

Trees, Wood and Woodworking

Trees have been venerated by human beings since ancient times. Sometimes seen as the embodiment of life and a meeting of the three realms – heaven, earth and water – trees, and forests, symbolise mystery and enchantment. A realm where wild woodland creatures (and perhaps sorcerers) are more at home than humans. In real life, just as in storybook and legend, forests may be deeply dangerous but they may also provide sanctuary and a place of safety. Tree worship has existed almost everywhere on earth where the climate has favoured tree growth. The symbolism of trees is universal, evergreens standing for longevity and immortality and deciduous trees for regeneration and rebirth.



Considering how useful trees are to us as providers of fuel, food, shelter, and transport it is not surprising that our ancestors instinctively imbued trees with magic, mystery and life-giving powers. More recently we have come to understand the science which proves trees to be essential to human existence, not just for their products but for their relationship to our environment. Where there are no trees at all there is arid, barren desert. We need trees to absorb the ever increasing amounts of carbon dioxide produced by humans. We need trees as sustainable sources of fuel and building materials. We need trees for biodiversity (one oak tree is home to over 300 species of insects, moths, fungus, lichen, birds and mammals) and we need trees for shade, trees for water, trees to prevent erosion, trees for medicine and trees to walk amongst.

So what is a tree? It is a plant which has evolved a tough, woody stem which allows it to grow tall and into the light. The largest trees, the giant sequoias of California, can weigh more than 6,000 tons. This makes them the heaviest living thing to have ever existed on earth. There are three main groups of tree: broadleaves, conifers and palms.

Broadleaved trees convert sunlight into the energy they need to grow. Each year they produce a huge quantity of wood, leaves, flowers, fruit and seeds. This provides food for a multitude of creatures from tiny insects to large mammals such as deer. Broadleaved trees have enclosed nuts or seeds such as acorns. These are the hardwood trees and include oak, beech, maple, chestnut and ash. Generally, hardwood is of higher density and hardness than softwood but there is considerable variation in actual wood hardness in both groups.

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Balsa, a hardwood, is soft whereas yew, a softwood, is very hard. There are about a hundred times as many hardwood species as there are softwoods. Hardwoods serve an enormous range of applications, including buildings, furniture, flooring and utensils.

Conifers (the softwoods) grow all around the world. The name means 'cone-bearing' although not all conifers do bear cones. Most conifers are evergreen but not all. Larch, dawn redwood, swamp cypress and ginkgo are deciduous. Conifers are distinguished from broadleaves by their seeds. Conifers have naked seeds – ones which are not enclosed in a protective casing. The seeds are only protected within pine cones while they are developing. Conifers include the monkey puzzle family, the ginkgo family, the cypress family, the yew family, larches, spruces and pines. Pines are mostly found in colder climates although some have adapted to the area around the Mediterranean. Pine wood contains lots of strongly scented resin which helps to prevent decay.

There are almost 3,000 species of palm in the world, most of them found only in the tropics. Coconuts float on seawater and find their way to new islands. If you have ever wondered why coconuts contain milk, the answer is that it enables the seed to germinate on dry beaches.



Human beings have been using wood for a long, long time and in that time we have amassed huge knowledge and skills related to trees, wood and woodworking.

Wood may be broken down and be made into chipboard, engineered wood, hardboard, medium-density fibreboard (MDF), oriented strand board (OSB) and paper or used to make other synthetic substances.

There is a strong relationship between the properties of wood and the properties of the particular tree that yielded it. For every tree species there is a range of density for the wood it produces. There is a rough correlation between density of a wood and its strength (mechanical properties). For example, while mahogany is a medium-dense hardwood which is excellent for fine furniture crafting, balsa is light and easy to cut, making it useful for model building.

Natural woodlands have been 'managed' by people since prehistoric times. Coppicing, cutting trees at ground level so lots of shoots are produced, and pollarding, lopping the tops off trees – are techniques used to harvest a 'crop' of usable wood such as hazel poles (used for making hurdles) and willow wands (used for basketry).

Thinning is a way of managing woodland by removing certain trees so that those left to grow to maturity have enough space and light. The cut saplings, or 'thinnings' are not wasted but are used as a supply of timber.

Tree planting probably began with species such as date and olive which have been grown for their fruit for thousands of years.

Timber is a term used to describe wood, either standing or that has been processed for use. This ranges from the time trees are felled to their end product as a material suitable for industrial use, as structural material for construction or wood pulp for paper production.



Carpenters

Until the Industrial Revolution, a carpenter was indispensable. The farm carpenter, who made gates, fences and some machinery, was vital to the smooth running of food production. Windmills and watermills relied on carpenters to maintain them and the village carpenter was often the village undertaker as well.

A **rough carpenter** does 'rough' carpentry including timber framing of buildings, formwork, roofing, and other structural or other large-scale work that need not be finely joined or polished in appearance.

A **joiner** does 'finish' (as in 'fine finish') carpentry; that is, cabinetry, furniture making, fine woodworking, model building, instrument making, parquetry, joinery, or other carpentry where exact joints and minimal margins of error are important. Some large-scale construction may be of an exactitude and artistry that it is classed as finish carpentry.

A **trim carpenter** specialises in moulding and trim, such as door and window casings, mantles, baseboard, and other types of ornamental work. Cabinet installers are also referred to as trim carpenters.

A **ship's carpenter or shipwright** specialises in shipbuilding, maintenance, repair techniques and carpentry specific to nautical needs. Usually the term refers to a carpenter who has a post on a specific ship. Steel warships as well as wooden ones need ship's carpenters, especially for making emergency repairs in the case of battle or storm damage.

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A **framer** builds the skeletal structure or framework of buildings. Techniques include platform framing, balloon framing, or timber framing.

A **roofer** specializes in roof construction, concentrating on rafters, beams, and trusses. Naturally, a roofer must not be scared of heights and have good balance as well as carpentry skills.

Woodwork is a general term covering a wide range of skills and techniques

Carpentry – Originally a carpenter was a wagon maker but carpentry has come to mean the general working of wood. Sometimes used to cover all aspects of woodworking, at other times carpentry refers to the least-skilled level of woodworking and larger projects, such as house building.

Joinery – Either refers to architectural woodwork or to the joining of two or more pieces of wood together, necessary in most woodworking projects. Also used particularly to refer to the joining of wood without the use of nails, screws, or other metal fasteners.

Cabinet maker – a craftsman who specialises in the making of fine furniture. Implies a very high level of skill in woodworking.

Marquetry and Parquetry – The practice of creating patterns by inlaying different wood veneers¹; with different colours and different grains complex patterns are formed. Marquetry is distinguished from parquetry by the shapes used and formed - marquetry entails the creation of organic or scenic pictures, while parquetry involves geometric shapes.

Turning – The art of turning a piece of wood on a lathe and shaping it by holding various cutting tools against it.

Luthier – someone who builds or repairs stringed musical instruments such as guitars or violins.

Wheelwright – a maker of wooden wheels and spokes.

Cooper – A maker of casks and barrels.

Bodger – a wood-turner specialising in making furniture and treen (small wooden artefacts). Also a corruption of "botcher", a colloquial term for an incompetent workman.

Patternmaker – a maker of wooden patterns used to create moulds for sand casting. A highly precise type of woodworking, the patternmaker must not only make the pattern to exacting standards, but also allow for metal shrinkage while cooling.

¹ A thin decorative layer of wood which is applied to underlying solid wood or board.

Woodworking tools:

Measuring and marking tools: rulers, tape measures, protractors, straight-edges, combination squares, try squares, scratch awls, marking gauges, marking knives, levels, plane gauges used to determine the flatness of a surface, hygrometers used to determine the water content of wood before and during working, winding sticks used to assist when flattening boards.

Cutting tools: hand saws such as the crosscut saw, rip saw, various backsaws (tenon saw, dovetail saw, gent's saw), coping saw, keyhole saw, bow saw, and various Japanese saws. Power saws such as the circular saw, chainsaw, table saw, radial arm saw, jigsaw, mitre saw, hole saw (actually a form of drill bit), and band saw.

Shaping tools: hand planes such as the jointer plane, smoothing plane, block plane, shoulder plane, scrub plane, spear plane and rabbet plane, thickness planer and jointer. Router and router bits, rotary tools, often known by the trade name 'Dremel' chisel and gouge lathe, drill press and hollow chisel, mortiser and rasp knife. Other hand shaping tools include the axe, adze, froe, spokeshave, and drawknife.

Assembly tools: screwdriver, hammer and mallet, hand or power drills along with drill bits, clamps including the C-clamp, F-clamp, G-clamp, bar clamp, mitre clamp, sash clamp and band clamp.

Finishing tools: sandpaper, used alone or with sanding blocks or power sanders such as the belt sander, palm sander, disc sander, and random orbit sander. Steel or bronze wool, used for polishing or applying stain or liquid finishing compounds, file and scraper.

Sources:

Tree (Eyewitness Books)

Wikipedia (on-line encyclopedia)

The Village carpenter – Walter Rose

The Easy Tree Guide – Keith Rushforth

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