Soniferous Architecture: 
From Archaeo-Acoustics Towards 
the Soundsculpture Aural Era

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ABSTRACT

“I call architecture frozen music” a quote by Johan Wolfgan von Goethe. It seems that his description of architecture will not be this much long lasting. Since many architectural structures now are considered soniferous. In an approach to rational the thinking of positive soundscape and move onwards in terms of systematic decision making, and creating tools for more creative planning techniques, this paper utilizes two methodologies in assessing soundscape impacts. One approach usually implemented in quality of manufacturing and product development, namely the Kano Model. The other approach deals with the case in the form of a wider scope which relates the design of the soundscape, and the effect of sound sculptures in objective terms. Due to the complexity of characterizing the soundscape, and its dependence on several of perceptual aspects and interventions, both models are mapped to form an evaluation tool for a specific sonic environment. It can be considered to be a complement along with previous frameworks that shed light on the emission of sound, and others on factors influencing the soundscape perception, or to be used as a tool for understanding and assessing individual responses and evaluation. In this case the importance of having a framework is to help evaluating the common effect of a successful intervention on the positive attributes of the soundscape.

Keyword: Architecture, Framework, Kano Model, Scope, Soniferous, Soundscape

INTRODUCTION

Architecture is not only an engagement of a purely visual medium; buildings have an inherently wide range of sensual nature. Humans are endowed with a variety of senses. These senses act together, and combine influencing humans’ perception, and relatively shape different worlds with similar physical characteristics. The role of vision, however, has come to dominate other sense modalities in some culture. Relying mainly on the visual format representation empowering the remaining sensory dimensions, and instantaneous dissemination of imagery detaches people from the realities of time and distance.

Architecture has always been a manipulating media to physiological capacities of organisms that provide data for perception. The audioception is the ability for human to perceive sound that travels through the building. Thus the sonic qualities of the architectural design reflect the aural dimension of the space that is accessed complimenting the evidence to our senses. In early structures and spaces sonic design aspects has been clearly considered. The latent dimension and importance of the aural quality outlines the importance of the

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human sensory experience from prehistory up to historical times.

The intent of this study is to investigate the reality of architecture, not merely through the traditional inquiry of sight and other senses, but to outline the auditory encounters of architecture. This study will analyze various techniques implemented in early up to contemporary projects to emphasize and challenge auditory perception. The analysis will lead into an aural architectural design process.

ARCHAEO-ACOUSTICS

There are relics and written descriptions that proof the importance of the acoustic design in ancient buildings, but recently that research shed light on the awareness and the extent that it was implemented. Recent research into Palaeolithic cave-drawings has proved a correlation between places where a resonance occurred and is clearly influential and the place where the drawings occurred. This analysis proofs that the qualities of the acoustic design were being identified, recognized, recorded and appreciated over the last 30,000 years.

Prehistoric Acoustic Phenomena and early integration of aural senses in design reflects that the prehistoric age was not silence. It is to be investigated whether the understanding of acoustics behavior at prehistoric sites could further integrate our understanding of the ways acoustics was used in prehistoric monument.

A lot of these early structures visually dominate their surroundings, and all research work has tended to study their visible characteristics. In this context, the relationships between natural topography and architecture has been studied (Richards, 1996; Bradley, 1998), as well as intervisibility and spatial relationships and (Bergh, 1995; Woodward, 1996), construction materials in terms of aesthetics and meaning (Lynch, 1973; Parker Pearson, 1998) and the relation between orientations and astronomy (Ruggles, 1984). While these theories do not consider other senses such as aural, although they add valuable dimensions to our understanding of ancient buildings, they reveal how spaces added emotional aspects to experiences in the past.

The Vocal Memnon

The story of integrating aural dimensions into structures goes as early as 1350 BC. Across the River Nile from the old city of Thebes modernly known as Luxor in Egypt, the twin statues of Amenhotep III (fl. 14th century BC) were erected in a seated position, as shown in Figure 1.

The statues are made from quartzite sandstone blocks which was quarried near el-Gabal el-Ahmar (near Cairo) and carried about 675 km (420 mi) overland up to Thebes. The two figures lie about 15 m (50 ft) apart. Including the stone platforms on which they are situated the statues reach a height of 18 m (60 ft) and weight of 720 tons each.

The Memnon Colossi were reputed to “sing” on various incidences and occasions. The sound patterns were heard within an hour or two after sunrise, usually at dawn. According to the autobiography of Tiberius Claudius in Chapter 20 (AD19) (Claudius, 1934) on the travels of his brother Germanicus, it is specifically stated and understood by the Romans that the great stone statue of Memnon was built to ‘sing’, with a hollow breast that heated in the morning sun that then forced the warmed air through a ‘pipe shaped throat’. The same was reported by Lord Curzon (Curzon, 1923), and Rupert Gould who was a commander in the British Royal navy (Gould, 1929).

Long ago I had a voice that could lament, which wept for Memnon’s sorrows. Now my cries are inarticulate and unclear.

Written by Cæcilia Trebulla around 100AD (Mary R. Lefkowitz, 2005) on a graffito poem carved into the left leg of the statue. The legend of the “Vocal Memnon”, the myth was told of being brought luck by hearing it, and the history of the statue’s oracular powers, travelled
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