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BUILDING TECHNOLOGIES AS INTANGIBLE CULTURAL HERITAGE: A TOOL FOR DEVELOPING A CULTURALLY SUSTAINABLE FUTURE

Giulia Montanaro

Abstract

The rich past of legacies in heritage is challenged by modernisation. A homogenised system of meaning is being created, set an altered condition of universality. The homologation can be contrasted by rethinking construction technologies' translation into different cultural contexts. A culturally sustainable urban development can be designed that could reconnect the disjunctions given by the intensified development in China as in Europe, starting from the connections between culture and technology.

Keywords

Cultural Heritage, Building Technologies, Globalisation, Glass, Cultural Sustainability

Introduction

Under the unprecedented intensification of the leveling globalisation process [Cronin 2003], cultural heritage remains an opportunity.

According to Brian Graham, Cultural heritage is «that part of the past which we select in the present for contemporary purposes, be they economic, cultural, political, or social» [Graham, Ashworth, and Tunbridge 2000], to develop the future.

Nowadays, the rich past heritage legacies are increasingly challenged and questioned due to the pressure to create new development, modern infrastructure, and a better lifestyle for their inhabitants [Labaldi and Logan 2016], going towards what is called "Global Culture". It means a new cultural system emerging from the diffusion of cultural values, beliefs and practices worldwide, taking on new attributes, and transforming the process[Hexham and Poewe 1997]. «A single 'homogenised' system of meaning» [Tomlinson 1999] is being created, set on universally shared images and practices and, thus, on an altered condition of universality.

The urban development and transformation of the historical cities suffer from it. This new set of universally shared images and practices [Franklin, Lury, and Stacey 2000] disregarded human experience in terms of place attachments and identity as well as everyday life practices linked to intangible heritage. Since the place is a specific space with historical phases that sculpt its character, people are attached to their places, as the

place derives its very existence from the people who shaped it over time. People adopt intangible elements that shape their personality from their place's collective consciousness [Norberg Schulz 1992]. At the same time, their constructions, an essential element of a place, reflect the expression of the societies and the people who created them, showcasing that worldly-recognised intangible cultural heritage.

Historical cities manifest how tangible heritage reveals an intangible one too strongly linked to the place as it incorporates cultural, social and economic conditions in a specific context from which historical processes and needs derive[Picon 2005]. All is explained in the construction's materiality and the technologies used.

Following the dictates of a theoretical systematisation of construction history, as suggested by Werner Lorenz, his object of investigation is the process of production, «the art of making», or the science of architectural design understood as the technical process through which man builds the environment in which to live. In this sense, the construction history is nothing more than a «technical anthropology» [Lorenz 2005]: a definition that in many ways well identifies the intention of linking technology, tectonics and cultural sustainability.

Reconsidering structural modalities, bringing back the inevitably earthly nature of the building to a tectonic and tactile character, Kenneth Frampton studies and attempts to mediate and enrich the priority given to space by reconsidering the construction and the structural methods through which it must necessarily be completed. He proposes a series of intercultural comparisons of an empirical nature that the architect Jorn Utzon has done work on the transcultural element and their physical and body perceptual impact in a critical approach. It can demonstrate the strong link between building technologies, the space, and the human approach and perception of it derived from one's own culture[Frampton 2005].

Construction technologies must be the starting point to address the paradigm of cultural heritage as a sustainable urbanism tool for creating a harmonious society in urban transformation, involving social, cultural, and technical anthropology studies. The psycho-physical impact of form on our being and how the architectural form is transformed into space and tactile matter. Gianbattista Vico exposes how this is part of the legacy of a species going through a cultural evolution with which it also identifies its way of experiencing space and building it, not only in metaphorical terms but also in corporeal terms [Mooney 1985].

Starting over from construction technologies

Starting over from building technologies today is indispensable as they result from development in the wave of modernisation. In this flow, technologies have been the tool and the outcome. Technologies, their industrialisation, consumerism and capitalism have injected modernity into the development and redevelopment of historic cities and beyond. Gaps have been created, revealing the irreconcilable contradiction between what is tradition and what is understood as modern. A discontinuous development, with a tendency toward standardisation, does not give space to the plural deployment of

the different construction technology possibility derived from different cultural settings but homogenises them according to devourer modernity based on mass production. «In the advanced stage of mass production, any society produces its own destruction» [Illich 1973]. This key concept of the industrial mode of production conceptualises that the threat to humans arises when technologies, broadly understood, reach thresholds beyond which they become irremediably damaging to people and the environment. The steady erosion of limits started in the 17th century with the harnessing of energy and the progressive elimination of time and space, gained force with the Industrial Revolution, and accomplished a complete restructuring of society in the 20th century. Once out of their context, technologies, if linked to the ideal of mass and optimisation, characteristic of Western modernism, can become profoundly destructive in cultural terms.

> […] that accelerated growth and the uncontrolled expansion of tools pose to key aspects of the human experience: humans' historical localisation in place and nature; people's autonomy for action; human creativity, truncated by instrumentalised education, information, and the media; people's right to an open political process; and humans' right to community, tradition, myth, and ritual—in short, the threats to place, autonomy, knowledge, political process, and community. [Escobar 2018, 9]

The threat becomes more explicit and dissonant in contexts where that modernity has been translated. In China, the later half of the 20th century did not produce any philosophical reflection on the nature of technology. The philosopher Yuk Hui wrote that in Chinese philosophical thought, the technique never existed. And so, if remains firmed the belief that the whole question of technology can be explained in the universal terms of the European tradition, China itself seems destined to replicate the identical European technologies development. Every culture should reflect on the historical and metaphysical question of technology. Since the question is not only that China has to reflect on it but also that we have to imagine a new form of globalisation. The one we have now is a historical consequence of geo-political power differences. The primary task is to understand the possibilities of a multiplicity of technicities[Hui 2016].
It should not be overlooked how this process acts and has also acted in the European and Italian contexts. It may be helpful and more explicitly understandable how this influence acts in distant cultural and architectural contexts to understand how a dominant technocracy influences nearby places and projects in the same way and on every scale, from national to individual.

Look at the historical districts of Beijing to understand the modernisation influence

The Beijing historical city-core neighbourhoods' urbanism and built architecture are known to be a grid of traditional neighbourhoods made up of "hutong and siheyuan houses". These consisted of traditional neighbourhoods considered a microcosm of the broader city unit plan with its historic structural elements (walls, doors, lanes, hutongs,

official buildings, temples) and immaterial culture (mixed population, ways of living, social and cultural practices).

After the establishment of the People's Republic of China by Mao Zedong, Beijing needs a transformation to become the capital of the new China. Two architectural approaches were proposed: Architectural idealism aimed to preserve the old city intact within its walls, while political pragmatism, based on a Soviet model, aimed to transform the old city by implementing industrial and administrative zones. [Sit 1995]

«Tradition has given way to modernity. » [Bideau and Yan 2018, 94]

The trend began to reverse in the 1990s. The new Beijing development masterplan (1991-2010) strongly emphasises the city's aesthetics, or visual atmosphere, of the city, taking into account its ancient and traditional character [D. B. Abramson 2001; 2007; Gaubatz 1995].

Some historic neighbourhoods have been progressively rehabilitated, with the Beijing 2008 Games as a high point, and have become key places for national and international tourism in Beijing. Urban heritage, on the other hand, has been associated with the destruction and valorisation of traditional areas, which has kicked off a gentrification process at the expense of local residents since cultural heritage adds value to land and obsolete built environments.

Today, there are clear similarities between the historic neighbourhoods where urban regeneration and upgrading have burgeoned, leading to gentrification, reflecting the current image of cities' "modernisation process". Differences emerge across the multiple places of interest for urban development. Different approaches and technologies have led to different situations and impacts during modernisation.

President Deng Xiaoping's economic reform has led Lacina to be a symbol of consumerist megastructures. The so-called Chinese Bigness. Soon the Stalinist monuments were replaced by agglomerations of skyscrapers, signs of modernity and progress, which changed the image of prosperous urban areas of extreme density[1].

It cannot be denied that the urban construction boom has led to an economic boom, with great benefits to the Chinese population, also thanks to the infrastructural upgrading of the entire country. There is no denying the positive elements of quickly replacing the old one according to a progressive vision.

But in this rapid transformation, China is becoming richer, but it is losing its historical identity: its cultural originality and creativity are in crisis. A debate about the genuine modernity of China is therefore becoming inevitable.

> In the last 30 years of Chinese urbanisation, three modes of modernity can be witnessed: received modernity, reflective modernity, and alternative modernity. Of the three modes, received modernity is the most apparent. It is the continuing adoption of imported ideas, mostly from Western countries. These imported ideas are not necessarily the best from the developed capitalism world, far from. They include consumerism and technocracy.

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[1] Inauguration opening a.y. 2015/2016; Lectio: The chinese city and us: Encountes with Europe by Professor Zhang Li (Tsinghua University) and Professor Michele Bonino (PoliTo); January 25, 2016.

Received modernity has to be put under scrutiny as a whole. Because urbanisation is something that happens with a given people of a given culture at a given place, simply transplanting borrowed ideas may have disastrous consequences. The key question is: if urbanise is necessarily modernised, can it be culturally and environmentally sustainable? The answer is to refocus on the fundamental elements of civilisation again: resource efficiency, cultural continuity, and social cohesion[2].

To ensure that continuity is reached, we can't have a universal approach to solving urban problems neither from the urbanistic point of view, nor in how they materialise through technologies. Agree with Katie Lloyd Thomas' warning about those positions that merely consider the question of technology in technical terms and enhance the division between conceptual form-finding and its materialisation: «The very method we use to develop architectural proposals orthographic drawings describes only form, and relegate material to the empty spaces between the lines» [Thomas 2007, p. 2].
To this point, we would also like to restate the situatedness of technology within a specific cultural context through its interaction with the local environment in agreement with David Leatherbarrow and Mohsen Mastafvi's [2002] call for a counter-reaction to the comprehensive propensities of technological objects though the translation and readjustment of solutions in different contexts following a modernist vision.

From home-grown to received plate glass technology in China

China has undergone a massive wave of modernisation in the last 30 years. The largely received modernity left no room for the development of contextualised modernity. With a deeper and more inquisitive glimpse with a more irredentist perspective on technological transformations at the end of the Ming dynasty in the 1600s, it is possible to see emerging signs of the home-grown modernity in the agricultural society of traditional China. One can see a desire for self-awareness and autonomy in art, literature and architecture. The wars only broke this trace in the 1840s brought by the coming colonialists.[3]

One unique feature of early home-grown Chinese modernity is originated in rural areas and local towns, where the intellectuals and humanists always resided escaping from the bureaucratic ferment in the big cities. In the paintings of one of Wang's contemporaries, freelance artist Shi Tao, individuality, playfulness and radical explorations break to the surface. Similarly, in the remote town of Gao Ping in the 1600s, where iron ore had been the dominant local produce for centuries, people started to build mud sculptures using iron threads as structural frames and experimented with a considerable variety of forms. In his private housing of Zhong Ying Xiang near Ningbo, the early 18th century Chinese entrepreneur Zhang did some usual experiments in materials. From the outside, the house appears as usual and conservative as possible; inside, the use of imported stained

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[2] Ibid.

[3] Ibid.

glass and the unapologetic juxtaposition of different mullion patterns manifest the intro-duction and translation of the material in the cultural context[4].

For a study on plate glass in China from the mid-nineteenth century to the early 20th century, it is interesting to employ glass as a material *object* that attempts to show the standard of living of the Chinese people during the period that goes from the end of the Qing Dynasty to the early years of the Republic of China [Cao Nanping 曹南屏 2012]. Show the changes encountered, observe how material culture has penetrated and changed the daily life of the Chinese people, and explore how the significance of such changes has brought the Chinese people into the *glass age*.

The spread of industrial glass production in China and concerning the increase in its use is regarded as a benchmark of civilisation in the growing industrialisation enter-prise [Cao Nanping 曹南屏 2012] Especially, glass as a building material in China is an interesting subject matter because, in a relatively short time, it has gone from having a restrictive boundary of usage to becoming one of the largest products produced for global markets.

A seemingly insignificant object has almost completely changed the daily life of the Chinese people and entered in Chinese architecture. In the middle of the Qing dynasty, glass was still quite precious, in construction, it was still very rare. The architectur-al practice of using glass extensively was originally introduced by Westerners, hence Western-style buildings built by Westerners in China. In the living space of the Chinese at the end of the Qing dynasty, the use of glass in buildings was not very popular until the "European style" became desired, distinguished by the large panes of glass. Despite the inlaid shop windows, wealthy houses retain the traditional shape. The European-style shops exhibited their products to customers through large windows. Thus, the ur-ban landscape has also gradually changed also the way of selling. From that moment on, the significant presence in the living and public space changed the urban landscape of China and has since undertaken the increasingly popular *no return*. High-rise construc-tion and the widespread use of glass in the frame intervals led to an overall uniformity of the entire surface of the facade. Until today, skyscrapers that use excessive glass are symbolic projections of a culture's power: symbols of a transfer of economic supremacy from the declining west to the rising east [Elkadi 2006].

Glass façades have a neutral expression that can connect places with citizens from all cultural backgrounds, creating a comfortable sense of belonging. Glass buildings have become the architectural manifestation of a globalised society, unable to epitomise any identity-specific local community.

There has neven been a long tradition in the use of glass in daily Chinese life [Cao Nanping 曹南屏 2012]. The extensive use of glass is a product of the exchange between China and the West. From the late Qing Dynasty, with the spread of Western power to

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[4] Ibid.

the east, glass entered the Chinese people's daily life, leading to major changes in the history of Chinese daily life, and its influence continues today.

In well-known Chinese projects designed by local architects, there is not a large predominant use of plate glass. This observation leads me to shift the importance to the inherent technical skills of each building technology regarding how building technologies can demonstrate different sustainable integration levels concerning the cultural contexts. Through technical anthropology, materials and their building technologies can have different sustainable integration levels concerning the cultural contexts.

Following Chinese President Xi Jinping's remarks calling for an end to "strange architecture", presumably referring to the new towers, glass curtain walls, experimental forms and excessively tall skyscrapers that had come to define Chinese architecture contemporary, it seems that, also moved by political choices, the use of glass has been limited by law to promote choices that aim at promoting social and collective memory. The comments were widely reported in Chinese media.[5] China's cabinet issued a more explicit 2016 directive calling for the end of "oversized", "xenocentric", "weird" buildings. Today there are growing signs that planners and designers are no longer beholden to foreign design., whether influenced by Xi's position or its motivation, they are increasingly looking to the country's history and culture for expressions of modernity.

This propensity is also found in the theme of technology transfer and in using and applying materials over the architectural form, escaping from structured and European practices and themes. If for reinforced concrete, there seems to have been a process of deindustrialisation, introducing it better into the context and bringing it closer to tradition [Bologna 2019]. As it happened for reinforced concrete, also through the facilitation of regulations, even glass could acquire many themes other than its simple transparency.

Unfolding materials and technologies in different ways can contrast the cities' homologation and transformation processes. Starting by rethinking contemporary construction technologies as sources of the gap since these are usually relocated without being "established","rethought" or "translated" in different cultural contexts leaving every cultural setting to develop their home-growing modernity.

Conclusion

The great acceleration toward global modernisation in recent decades has followed modalities of "Received Modernity", which results today are very evident. The adoption of imported ideas and the capitalist mentality that includes consumerism, technocracy and iconography are not necessarily the only possibility. Globalisation has made it impossible to distinguish the Chinese concept of technique from the Western one since the

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5   Beijing. Speech by the president of the People's Republic of China Xi Jinping; Xi Jinping: Don't do weird buildings; [16 October 2014]; website: http://news.wenweipo.com; Reporter Jiang Xinxian; reported in Beijing; website visited on 23th February 2022.

acceleration promoted by Xiaoping has developed a universalism that is assimilation and leads to the oblivion of any cultural specificity. Therefore, it becomes an urgent task to investigate to what extent building technology, while inevitably shaping project production, enhances and incorporates cultural, social and economic conditions in a specific context. It is evident in China as in Europe, in the new large urban realities and is inserted within the redevelopment of historical centres, up to the fragmented rural realities. The scalarity of the settlement of a homogenisation phenomenon that starts from a generalised technocracy that aims at modernisation is not to be diminished, just as the ordinary construction, as it is the one that most undergo exemplifications and standardisations always less place-specific. Historic urban cultural heritage linked to material and technique place-specific cultural heritage becomes an opportunity to plan and design socially sustainable urban development that could reconnect disjunctions given by the intensified development of the last decades, in China as in Italy, starting from reminding us once again about the connections between culture and technology.

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