

TREE POD

ARCH 384 – International Bamboo Building Design Competition 2006/2007

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The tree house is a combination of functionality and romance, successfully providing its occupants with the necessities of life, as well as with pleasures and enjoyment. It is able to protect people not only from rain, wind, wildlife and other earthly threats, but also from the routines and conventions of everyday life. There is a certain appeal to a treetop retreat, a sense of returning to a more primal origin, and a first-hand connection with nature. In this sense, the tree house is inherently linked to the past, and its form, purpose, and basic typology is defined by history and the precedents for this romantic pursuit of man. When this is created using a building material such as bamboo, the link becomes even stronger. Embodying the same principal characteristics of functionality and beauty, bamboo is a structural element that brings its own history, purpose, and elegance. The particular material properties of this wood necessitate a much different approach to building and connecting pieces together, which unavoidably calls for the use of past knowledge, ideas and experience. In the end, the creation of a bamboo tree house has many precedents, and is something that draws on the history and typology of both building and material, in order to achieve a successful combination of the practical and the romantic.

The first implementation of a tree house in ancient times was solely for the occupants' safety. In many parts of the world, dangers on the ground such as predators, flooding and other natural hazards, make land-based man-made dwellings difficult, if not impossible. In other instances, platforms concealed in the treetops have been used by hunters to give themselves an important advantage – being able to hide and stake out their prey unnoticed. But as time went on and survival for man became easier, the tree house became more of a place for enjoyment and pleasure. Since the Romans began building them in their private gardens and parks, this previously purely practical architectural form attained fame and became synonymous with fun, leisure, and playfulness.¹

The first written record of tree houses for that purpose comes from Pliny the Elder in the first century AD. In his book, *Natural History* (Book XII, chapter V), he describes clearly the two main kinds of tree houses – one being a platform up in a tree's branches, and the other in a hole within a tree's trunk. The former was a structure erected by the famous emperor Caligula on his estate in Velitrae, where he held a banquet accommodating fifteen guests and all the necessary servants, who also serenaded the group. The second account Pliny wrote about was one in Lycia, where the consul of the province Licinius Mucianus held a similar banquet with eighteen guests inside an 81-foot-wide cavity in the trunk of a great plane tree. There, the company enjoyed the sounds of the wind whistling outside and the raindrops pattering on the leaves above, while being protected from them. Licinius was then said to have enjoyed being in this natural retreat more than among any marble, decorations or embroidery.²

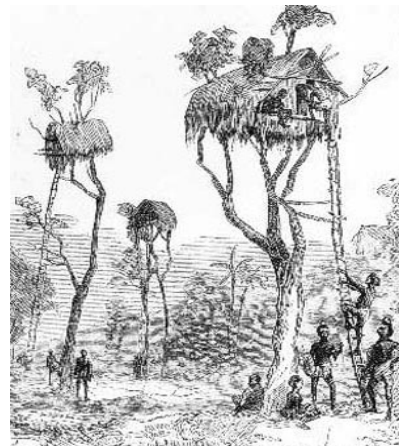


Figure A. Islanders living in the treetops.

With these two accounts, Pliny the Elder depicts both the practical and romantic qualities of the tree house, and brings this architectural form the fame and curiosity it continues to receive long after the fall of the Roman Empire. Being one of the most esteemed writers of antiquity, Pliny essentially gives the tree house its classical pedigree, which undoubtedly helps bring about the form's later revival during the Renaissance. Probably the most notable example of this is the Medici family, who was immensely wealthy and influential in Renaissance Italy, and built a multitude of tree houses in the gardens of their villas, which became one of the first to be depicted by artists of the time.

As the popularity of the tree house continued to grow, the form started appearing in places other than private gardens, and being built and used by people other than the wealthy elite. In 1653, Wenceslaus Hollar created an advertisement for the famous Hollow Tree in Hampstead, in which he depicted the impressive tree with a spiral staircase and a platform on which there was room for six people to sit, and another fourteen to stand. Many other similar trees have been made famous by the not-so-rich and powerful throughout history, including Robin Hood's Sherwood Forest dwelling. Both examples were, and still are, great tourist attractions. In the eighteenth century, an architect, astronomer, and polymath named Thomas Wright published his work called *Universal Architecture*, in which he devoted a book on several different designs for retreats in the wilderness, which were purposely made to look rustic and primitive, as if they were built before architecture became a science. To him, there was a sense of beauty and nobility to this raw and uncultivated form, which is an example of the way this view began to emerge later in the century. The idea of nature uncorrupted by western culture became a very intriguing one, as did the notion of the noble savage or pre-societal man, who was believed to have lived in tree houses. The enticement to build such forms was really spearheaded by such writings, as well as works like *The Swiss Family Robinson*, which captured the imagination of generations.³ Later on, works like *The Practical Book of Garden Architecture* by Phebe Westcott Humphreys truly liberated the form and made it an available and realistic pursuit for everyday people, by providing tips and examples, as well as stating that most men should be able to design and build a reasonable structure, not only professional architects.⁴



Figure B. *Tree houses in Parc Robinson, established in late eighteenth century, based directly on the novel 'Swiss Family Robinson' by Johann Rudolf Wyss.*

It is this evolution of the tree house typology that allows for the variety of designs being created today, including the Tree Pod. It's a structure that strives to provide practical necessities, and at the same time entice, stimulate, and bring joy to the senses. It's able to protect its occupants from flooding and other ground-based dangers, as well as from the sun's rays and the rain. It provides the opportunity for a small gathering or personal retreat, and also draws in the observer, intriguing with its elegance and promise for an experience removed from the everyday, and more connected with nature. To enhance this feeling, the building material used must first be understood.



Figure C - *A modern tree house design by Marc Ackerson and Oicin Clancy from Field Lines Architecture. With its arching tension members, this structure was an inspirational starting point for the Tree Pod.*



Figure D – *The Tree Pod design itself, with its simple form and clear articulation of structural bamboo members.*

Bamboo is technically a grass, but because the larger species are very tree-like in appearance, they're often called bamboo trees. The difference is that bamboo consists of hollow chambers, or nodes, rather than solid strands of cells like other lumber. This makes the bamboo more prone to splitting and crushing, but in turn makes it much more flexible and able to resist tension. The difficult part about constructing with bamboo is connecting separate elements together, because of their circular profile, and their hollow insides. The tensile strength of bamboo is actually higher than that of steel, but having connections that can transfer these loads is impossible.⁵ However, bamboo has been used as a building material for thousands of years, and is continuing to grow in popularity all over the world, which makes a wide and diverse range of connection details available for designers today. The Tree Pod uses both traditional rope-and-peg connections, as well as contemporary steel connections, in order to achieve the most practical combination of past wisdom and modern technology. It also utilizes the bamboo where it's the strongest – in tension. But aside from its purely practical aspects, this building material also adds to the overall aesthetic appeal of the tree house. With its pure, unrefined form and its distinct, recognizable elements, the bamboo brings a sense of elegance, much sought after and utilized today in chic restaurants and top-of-the-line architectural designs. But it also evokes the ancient roots and symbolism that connected bamboo with longevity, protection from evil, friendship, and even the creation of mankind in ancient Eastern cultures.⁶ It's a natural element that intrigues, inspires, and invites people to explore its charm and long history, to return to and connect with nature, much like the idea of the tree house itself.

The Tree Pod strives to create a symbiotic relationship with the host tree, rather than a parasitical one, which is the case with most tree houses. The connections are



Figure E. *Typical rope-and-peg connection used in the Tree Pod.*



Figure F. *Typical steel connection.*

designed in such a way that they do not puncture or damage the tree in any way and can be safely removed at any time. The living platform is held in place by large tension members that also support the tree itself and give it lateral resistance. Hinged connections allow the members to move with wind and tectonic activity and still hold up the structure, rather than forcing a rigid form that may fail under those conditions. But most importantly, the tree house provides a place for retreat, pleasure, and connecting with nature. It lends a space for people to return to their roots, to explore the history and spirituality of both form and material, and enjoy intellectual and romantic pursuits in safety and seclusion. Its ultimate goal is to bring past and present together, and unite practicality and romance.

Endnotes:

¹ Mornement, Adam and Henderson, Paula. "Treehouses." Frances Lincoln Ltd., 2005. Introduction.

² Mornement, Adam and Henderson, Paula. "Treehouses." Frances Lincoln Ltd., 2005. p. 12

³ Mornement, Adam and Henderson, Paula. "Treehouses." Frances Lincoln Ltd., 2005. p. 30

⁴ Mornement, Adam and Henderson, Paula. "Treehouses." Frances Lincoln Ltd., 2005. p. 36

⁵ Bamboo as a Building Material.

<http://bambus.rwth-aachen.de/eng/PDF-Files/Bamboo%20as%20a%20building%20material.pdf>

⁶ Wikipedia: Bamboo.

<http://en.wikipedia.org/wiki/Bamboo>

Images:

Figure A. TreeHouse Company.

http://www.treehouse-company.com/about_treehouses.cfm

Figure B. TreeHouse Company.

http://www.treehouse-company.com/about_treehouses.cfm

Figure C. Mornement, Adam and Henderson, Paula. "Treehouses." Frances Lincoln Ltd., 2005.

Figure D. Tree Pod competition entry by Ventz Pavlov and Terry Sin.

Figure E. Tree Pod competition entry by Ventz Pavlov and Terry Sin.

Figure F. Tree Pod competition entry by Ventz Pavlov and Terry Sin.

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- Mornement, Adam and Henderson, Paula. "Treehouses." Frances Lincoln Ltd., 2005.
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<http://www.treehousesofhawaii.com/competition/finalists/pages/2450.htm>

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