

Careful, you'll have someone's eye out! - King Harold II 1066

■ *By James Watson, Native Awareness*

It gives me particular pleasure to be writing this article as I always enjoy the opportunity to reminisce. One of my first memories as a child was the time spent with my good friend, Owen. I first met him when we were three years old, and as children we spent all of our time together, roaming the fields and woods surrounding our villages. Our territory felt as if it stretched for mile upon mile. We found adventure around each corner, up every tree, be that saving each other from being stuck in the 'dreaded bog' to scouting up the stream, stalking frogs, or gorging ourselves on damsons and beech nuts. We were learning the skills of survival through play and imagination.

Our base camp was in a copse close to Owen's home. We had two shelters, one made from an uprooted beech tree that we had tunnelled under. We used the trunk of the tree as a roof that protected us from all weathers. The other shelter was a hollowed out tree that we would both crawl into. It was at this time we first made bows and arrows. Our bows were made from hazel, strung with orange garden string, our arrows crooked, unfletched bamboo canes.

The bow and arrow changed how we played. Previously, we would go running around the woods, with only a limited degree of awareness that would save us from bumping into the farmer or any hideous imaginary creature hiding in wait. Now we walked as hunters, seeking out the local rabbits and pheasants. Our play became real and we moved softly, talking in hushed tones, mostly relying on sign language as we stalked our prey. I well remember a feeling of familiarity, like a distant ancestral memory. It felt right,



walking with a bow in my hand, listening to the birds and feeling the stillness.

When we spotted our 'target' we slowed, barely moving, and took our place ready to shoot. As one, we pulled our bowstrings back, took aim and let our arrows fly, and watched, as one travelled in an arc of about three feet, making an unsatisfying plopping noise as it hit the ground! The other, more powerful bow would usually send its arrow in a totally random direction, often flying towards the other hunter! We would usually both exclaim, tutting at our weapons, both vowing to learn how to make effective tools. Feeling, perhaps, a little relieved at our failure, we would go back to our shelter and relive the stalk through, taking it in turns to tell our story.

An arrowhead is a universal symbol. People seem to instinctively know what it is. Previous issues have covered the production of a flint arrow head. This 'How To' article explains how to make the rest of the arrow from totally natural materials, as well as showing how to fix and secure the arrowhead.

Arrow Shaft Selection and Straightening



Possible Arrow Shafts

Generally, most hardwood trees can be used for shafts, such as the shoots of dogwood, hazel, fruit, viburnum, hawthorn, etc. It is best to collect shafts in the winter when the trees are dormant. Another reason is that you can more easily see the stems of coppiced and browsed trees when the foliage has died back. If you live in a land that allows bow-hunting, winter collection is ideal, as your shafts will be ready for the next hunting season. A green shoot that's around 34 inches long and about the thickness of an average adult knuckle of the little finger should be harvested. The shaft will narrow somewhat when seasoned.

One of the main factors that govern the accuracy and effectiveness of an arrow is its straightness. With a little patience and perseverance a shoot can be trained and shaped so that it is as straight and as uniform as a wooden dowel found at the DIY store.

The tradition that I've been taught in, allows nearly a year to straighten and season a shaft. There are, however, many ways to speed the process up, for example, by heating them over hot coals, but I like the benefits of this tradition and this is how I was taught.

I've heard of people collecting ten or even twenty shafts at a time, then bundling them up, discarding the ones that could not be straightened. The way my teacher schooled me was to collect two or three shafts at a time, so that individual attention could be given to each one. For the first couple of weeks the shaft should be tweaked regularly, to remove the bends. Leave it to settle before tweaking again and after about a month of persuasion, as if by magic, the bends will not return.

A good tip passed to me was to have the shafts resting on the dashboard of the car. The greenhouse effect from the window helps dry the shaft as well as giving me something to do whilst stuck in traffic! You get a few curious looks from people in the cars beside you but hey, after working with these skills for a while you get used to funny looks! It's amazing how many improvised vices you can find in a car that help you with your straightening. The rear-view mirror is a great place to hang medicinal herbs to dry!

After a month of tweaking, leave your arrow shafts to season for the remaining time and once they are fully seasoned the bark needs to be removed. This can be done by scraping the bark off with the blade of your knife or a flake of flint held at right angles to the shaft. The finished shaft should be about 3/8 of an inch thick.



Thickness Gauge

This will change due to how powerful your bow is (draw weight) or how far you pull the string back (draw length) To ensure uniform thickness, I feed the arrow shaft through a piece of wood that has a hole drilled through, which is of the correct diameter. I scrape the high spots whilst making sure the shaft is perfectly round.

Now the shaft should be sanded. At home you can use sand paper but a primitive way to make something similar is to spread a layer of warm tree resin (see Fancy Perfect Pitch Issue 8) on to a scrap of buckskin, (see Have You Got the Brains? Issue 9) or other soft leather and add a layer of coarse sand and let it dry. And there you have it.

It is now time to make a final check on the straightness of the shaft. You should look down the length of the shaft whilst rotating it and if it is still not perfectly straight, like a dowel, it can be adjusted with the use of heat. Whilst in the woods, scoop a layer of coals away from the main fire, or at home, you can use your hob! To protect it from scorching, a layer of oil or fat needs to coat the wood. Slowly warm the area that needs straightening, over the coals, rotating the shaft constantly so that it heats evenly, tweaking the shaft as before. You will find that the heating has made the wood much more flexible. When perfectly straight, let it cool.

Now the shaft needs to be cut to size and depending on your style of shooting and your height, the arrows will need to be the appropriate length. The average man's draw length is measured at twenty-eight inches. I'm about six foot tall, on a good day, but my draw length is twenty-six inches, due to my style of shooting. I cut my shafts at twenty-eight inches, allowing two inches for the nocks at each end.

At this point in the process I like to sometimes add decoration by gently toasting stripes onto the arrow shaft. This breaks up the outline of the arrow, giving it a little camouflage in a hunting situation. I also like to oil and burnish the shaft with a smooth stone, which gives it added protection from the elements.

String and Arrowhead Nocks

There are many styles and ways of cutting nocks into the shaft but it's actually better to file than to cut. A smooth, rounded nock, as opposed to a cut, jagged one, will be less likely to split from the pressure of the string or from the impact. A flint flake can be used to do this, and it can then be finished off with a small sanding rock. I know of modern arrow-makers using hack-saws and rat's-tail needle files but whatever you choose, great attention should be given to the nocks. I've seen many examples of arrows with shallow arrowhead and string nocks. They look nice but it's clear that they would be insufficient. If shot, they would not withstand the impact and would be damaged. I take my inspiration and guidance from those who are still hunting today, with the primitive bow and arrow.



String Nock

The string nock should be a good 3/8 inch deep, and wide enough to receive the string, but still nice and snug, so that it doesn't slip around. The nock should also be slightly crowned (see photo), the same as the string. At the other end, the point nock also needs to be extremely precise, and generally about 3/4 inch deep, but this will depend on the style of the arrowhead. The nock should be filed so that it fits snugly with the arrow point, which should be on the same line as the string nock.

Fletching

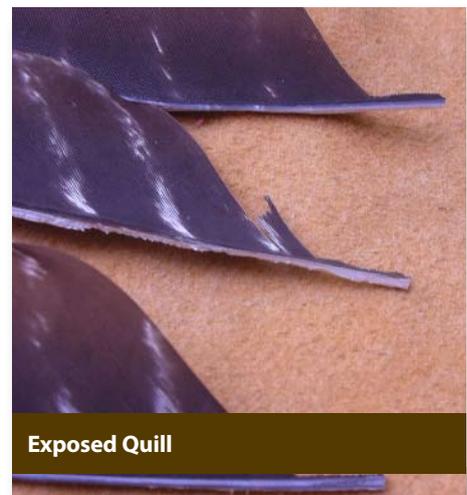
Fletching give the arrow stability and precision of flight. In a survival situation arrows created in a hurry can be fletched with pine needles or grass, but for a refined arrow, feathers are the material of choice. Throughout the world, wherever bows and arrows are used, you will find all manner of fletching techniques. Two or three-feather fletch, wide, narrow, short or long are common. In this article I will explain the three-feather fletch, as it is this that many people associate with the bow and arrow.

Goose or turkey feathers are very popular for fletching arrows but others can be used, such as birds of prey, game birds, or those from the crow family. I've been considering wood-pigeons recently and the only way to know is to experiment. The larger the feather the better, and always gather three feathers from the same side of the bird. It is said that if you are right-handed, you should use left-sided feathers, but in my experience it doesn't really matter.

To create the fletching the feather needs to be split down its length and there are

different ways to do this but begin by using a knife, to follow the natural split that lies down the length of the feather.

Having been split, the cut edge of the quill can be sanded down flat. Another way is to peel the feathers off the quill; some feathers are more easily stripped than others. The quill should then be cut to length. There must be between 4 1/2 inches and 5 inches of standing quill with 1/2 inch of bare quill at each end.



Exposed Quill

The fletches should be positioned equally around the circumference of the shaft. The back of the first fletch (cock feather) should

be laid on the shaft at right angles, just over an inch from the base of the string nock. A few wraps of sinew around the bare quill at the nock end are needed to secure it. Back strap sinew is best for this

(see Not Just For The Dogs Issue 10). Take a strand and soften it in your mouth. Now place the second fletch in position; wrap with sinew, and do the same for the third fletch. There will be a degree



Equally Spaced

of movement available, so the fletching can be arranged so that they are equally spaced. Bind more moist sinew and smooth it down neatly onto the shaft and then allow to dry.

The bare quill at the other end of the fletching is treated in a similar fashion. I position and sinew the front, allowing a little bit of the quill to still be showing. Now line them up with the back of the fletching and pull the exposed end forward so that the fletching lies flat along the shaft. A pair of needle pliers can be useful to do this.



Tightening the Fletch

You can glue the fletching (the length of quill bearing feathers), to the shaft with hide glue or, alternatively, wrap a long strand of sinew, spiralling around the shaft and through the feathers, to secure. I prefer this method and always start at the front end and then follow the angle of the veins. When secure, I add and smooth the sinew down to the shaft a little way. The feathers should then be trimmed to size. Tall fletching provides greater stability but is generally slower and noisier. However, the feathers can be cut with a flint flake or scissors. A little oil or grease to the feathers can help against the elements.



Finished fletching with spiral bound fixing

Fixing the Arrow head

I warm both the nock in the arrow shaft and the arrowhead, before applying the pitch which is then left to cool (see Fancy Perfect Pitch Issue 8). Later, heat the nock and the pitch over a flame and press the warmed arrowhead into the nock; then smooth and shape the pitch whilst it is tacky. The pitch acts as filler, more so than glue, so attention must be



Fitted and moulded with pitch

given to ensure that the pitch is well moulded and chamfered. This is for two reasons, firstly, to help in penetration and secondly, to prevent flesh being driven up into the space between the shaft and arrowhead.

When testing to see if the point is true and positioned correctly, the tip should be placed on a flat surface and spun from the other end of the arrow. If it's been pitched correctly and is true, the arrow will spin straight. If the head is crooked, the arrow will spin awkwardly. Should a mistake have been made, it is easily rectified by reheating and repositioning.



Sinewed Arrowhead

For the final fixing of the arrowhead, a wrapping of sinew is needed and, depending on the style of the point, this will be achieved in different ways. If the arrowhead has side notches, the sinew will criss-cross over its width. An additional wrapping of sinew needs to be bound from the base of the arrowhead. This has to be done for $\frac{3}{4}$ of an inch up the shaft, to secure and cover the sinew which has been attached to the point. This also prevents splitting of the shaft on impact.

There's something about arrows that for me so embodies the crafts and knowledge of survival. After finishing an arrow I'm grateful for that knowledge and the teachings it has provided. They say an arrow is useless without a bow. I disagree, as I've used and practised so many skills to create that arrow, including pressure-flaking the head, using heat for

the shaft, working with feathers, tree resins and sinews, all of which have been gifted from the Earth. The more I learn, the more mysteries are revealed to me. Using all of the skills and materials, provides me with a greater understanding of nature's personality and confidence in knowing that life will never become a rut, as there is always another skill to learn. It's a great path to be on... Saying that, it would be good to know how to make a bow, wouldn't it? I would like to hear of your experiences with these skills. It's good to share the knowledge.

