ARCHITECTURE AND THE ENVIRONMENT
Lessons from Form and Adaptation Designs in Plants

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ABSTRACT

The flora and fauna in nature attempt to maintain a harmony with nature by surviving with responsive measures that complement the changing conditions in the natural environment. Man's desire to control, however, spurs him beyond passive adaptations to create for himself environments which can function independently of the elements of the natural one. However, the pursuit of this autonomy has dire consequences on the environment. Unlike, natural process which exert a certain level of balance and replenishment, the abusive and negligent processes involved in Man's exploits of Earth's resources upset the balance in nature and disrupt the whole ecosystem which ultimately threaten Man's survival. Not only are his actions not in sync with the rules of nature, they are causing irreversible damage to the natural environment which he is invariable a part of.

This dissertation is inspired by a concern that the built environment is one main contributor to the above environmental erosion due to its large amount of energy usage required for sustenance. Due to the rising environmental concerns, there is a need for architecture to increase operational efficiency by taking on a more active role in its response and adaptation to environmental interactions and changing demands of today. This study will look into some fundamental principles of survival and adaptation in natural living organisms because they are usually observed to exhibit a high level of economy in their structure-function relation as well as creative adaptation responses to the changes in the environment. The subject of exploration, in this case, will be plants which share some close similarities with architecture in structure and environmental responses. Plant adaptations to a variety of conditions and needs will be evaluated to see if they provide applicable lessons and concepts to architecture. Parallel examples of architecture will also be highlighted to give a comparison which aims at evaluating limitations and extracting unexplored possibilities. This analysis and compilation of responses and adaptations can be considered in the course of design so as to enhance the relevance and responsiveness of architecture today.