

## *BuchNotes for April 2010*

“A Splintered History of Wood, Belt-Sander Races, Blind Woodworkers & Baseball Bats” by Spike Carlsen may sound like the title for a book of casual reading rather than one for technical content, and you’d be correct. However, in addition to some of its almost “Ripley’s Believe It or Not” kinds of topics, it contains useful and entertaining chapters with historical and otherwise interesting information you didn’t realize you need to know. It will be appreciated by anyone who works with, or uses wood in any way.

It seems as though there isn’t a wood related topic that isn’t included. From the mundane, like toothpicks; to the essential, like the Louisville Slugger; to the musical, like the Steinway Grand and the Stradivarius violin; to the archaic wooden water piping and wooden railroad rails, to the comical belt sander drag races of Tyrol Basin, Wisconsin, Carlsen touches on them all. He also includes fascinating historical facts related to wood such as the matter of “strategic timber” in the 17<sup>th</sup> and 18<sup>th</sup> Centuries. An example of this is the straight and tall timber that was essential to seafaring nations for masts on their sailing ships. Maine, in the Colonies was known for its especially straight and tall trees which England imported in vast quantities for its ships. This is perhaps one reason why England fought so hard to keep the Colonies.

The broad range of wood species is described in detail. From the tropical iron woods weighing nearly 93 lbs/CU FT, to balsa wood, and bamboo (not a true wood), to Cuban Mahogany costing nearly \$200/board FT, and everything in between. Oak is heralded as the champion of all the woods. Its combination of strength, density, workability, and the beauty of its grain make it a favorite of woodworkers, cabinet makers, and shipwrights. Beyond these attributes it was an essential food source for Native Americans through its bountiful production of acorns. And there can be no argument on the beauty of live oaks that dot the California landscape whether you are a woodworker or not.

The first precursor to trees appeared about 450 million years ago. By 370 million years ago, these plants had developed a vascular system in the trunk connecting the roots and the foliage. As water evaporates from the leaves, water is pulled up from the roots via cohesion between water molecules passing through cells in the trunk. This was the beginning of what was to become a photosynthesis machine.

Trees evolved into two groups: hardwood and softwood. The former characterized by enclosed seeds and the later by exposed seeds. Trees can also be characterized by where they grow: rain forest trees are mostly hardwoods like ipe and mahogany and since they grow continuously, they don’t exhibit growth rings; seasonal/monsoonal trees produce some of the densest and most beautiful woods such as ebony and rosewood; the temperate climates of Europe and North America produce an abundance of oaks, maples, pines, and firs to name a few.

All wood consists of cellulose cells held together by lignin. The cells that carry water are called the xylem and those that carry food, the sap, are called the phloem. The amount of lignin binding the cells together determines the strength, hardness, and flexibility of the wood. Both xylem and phloem cells are produced in the cambium zone, the slippery layer just beneath the bark.

The various applications of wood in construction are presented starting with log cabin buildings. By the early 1800s, when steam replaced water wheels as the source of power for saw mills, the expansion of

## *BuchNotes for April 2010*

lumber as a building material began in earnest. This was accompanied by the advent of machine made, mass produced nails. By 1830 balloon framing arrived, replacing timber post and beam construction. Balloon framing took advantage of the more economical small dimension lumber fastened together with mass produced nails. By the 1940s the balloon framing was replaced by platform framing, an even faster and more economical method for framing upper stories.

Nowadays, we don't associate wood with large scale commercial or institutional construction. But until steel and concrete framed construction became common in the early 20<sup>th</sup> Century, wood was used extensively for floor and roof framing, often in combination with masonry bearing walls. Large 19<sup>th</sup> Century buildings were commonly founded on wood pilings. Even the Empire State Building in New York City, built in 1932, and more recently the Louisiana Superdome in New Orleans are supported on timber piling.

"A Splintered History of Wood" was published by Harper Perennial in 2008. The book has 411 pages, some with photographs but all written with good humor.

*Submitted By*

*Ed Buch, CSI, AIA*

Project Manager  
Capital Construction Development  
University of Southern California, CDF  
3434 S. Grand Ave.  
Los Angeles, CA 90089-3162  
Tel: 213-821-5634  
Cell: 213-393-6884  
e-mail: [ebuch@ccd.usc](mailto:ebuch@ccd.usc).