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Reinforced concrete in Louis Kahn's National Assembly, Dhaka: Modernity and modernism in Bangladeshi architecture



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Abstract

Louis Kahn is often credited with having in his National Assembly in Dhaka (1962-1983) introduced modern architecture to Bangladesh. In fact at least as technologically advanced construction as any he employed was already in use there. Nor was he the first to use a sophisticated abstract esthetic in what was from 1947 to 1971 East Pakistan. The importance and originality of the National Assembly instead resides in the care with which he built in reinforced concrete and the forms into which he required that it be cast. These were esthetic decisions rooted in a particular theoretical position; they were located outside established modernist practice of the time in both South Asia and the United States. Indeed operating at such a great remove from home may have heightened Kahn's authority to implement these forms even as it substantially complicated their execution.

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1. Introduction

The National Assembly in Dhaka is Bangladesh's most famous modern building (Figure 1). Designed by Louis Kahn, who received the commission in 1962, when the Bangladesh was East Pakistan, it was completed only in 1983, nine years after its architect's death. Since receiving an Aga Khan Award in 1989, it has become one of the world's most celebrated structures. The attention paid to it, and in particular to the way in which Kahn used concrete for its monolithic walls has overridden an awareness of the inroads that both modern

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Figure 1 National Assembly, Kahn, Dhaka, Bangladesh, 1983. *Source:* Wikimedia Commons.

construction techniques and modernist forms had already made in the city, and also of the way in which Kahn's use of concrete often differed from the international mainstream of the period.

Modern architecture claimed to represent modernity, above all through the use of abstract forms generated out of the properties of the new materials, such as steel and concrete, used to construct them. Yet reinforced concrete was often used, especially in European colonies, far in advance of the arrival of the industrialization they were supposed to represent. Moreover, there was substantial disagreement about what the chief properties of these materials actually were and thus about what forms were most appropriate to them. Was reinforced concrete's chief virtue its plasticity, its monumentality, or its ability to frame undivided spaces? And should architects, engineers, or builders decide? Kahn's attempt to override the way in which reinforced concrete was typically used in East Pakistan in the early 1960s shows him attempting to use his authority as an imported western expert in order to introduce practices that adhered to his personal theoretical and esthetic position rather than to local or international norms.

2. Concrete, engineering, and architecture in colonial India

Historians of concrete have focused on the development of the material in France, Germany, and the United States (Collins, 2004; Forty, 2012; Saint, 2008; Simonnet, 2005). Little effort has been made to map the spread of its use around the world, but it is clear that it was very rapid (Forty, 2012). It was certainly widely used almost immediately, for instance, in France's North African colonies, not least because little skilled labor was required; one could simply buy a design from major contractors like Hennebique (Simonnet, 2005). Architects played at best a marginal role in this process.

Reinforced concrete was in use in colonial India by 1901 and was widely available in major cities, particularly Bombay (now Mumbai) during the second quarter of the century. Most concrete construction in colonial India was nominally supervised by British engineers but actually executed by Indian

engineers. Both cement and reinforcing iron were soon manufactured locally. The low cost of labor meant, however, that mechanization remained rudimentary, with most concrete being mixed by hand and much of it carried into position on the heads of poorly paid women. Because British standards were followed without taking proper account of the tropical climate, some of this work was not of very high quality (Tappin, 2003).

The rapid spread of concrete to colonial India was far from a unique case of South Asian modernity. Vast tracts of what are now Bangladesh, India, and Pakistan remained rural and resolutely preindustrial, but key developments in astrophysics and quantum mechanics were occurring in Calcutta and Dhaka, the two largest cities in the as yet undivided province of Bengal. The work of Meghnad Saha and Satyendra Nath Bose, both graduates of Presidency College in Calcutta, represented the apex of the educational system that also produced many talented engineers; India's first engineering college was established in Roorkee in 1847. The quality of the training in structural engineering continued to be outstanding after independence. Fazlur Khan, for instance, earned his undergraduate degree in civil engineering from Annullah Engineering College at the University of Dhaka, before immigrating to the United States, where he developed the tubular structural system for tall buildings (Ali, 2001; Khan, 2004). Professional education in architecture, however, lagged well behind. Although there were experienced professional practices led by British expatriates in the major cities, and a few architectural schools had opened before independence, there were far fewer architects than engineers (MARG, 1948). This had profound repercussions on postcolonial architecture on the subcontinent, as prestigious commissions were routinely outsourced to foreigners.

The shortage of architects did not prevent metropolitan Indian architecture from being up to date in style as well as construction. In the last years before World War II, a streamlined Art Deco most often associated with cinema architecture, but also used for office buildings and apartment blocks, was commonly employed across major cities. Architects designed many of the most sophisticated examples, like the apartment buildings and hotels lining Bombay's Marine Drive (Evenson, 1989). It was also widely employed in the low rise, middle class housing being constructed long before independence in the railways suburbs of the subcontinent's major cities (Rao, 2013). In both cases, a version of Le Corbusier's Domino scheme predominated. A concrete frame was filled in with masonry walls, and the distinction between the two obscured with a layer of stucco, often sporting subdued decorative details. Concrete in mid-twentieth-century South Asian architecture was thus mostly a convenience, offering solidity at relatively modest cost.

3. Concrete in post-independence south Asia

Following the independence of India and Pakistan in 1947, the subcontinent became a showcase for the most modern architecture of the 1950s and sixties, much of it built by imported experts out of reinforced concrete. Across the subcontinent the leaders of newly independent countries used up to date architecture, much of it designed by

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