we feel a greater need for safety, now that we have discovered how difficult and perhaps impossible it is to attain.

Technological colonisations tend to be applications of a society that is more industrially developed on another society with a lesser technological level. This transfer gives rise to various scenarios:

- The receptor society is not responsible for taking any of the actions. An extreme case of this type is the manufacture of a turnkey product. However, even this type of product will not be without influence on the sphere in which it was made, where its impact may be extreme. This impact is not necessarily due to the product itself, but rather to the participation, however secondary, of the local population, and particularly of the building trades. This type of transfer occurs often in internal applications within a same provider and receptor level but, should it occur at very different levels, it clearly shows up the need to import technology.
- The receptor society imports technology to undertake large-scale programmes. This scenario also requires an imported structure that will include skilled personnel, equipment and perhaps even a scale reproduction of organisms, companies or institutions. One could say this transfer takes place under global tutelage. The over-early withdrawal of this tutelage could lead to the failure of the colonisation, while on the other hand, if tutelage is maintained for too long, it can come to represent another form of colonisation. All of this may be manipulated by those in political power. The end of this scenario is generally defined by the replacement of colonising personnel by local employees, which requires time and significant investment. The employees trained at foreign institutions run a certain risk of not returning to their home countries and, if they do return, are often assigned administrative duties far removed from their technical training.
- The receptor society acts autonomously and undertakes small projects with specific technical and logistic support. This case refers to a low industrial level and results

are generally of a very deficient, if not unacceptable, quality. The incomplete importation of construction technology, without the sufficient means and suitably trained personnel leads to faulty and even dangerous work.

In the preceding scenarios, the lack of knowledge of one of the cultures with respect to the other tends to be overtly manifest. The difference lies in the scale, as while the entire culture is colonised, the coloniser is merely present temporarily. This creates a disproportion between the two, and is an indication of the enormous power of the colonising activity.

If we rule out isolated activities for the moment, and focus on those that represent a continual influence, we can raise the following issues with respect to the traditions existing in the local area of introduction:

- Is it worthwhile to envisage the optimisation of the local way of doing things? This optimisation could consist of improved training for the staff involved in the building sector. Greater mechanisation could also be a factor. In any case, the cultural architectural models would not have to change, although their progressive evolution could be on the horizon. All of the above assumes that the coloniser has in-depth knowledge of the area and requires widespread cooperation. At times, more skilled workers are relegated to a level lower than that of the unskilled workers, as no thought has been given to their training or their cultural development, and this accentuates the distance between management and the skilled labourer, giving rise to the need for special models.
- If new technology is introduced as an innovation, what are the options for adapting traditional methods? The most significant factor in this case lies in the danger of a total break with architectural models, thereby eliminating cultural possibilities and forcing an adaptation to different, foreign models. At times, colonised peoples actually demand the new architectural models, so that they can offer a questionably more modern image.

### **Third Issue**

The evolution of the industrialisation process, its globalising effect and the powerful and growing influence of the media have led to a need to attempt to envisage, as far as possible, where this rapid change that we feel and sense is heading. All of this leads to certain questions that are important to take into account:

- The evolution of communications and the influence of the same.
- The possible appearance of a new set of values that actually represent nothing more than one more step toward a goal as yet unknown.

- The evolution of the approach to industry in terms of production and distribution systems. Certain already existing aspects should be noted, although they are still incipient, but are leading to a new configuration of the construction sector.

Industrial uniqueness. This means that a unique product can be manufactured via purely artisan procedures within a competitive economic framework.

Kits. These comprise a type of industrial production that alters the professional chain of work and brings the final user closer to a type of self-sufficiency

Assistance + kit. This organisation distinguishes between the public and private spheres within the building, creating an additional structure in the construction sector and a different hierarchy in the framework of the elements comprising it. The concept of consumerism would encompass the entire building and bring with it the appearance of other criteria with respect to the functionality and durability of its elements. The system devoted to creating needs would thus grow exponentially.

These examples, just to name a few, are not necessarily negative factors. They are intermediate steps in a process that is difficult to envisage clearly, but which may alter our current reality. Avoiding them just on principle would be to advocate life at a standstill, and to promote them without due thought or trial would be thoughtless. It is clear that no one is impervious to changes that profoundly transform reality and put the significant values of that reality at risk. In conclusion, the first two issued can be summarised as follows: let us hold on to what really matters and try to take on the new in the most productive and positive manner possible.

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