

# **Sustainable Built Environment Student Conference**

Technische Universität Berlin

September 2022

## **Prejudice, Colonialism, and the Repression of Building with Earth in Western Europe**

## **1. Abstract**

*Over the last century, Europe has substituted earthen architecture with industrialized materials such as bricks, steel, and concrete. In a Master's Thesis at the Center for Metropolitan Studies of TU Berlin the author will explore the sociopolitical factors that have led to the repression of earth as a building material in Western Europe from the 18th century until today. Applying a postcolonial historiography, industrialization and the impetus of modernity are contextualized in relation to colonialism and the imperial project of Western Europe by analyzing the representation of earthen architecture on world fairs, in colonial magazines and journals. While a strong emphasis is put on future solutions for sustainable building technologies at this sb22 conference, the author believes that a cultural reflection is necessary to outline the ideologies that have led us to the planetary boundaries and the Anthropocene.*

## **2. Introduction**

The discourse on earthen architecture has experienced yet another increased amount of attention in the debates about western European building culture. News media (Gerretsen, 2022; Weißmüller, 2022; Zabalbeascoa, 2022), non-governmental initiatives and a few policy makers see the natural building technique as a potential if not a necessity in the reduction of waste and greenhouse gases in the construction sector, that amounts for 40% of yearly waste and greenhouse gas emissions, making it the second largest polluting sector globally (International Energy Agency and Global Alliance for Buildings and Construction, 2019). In contrast, the public, real estate developers, housing associations and private owners seem to carry prejudices that limit the widespread implementation of earthen architecture. Prof. Andrea Rieger Jandl gives a very poignant example when she recalls a passer-by's dismissive remarks on an earthen building project in Vienna's Weinsviertel district: "Now we are already building like in Africa." (cf. min. 9:35 in *historischer Lehm- und Ziegelbau in Europa & and. Regionen*, 2020).

While many scholarly works focus on the acceptance and perception of the building material in regions of Africa, Southeast Asia, and South America, this essay provides an impetus to question the European perception and acceptance of the building material from a critical postcolonial perspective. In the following paragraphs, an attempt is made to outline the cultural socio-political factors that may have contributed to the emergence and entrenchment of prejudices against building with earth. For this purpose, a literature research was conducted.

### **3. Earthen Building Heritage in Europe**

Earthen building techniques are not limited to any global region and can be traced back as far as 10.000 years. Even today, two-thirds of the world's population are estimated to live in buildings made of earth and clay (Minke, 2009; Schroeder, 2010; Dethier, 2019). Consequently, one also finds earthen buildings in Europe, where they repeatedly played a central role in (re)urbanization efforts. In 1764, for example, the Prussian king Frederick the Great issued a decree promoting the practice of building with earth, since areas in the Mark, as well as east and west Prussia faced scarcity in stone and construction timber (Rüger, 1999; Erhard, 1982; Güntzel, 1988). In France, the publication of Cointeraux's „Ecole d'architecture Rurale“ (1789/91) led to an uptrend in the use of *Pisé* – rammed earth technique – in the late 18<sup>th</sup> century and early 19<sup>th</sup> century. The translation of the book into six languages led to its heavy influence on architects across Europe and the world, most notably David Gilly in Germany and Henry Holland in Britain. (Cellauro and Richaud, 2006).

Building with earth did not only become important in rural areas but also helped densify cities and provide housing. Hence, the examples of two six-story residential buildings made of rammed earth in Lyon, France (Joffroy and Le Tiec, 2017) and Weilburg an der Lahn, Germany (1826-1828/1835) (Sieber and Reimann, 1994), illustrate the potential of earthen building methods for urban housing in European temperate climate zones. Both buildings reach heights of 15 meters, in Weilburg even above 20 meters, and have been preserved for more than 100 years. Internationally, the cities of Sana'a and Shibam in Yemen are known as Chicago of the desert, where buildings constructed of rammed earth and adobe clay bricks rise up to 30 meters in height.

Throughout the 19<sup>th</sup> century, however, earthen construction did not experience the breakthrough required to make it a widely accepted construction method. Increasing industrialization has led to the rationalization and specialization of many sectors of production, including the building sector. Vast numbers of brickyards had emerged, seeking to keep up with the rapid growth of cities and industries through accelerated building processes (Güntzel, 1988; Rüger, 1999). The fact that the various earthen building methods required time to achieve their strength without firing was probably a reason why brick was able to establish itself as the building material of industrialization.

Although the building material increasingly lost attention during the initial phase of displacement by industrialized building methods, it re-emerged in the first half of the 20th century. The inter-, and post-war periods were characterised by enormous resource scarcity, so that in the 1920s and again in the late 1940s, clay was promoted by the state as a cost-effective material for house construction. Advisory centers, earthen building schools, earthen testing centers were established, enabling frequent research and development of construction methods. Even a DIN standard was issued in 1951, but was canceled without replacement after five years (Erhard, 1982). A Reich regulation from the last year of National Socialism in 1944 stated, "To compensate for the building losses incurred, the complete use of all available building materials is required. Therefore ... clay must be used. Moreover, it can be used better than any other type of construction with the cooperation of the population in self-help and community help" (ibid.).

Despite numerous state institutions and explorations, clay was not considered a 'standard' building material in the 20th century. Instead, the material was only referred to in times of need, marking an archiving of the building material. The arguments of simple building through self-help and community help are still used today in the context of development aid/collaboration, or "social architecture". They show that the building material can be used in a low-threshold way and that even unskilled workers can work with it. However, they also reinforce the image of the rural, the poor and the needy that have historically been attached to the building material in Europe.

#### **4. Enlightenment, racism, colonialism, and the pursuit of modernity**

While the industrialization of European society has increasingly brought economic and technical solutions to the fore, it cannot be ruled out that global political and cultural developments may also have had a notable influence on the displacement of earth as a building material. Parallel to the Enlightenment in the 17th and 18th centuries, various European nations were forming themselves into colonial and imperial states. With increasing scientification, new fields of knowledge have been formed, such as natural history and the taxonomy of living things, the application of which was not only to flora and fauna, but also to humans. In his most influential work, *Systema Naturae* (1735), Swedish botanist Carl Linnaeus taxonomized Homo

Sapiens into four additional subcategories. Europaeus, Americanus, Asiaticus, and Africanus, and described the variations with evaluative categories (Hudson, 1996).

Many sciences during the 18th and 19th centuries were influenced by the racial theories of their contemporaries Linnaeus, Comte de Buffon and Johann Friedrich Blumenbach. Even Enlightenment philosophers such as Hegel and Kant fed into racist discourses with condescending ideas about people with different skin colors or the absurd idea of the lack of historicity of an entire continent (Camara, 2005; Kleingeld, 2007). Architectural theory and history were not spared either. In the 19th century, Viollet-le-Duc's writings on the history of the architecture of humanity were heavily influenced by racial theorists such as Arthur Gobineau. For Le Duc, buildings evolved in a linear fashion with racial progress from the primitive adobe house, which he attributed to non-Aryan peoples, to the advanced wood-frame construction of Aryan Europeans (Cheng, Davis and Wilson, 2020).

This linear historical narrative of modernizing man shaped the end of the 19th century and propelled colonizing nations to the height of European imperialism, to which much of the world was subjected between 1884 and 1919. Colonial knowledge was an integral part of knowledge production (Osayimwese, 2017). Numerous colonial journals, travelogues, and exhibitions were produced that showcased the dualism between modern European culture and *uncivilized, primitive, savage, exotic* non-European culture to legitimize the violent theft of resources, labor, and land that European powers needed to promote ongoing industrialization.

Prominent examples of the linear narrative from primitive to modern architecture in this regard are Banister Fletcher's "Tree of Architecture" (1866) and the exhibition contribution "L'Habitation Humaine" by architects Charles Garnier and Auguste Ammann at the Paris World's Fair in 1889 (Cheng, Davis and Wilson, 2020). In Paris, Garnier and Ammann displayed a series of reconstructed buildings intended to mark the evolution from the *primitive* to the *progressive* (ibid.). The simple huts were mostly made of natural building materials, such as mud and straw, while progress was marked by the use of industrialized materials, the culmination of which was the Eiffel Tower made of steel. With this representation, notions of the technical and cultural inferiority of earthen buildings were perpetuated and reinforced.

Even for the development of concrete as a building material, the supposed primitiveness of clay proved fatal. As early as 1855, at the World's Fair in Paris, the French industrialist Francois Coignet wanted to show his new building technique Beton-Pisé in the construction of a concrete house. The jury saw the title and rejected the application, put off by the reference to the supposedly outdated and therefore unmodern Pisé building technique (Collins, 1959). Ultimately, one could make the argument for a discursive development similar to that of *Orientalism*, which Edward Said used in 1978 to describe the influence of colonial knowledge on the study of 'eastern' cultures. In relation to earthen architecture, then, the European claim to authority in the 18th and 19th centuries, evident in the World's Fairs, may have contributed to the consolidation of prejudices toward, and repression of earthen building materials. The normalization of such an influence can still be felt today not only in the statements of passers-by about earthen buildings but also in the general reluctance to densify cities with the help of earthen architecture. Moreover, to identify and protect existing earthen buildings and use these as case-studies to re-educate architects and builders.

## **5. Summary and conclusion**

This paper has attempted to discuss the history of the implementation of earthen building in Europe, from a postcolonial perspective. Central to this endeavor was to highlight the socio-political and building cultural factors that could have contributed to the solidification of prejudices toward, and displacement of earthen building techniques from Europe. It was found that regional reservations were reinforced by colonial knowledge production in the 19th century. A necessary turning away from the 'primitive' under the pretext of modernity drove the industrialization of the built environment and partly repressed earthen buildings in Europe.

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