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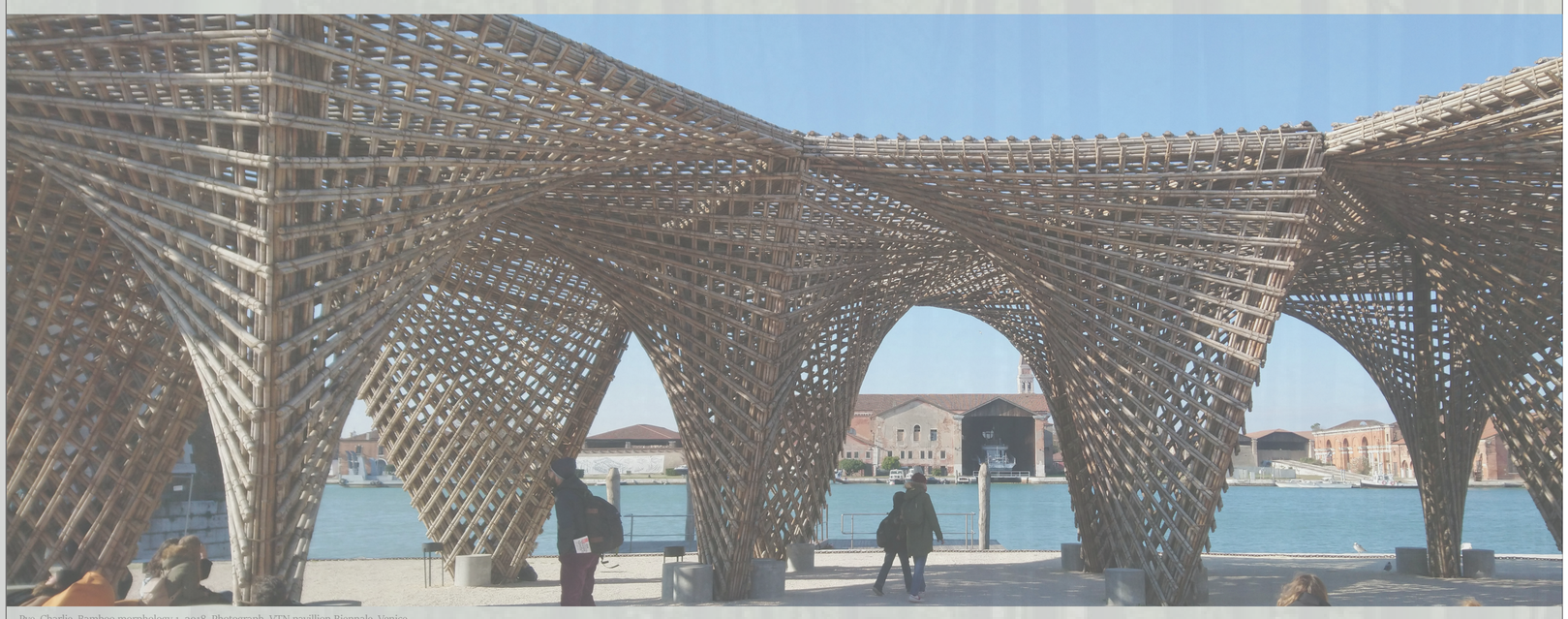
Bamboo: The modern material of the past

Research question: Is bamboo a useful, sustainable construction material for the present, or a poor material of the past?

*T*his reserach tackles the issue as too why bamboo is the future of design, but also investigates why there are misconceptions concerning bamboo as a material for construction. This was achieved by looking at it in three sections. Firstly by understanding the qualities of bamboo and its construction techniques, this formulating the opinion that advancements in technology have made the material much more suitable for structural purposes. Secondly an investigation of the supply of bamboo and how the markets for the material have evolved has helped justify the material's place as an economic crop of the future, also relinquishing worries that its image was still tainted. Thirdly a review of bamboo's roots as a construction material reveals that conquest and colonization are factors to blame for the materials entanglement in the past and the downfall of what was the golden age of the material. However history may be repeating itself but under a new set of conditions, whereby climate change has given bamboo construction an enhanced role in the future of architecture, perhaps pushing it into a second golden age.



Pye, Charlie. Bamboo morphology 1. 2018. Photograph. VTN pavillion Biennale, Venice.

Methodology :

Qualities of bamboo -

The first part of the research evaluates bamboo architecture and the evolution of bamboo technology, looking at how current construction with the material has seen masasive strides in its capabilites as a natural composite.

- Joints
- Digital technology and morphology
- Replacing steel
- Longevity
- High rises

Growth and supply -

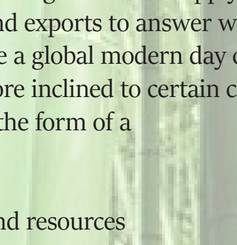
An investigation of the growth and supply of bamboo, looking at bamboo trade and exports to answer whether bamboo has the potential to become a global modern day construction material. Or on the other more inclined to certain climates. This part of the reserach comes in the form of a statistical review.

- Fabrication and resources
- The green movement
- Public/private
- Imports/exports
- Climate problems
- Quick construction

Past and present -

The last part of this research analyzes the history of traditional bamboo use in its native environments, this is achieved through a review of 'Bamboo the gift of the gods' by Hidalgo-Ló pez which looks at regions including the South Americas, China and India among many. This allowing for further clarity on the conflicting public perception of bamboo as a building material.

- Americas
- Asia
- Symbolism of imperfections



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Key literature:

Hensel, M., Menges, A. and Weinstock, M. (2010) Emergent technologies and design. Oxon U.K.: Routledge.

Hernandez, F. (2010) Bhabha for architects: Thinkers for architects

Hidalgo-López, O.(2003). Bamboo the gift of the gods.

Janssen, J. (2000) Designing and Building with Bamboo.

Villegas, M. (2003) new bamboo: architecture and design. ¬Bogotá: Villegas Editores.

*W*hat the research concludes is in order for bamboo to be widely accepted, it needs to hold onto the tradition and culture it has created around the world, but move on and capitalise on its natural and sustainable composition. Its ability to be used for construction as an interior sub structure is perhaps the most efficient way to utilize the material globally, protecting it from harsh weather conditions. It is also achievable by using other materials like concrete to strengthen the compressive nature of the material and allow it to last longer. Quick means of construction and fibre based design capabilities is certainly the way forward for showing the future of the material to solve issues of overpopulation, by leading the way for low cost housing. But in order for this to succeed it needs to remove its 'poor image'. the next major hurdle the material must overcome is longevity, therefore 'restoring the equilibrium between man, nature and technology' (Villegas, 2003, p.62). This inturn, truly planting bamboo as the future of architectural design.

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