

You are what you think!

Bows: Part Two



By James Watson, *Native Awareness*



I start this, the second part of 'How To', by discussing a subject I'm reluctant to talk about, snapped bows. It happens to us all. I don't want to jinx your bow-making adventures but, believe me, it will one day happen to you! It's something every bow-maker needs to go through, a kind of rite of passage. You may not realise it at the time, whilst holding your broken, beloved stick, the one you have spent hours carving and sanding, but it will teach you many things about the spirit of wood and, particularly, about yourself!

One summer I was extremely honoured to have the pleasure of having two of my teachers visit me from the USA. We had a beautiful ten days exploring new skills, tracking and spending many an hour observing the changing view but mainly the trip focused on the creation of an Osage orange bow. I'd made bows before but had not worked with Osage, which makes a remarkable weapon both in looks and performance. Its striking yellow to orange complexion makes it appear almost supernatural. For me it was an exciting time working with such a beautiful wood as well as working alongside and being guided intimately by my teacher. It was remarkable to watch a man who had such a profound knowledge of the personality of Osage.

We worked hard and long to create a bow, following the weave and flow of the grain to produce a snaky creation. It was a work of pure creational art and I was amazed by the spirit I felt whilst shooting and holding the bow. We both enjoyed the experience, I feeling humble to be the keeper of a bow my teacher had helped me make. The day after completing the bow we visited Stonehenge. It was during the time of the Blue Moon and we had permission to enter the stones early in the morning. It was wonderful to see both the sun and moon in orbit. After our visit we decided to have a quick nap before starting a day of flint knapping. But I was unable to resist - I wanted to fire the bow again!

I heard a noise as I pulled the bow and, unsure of myself, I called for my teachers. The only advice given was "Pull the bow back". In what seemed slow motion the bow exploded into three separate pieces. I held two in my left hand whilst watching the other dangle from the bow string. The three of us bowed our heads as if in mourning, cradling the broken pieces as we examined them. There was no apparent reason for the bow to fail. We discussed scenarios that may have been the cause, a fault in the wood, perhaps, or not having given the dead sparrow hawk enough respect. (*We had picked it off the road for fletchings.*) Still, none of the reasons felt right.

Later that day my other teacher took me to one side to discuss the bow. She asked me how I felt about the bow-making process and the bow and, after a

long pause, she gave me her opinion. "One day you will be teaching people and I believe the bow broke so that you will know just how your students will feel when it happens to them." At the time it was hard to accept but, looking back, I now understand that failure in bow-making turned into success in the teaching of compassion and understanding. Bow-making and all the other skills of survival and earth-living, teach you a great deal more - if you are willing to look below the surface.

Cutting the front profile

In the last 'How To' in issue 12, we had taken the bow stave to the marking out stage. Now the back of the bow's profile needs to be cut out. This can be done with a band saw but I choose to use an axe to take the bulk wood off. I then use a rasp to file the edge of the bow to right angles with the back (see photo). For maximum success in marking out the side profile, great attention should be given to that right angle. One should file up to the line, but never over it. I then use a cabinet scraper along the edge to smooth it. A knife on its edge can be used for the same purpose.



Marking and shaping side profile

When you are content that the sides of the stave are at right angles, the side profile needs to be marked. On both sides of the stave mark the centre six inches at $\frac{3}{4}$ inch, the next two inches either side taper to $\frac{5}{8}$, then $\frac{9}{16}$ at mid limb and taper to $\frac{1}{2}$ inch at the nocks. When these are marked



Back View of the Nocks

Side View of a Nock

bow's profile should be cut out and the belly should be filed flat. (See terminology in issue 12.) The transition between the thicknesses should be gradual.

You should now have a stick that resembles a bow and I encourage students to walk around with their stick, aiming at targets. I do this to try and convince the stick and them that it wants to be a bow! It's up to you but I feel that it helps! It may look like a bow but it is far from being so and the stave will probably still not bend that much.

Tillering

Tillering is the key to good bow-making and for the bow to perform efficiently and to prevent it from breaking, the limbs of the bow need to bend evenly. Naturally, one should aim for a perfect tiller, but at your first attempt don't get hung up on perfection. Before I made my first bow I had read all the books I could find and filled my head with dread and confusion, due to differing styles of tillering. The best way to learn bow-making is by making them. With my first few bows I beat myself up over how the limbs didn't bend evenly, or I developed some set but didn't focus on how my bows were still shooting fast and hard. My opinion now is that if you make a stick shoot an arrow, it's a bow. Of course, I still try to achieve a perfect tiller!

Two main factors to consider when tillering are hinges and flat spots. Hinges are where too much wood has been taken off one spot of the belly side of the bow. It is important that when this occurs wood either side of it should be taken, thereby removing the hinge. Flat spots are when there is too much wood, making that area of the bow stiffer than the rest of the limb. Excess wood should be removed from there so that the bow bends evenly, but make sure you don't take away too much, or you will produce a hinge.

Floor Tillering

This is to introduce an initial bend to the bow. Place the tip of the bow on the ground. In your right hand hold the handle section and in your left hand the upper limb (see photo). As you push with your right hand the lower limb should bend. If it doesn't, remove a layer of wood from the entire belly side of the bow with your rasp, ensuring that it is nice and flat, with no obvious dips. This can be observed by looking down the length of the bow and feeling with your fingertips. Keep removing amounts of wood until the limb bends, making sure to keep an eye out for stiff spots and hinges. When both limbs bend a few inches with average pressure, you can move on to the next process.

Cutting the Nocks

The next stage is to cut the bow nocks. Using a rat-tail or narrow chain saw file, cut the nocks half an inch from the tip of the bow. To do this I first cut a groove at right angles to the back of the bow and then a groove at 45 degrees from the back to make a triangle, removing the wood left between the two grooves. (See photos). All sharp areas should be smoothed with sandpaper. Do this on both sides of the tips and repeat on the other limb.

Slack Stringing



Now a slack string can be attached to the bow. It's good to perhaps have a friend help at this stage of the process. Place a foot on the centre of the string, pinning it to the ground. Hold the middle of the bow in your hand with the back of the bow facing upwards. (See photo). Pull the bow upwards so that it flexes a few inches. Have your friend look at the bow from a distance to check the evenness of the two limbs and to look for flat spots and hinges. With experience you can do this by yourself, or with the aid of a long mirror. Tackle the problems as you would with the floor tillering, by taking wood away from the stiff flat spots and either side of hinges. When both limbs look even, pull the bow a few more inches and reassess. I'm going to describe the next stage of tillering with the method that I use now. Lots of bow-makers use apparatus such as tillering sticks, scales, tillering trees etc I try to rely less on modern tools and feel the spirit of the wood in more of an aboriginal way. It's quite difficult to lug all your kit into the woods! However, it is worth knowing about other methods and I would highly recommend reading 'The Bowyers Bible', a three-volume set that includes many essays by the most renowned bow-makers in the world.



Stringing the bow

So here we go; you're about to string your bow! Do so, having the brace height (*distance between string and handle*) quite low to start with, say about four inches. Pump the bow a couple of times by pulling the string back a few inches so that the wood stabilises. Look at the overall curve of the bow; flip it over and look at it from both sides. If one limb seems to bend more than the other, remove wood from the stiffer limb, always looking for hinges and flat spots.

When the limbs of the strung bow look even, pull it back about five or six inches, holding it in that position for a split second. This can be repeated over and over again and throughout this action observe how the bow flexes. If you notice any potential problems, mark them with a pencil and remove wood where needed. A good tip is to do this in front of a mirror or with the help of a friend.

Now pull the bow to about half its draw length which, on average, is about fourteen inches. Constantly check the evenness of the limbs. Also at this point you should assess the strength of the bow. If you feel at full draw that the bow will be too strong for you, remove equal amounts from both limbs, thereby reducing its strength. Pump the bow a few times and reassess the evenness of the bow.

Gradually pull the bow a few inches further, each time assessing the strength and tiller of the bow. When you have reached your draw length and are happy with the strength, you're done. You have created a working tool! From now on, all work is to enhance the aesthetics.

Finishing

There are many ways to decorate and help preserve the endurance of your bow. It's important to slightly round all the edges of the bow to avoid splinters pulling up. A cabinet scraper or your knife works well. I also sand the bow with varying degrees of paper. You can achieve a high sheen by going to a very fine grit and burnishing the bow by compressing the fibres with a smooth stone or a glass jar. I prefer to remove most of the scratches and tool marks and try and achieve a mat finish. Light-coloured woods like ash and hickory, I like to stain darker, if I'm to take them into the woods. It's not a good idea to stalk through the woods with a shiny white stick! I advise putting on some sort of oil to help maintain the bow's performance. I usually use Danish oil or pure tung oil but bacon fat works well too. If you are going to use varnish, it is a good idea to put a layer on a piece of bendable wood. When dry it should be bent to see if the varnish cracks.

I also put a grip on the bow, my favourite being a strip of brain tanned buckskin, wrapped around the handle. Other grips can be fashioned from

leather, cordage etc. Be imaginative; it's great to research other parts of the world to see how they have constructed their handles. This is a particularly significant moment, as I feel it really helps to bring the bow to life.

Working the bow timber green

In issue 12 I alluded to a method of speeding up the time from harvesting your stave to shooting your bow. This method can also be used when working with stone tools.

In the spring and summer, harvest your timber as normal and split the log into staves and, with care, remove the bark. This will come off much more easily due to the moisture level in the wood. If the bark comes off in one piece it is perfect for baskets; if not, you can use the inner bark for cordage. You will notice that you have revealed a beautifully clean growth ring which will be the back of the bow.

Mark the bow out as normal, but leaving the tips of the bow a few inches longer and about an inch wide. This will alleviate the chances of their and the limbs of the bow's twisting. Cut out the bow as normal and work with the stave until floor tillered. You will find your progress to be much quicker than with seasoned wood, due to its being softer and, thus, much more manageable whilst working with stone tools!

I like to keep the bow stave outdoors for a week under cover but still allowing air to flow around it. Frequently, it is advisable to strap the stave down to a flat piece of timber, to avoid its twisting whilst drying. After a week or so I bring the stave indoors, making sure it is always kept flat. I leave it at room temperature for another week and then put the stave in a warmer place, sometimes in the sun. After about three weeks, if weather permits, I place the stave in my car, and park in the sun to increase the temperature in my vehicle.

After about a month the bow stave should be seasoned but, of course, times may vary, due to different factors. You can now proceed with tillering and finishing. If you are inclined to be impatient then this method is great. Instead of waiting a year or two before starting to make your bow it can be harvested and be shooting in a month!

When you read this issue, one other Native Awareness instructor and myself will be in the USA. We are both determined to continue to 'walk the talk' and are spending six months collecting and experiencing new and rare skills and survival situations, which we intend to impart through the 'How To' column. It's good to share the knowledge.