



bow making



what is it?

It's the construction of a hunting tool that became the world's most effective weapon of warfare for millennia. It consists of a straight piece that's encouraged to bend with a length of cord to keep it taut, so that it can fire an arrow.

Types of bow

Self bow: made from one piece of wood, without glues or laminating. This is the oldest type of bow.

Hornbow: traditional Asian bow - composite of horn & sinew. Animal tendons are dried and combed into fibres, then layered together with animal glue. The horn is fixed to the inside (belly) of the bow, nearest the archer. These bows can be small but powerful, and used under tensions that would break a wooden bow. They take longer and are more difficult to make than self bows.

Cable-backed bow: the back of Native American / Inuit self bows were sometimes reinforced with animal or plant fibres for increased strength.

Laminated bow: made of traditional materials like wood, or synthetic, modern materials like fibreglass, laminated in strips and glued together.

History

Stone arrow heads were found in S. Africa from 64,000 years ago. The oldest bows found in one piece are the 11,000-year-old 'Holmegaard' bows from Denmark. The oldest UK bow is the 4,000-year-old Meare Heath bow, found near Salisbury. The hornbow may be the reason the Mongols were able to build their huge empire. They were superb horsemen and archers, and the small but powerful hornbow was a formidable weapon.

Archery was an esoteric skill until the English longbow, from the 14th century. A self bow with a 'D' rather than a flat section, usually made from yew. Its size allowed it to be used under high tension by relatively unskilled archers.

Native American bows tended to have a flatter cross-section, and were a lot wider.

The modern sport of archery uses mainly laminated bows made from synthetic materials.



Hand-made self bow.

what are the benefits?

It keeps a traditional skill alive, and in a survival situation, with the right skills you can make a useable bow in a day - it could mean the difference between life and death.

Bowhunting is contentious. The arguments against are that it's wrong for humans to eat animals at all, or that it may not result in a clean kill. But people eat meat, so we'd like it to be as sustainable as possible. Perhaps the most sustainable way to eat meat is to harvest it from the wild - no removal of habitat for farmland, no chemical fertilisers or pesticides, no hormone treatments, no genetic modification, no growing of animal feeds and no packaging. In many countries, deer have no predators, so deer grazing prevents forest regeneration. If we want forest to return, we have to control deer numbers.

Our position is that it's a debate we can have whilst still agreeing on the need to live in harmony with nature. Currently in the UK the debate is academic, as bowhunting became illegal in the sixties, mainly because it's silent, so perfect for poachers - the law was to benefit big landowners. It's legal in the US, and many other countries, and of course there are still tribes living a traditional way of life that involves hunting animals with bows. It's something they've done for tens of thousands of years.

Bowhunting requires more skill than hunting with a rifle. A bowhunter needs to get within 20-30m of the prey - it's a more even contest. Where it's legal, you need a qualification to demonstrate competency in making a clean kill. Qualifications are offered in the UK by the British Bowhunters' Association, who also campaign for the re-legalisation of bow hunting. You also have to have a minimum level of power (draw weight) in your bow, and a certain weight and type of arrow (a broad-head). A good bowhunter will waste nothing, and will use the skin, antlers and bones as well as the meat.



Hand-made arrows.



what can I do?

This section is about making a self bow. Composite bows are much more specialised.

First, find a tree. Many types of wood can be used, including ash, hazel, oak, yew, blackthorn, hawthorn and many more. In fact it's easier to mention the trees that aren't good for bowmaking – mainly willow, poplar, pine and spruce, which don't withstand tension or compression well. Look for a straight tree, around 10-12cm diameter, and cut a log around 150-180cm long. Then split the log into four and use one of the pieces to make a bow, or use all of them to make four bows. The curved outer edge of the log will be the back of the bow, facing away from the archer (the inside of the finished bow is called the 'belly'). Alternatively, you could make one bow from a sapling.

Dry the timber, but first seal the ends with varnish or glue to prevent moisture from escaping from the ends, which could cause the wood to split. You can remove the bark before drying, which will be easier, or you can remove it after drying, which will allow you to get to know the knots and bumps in the wood, which with experience will tell you how the bow is likely to perform. To dry the wood, leave it in a cool, dry place such as an outbuilding or unheated room for at least six months.

Mark out the bow. At its widest point (either side of the handle) it will be c. 5cm. The handle is thinner to allow the arrow to pass. The bow will taper down to a point at each end (the 'knock'). Rough it



Using a tillering stick to check the symmetry of the bend in the bow.

out using an axe, then use these tools in order: drawknife; spokeshave; rasp; cabinet scraper; sandpaper. When cutting your bow to size, don't cut into the back of the bow - you need a continuous growth ring that runs the length of the bow, with all the fibres intact. This will give the bow strength under tension. Keep removing wood from the belly until you can start to bend the wood. Then string the bow and stretch it on a tillering stick, with notches cut into it at 5cm intervals, to see if the bend is even. Remove material from one side if it's not. When you're comfortable with how it pulls, you can add a piece of horn or antler to the end of each limb - for added strength, and grooves for the string can be cut into it with a chainsaw file.

String: the string can be made from natural fibre. Linen (from flax) is a traditional bow string fibre. The string is made with at least 12 strands of fibre (more for heavier bows) in a 'Flemish twist'. I'm not going to describe it (imagine writing down how to tie a shoelace) - you have to do it. A good course should cover it. It produces a loop in the string to fit the notches in the knock. Wax your string, and you're ready to go - you just need...

Arrows: you can make your own, from almost any kind of wood, or even bamboo. Arrows are most commonly made from hazel saplings, which can be straightened by heating and bending. The arrowheads can be made from metal, bone or flint, fixed to the shaft with a linen or sinew wrap. Flight are ideally made from turkey or goose feathers. Someone who makes bows professionally is called a bowyer; arrows a fletcher; and string a stringfellow.

resources

- see lowimpact.org/bow-making for information, courses, links, magazines and books, including:
- Dan Bertalan, *Trad. Bowyer's Encyclopedia*
- Douglas Spotted Eagle, *Making Indian Bows & Arrows the Old Way*
- Alrune, Hein & Junkmanns, *the Bow Builder's Book*
- primitivearcher.com, Primitive Archer Magazine
- bowyersandfletchersguild.org - Craft Guild of Traditional Bowyers & Fletchers
- onlinearchery.org.uk - online tutorials and manuals on bow & arrow making
- britishbowhunterassociation.co.uk - British Bowhunters' Association

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