

Primitive Arrow Making

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This pictorial guide shows the construction of two primitive arrows. Where possible primitive techniques have been used. Exceptions to this were occasionally using a modern knife, false sinew and bleached feathers.

John Ryder the course instructor supplied us with pre-cut branches from a Spindle (*Euonymus europaeus*) tree.

John chose this as the Spindle tree has traditionally been used for the manufacture of arrows.

An other option that was available to us was to use Hazel (*Corylus avillana*) as there was some on site.

I chose to use Spindle as I had never used it before to make arrows.

Here one of the Spindle branches is ready for making into an arrow.



Firstly I scraped the bark of the wood with the back of my knife.

Traditionally a piece of sharp flint or other such stone would have been used.

For safety the work pieces are out in front of me so that the sweep of the blade is away from my body.



I then roughly sanded each of the branches with sand paper.

This could have been completed traditionally with either a handful of sand or a soft rock such as sandstone.



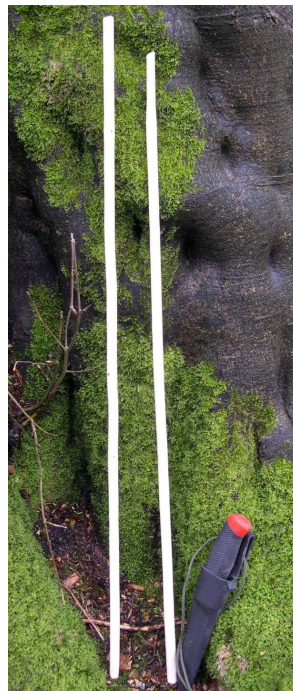
I then heated the branches over an open fire. I did not scorch the wood as this changes its properties and makes it brittle. The trick is to slowly turn the branch in a circular fashion and heating the wood evenly all around.

This in effect causes steam to occur in the wood as the sap heats up and so allows you to slowly straighten the arrow.



To straighten the bumps in the wood you need to hold it in position (as straight as possible) until it cools and sets into its new shape

Here are my two straightened arrow shafts.



Next the Knock for the string needed to be made.

Two small grooves were cut (opposite each other) out at the thin end of each shaft.



Then about a centimeter down the shaft (marked in red) another two grooves were cut out.



Here you can see the knock starting to appear.

What happens is a knife is used to start a split with the top groove and the bottom grooves stop the split running away down the shaft.



The resulting peg that is created is then wiggled about until it pops out.



Two knocks have now been created



John Ryder brought in some feathers for us to use.

Due to Health and Safety legalities while on the course John had to supply students feathers that have been washed.

Traditionally the remnants of bird kills would have been kept and the feathers used for this job.



So long as the feathers are from the same wing the feathers make excellent flights so making your arrows more accurate.

The first job is to split the feathers.

Again a sharp piece of flint would do this job.

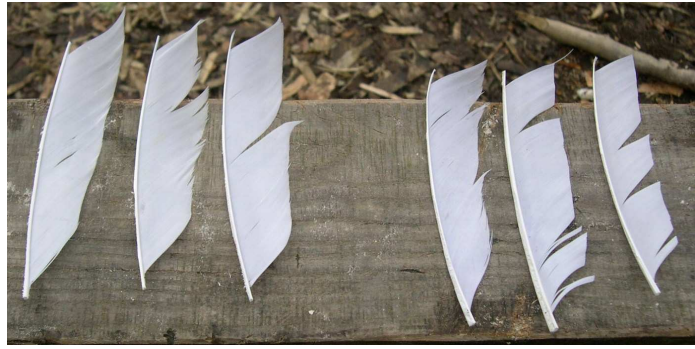


After the initial split has been made I used my fingers to split the rest of the feather.

At this stage you need to be careful that the split runs the full length of the feather.



I have split and trimmed the feathers leaving enough of the spine for wrapping purposes.



To wrap the feathers onto the shaft I used Deer sinew.

This needs to be pounded gently on a log with stones until all the sinew fibres separate.



Another stone is used as an anvil.



The fibres are starting to appear now.



Here you can see the fibres starting to really fall apart now.

I also had to use in this project false sinew as there was not enough real sinew for everyone.

Alternatives to false and real sinew is teeth floss.



Here is some sinew ready to use as wrapping.

Prior to wrapping I rolled the sinew strands to make it stronger and wet each strand with saliva. This then allows the sinew to bind to the shaft as the fats in it act like a glue when wet.



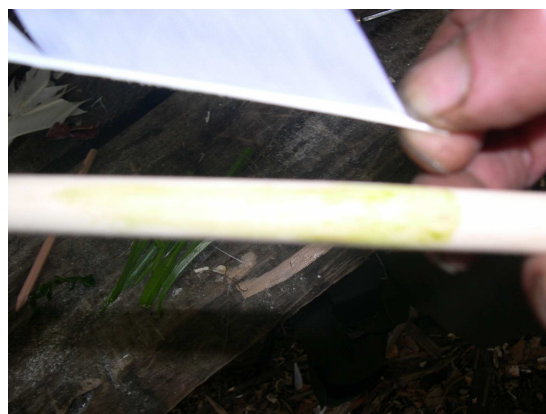
To aid in the process I tried out another type of glue from Bluebells.

This involved crushing Bluebell leaves between my fingers to a pulp. The resulting goop was supposed to have been used as a first fixing to help keep the flights in place before wrapping.

After trying this I found it did not really work for me but the goop was tacky but just not sticky enough.



First attempt at fixing the flight with the Bluebell glue.



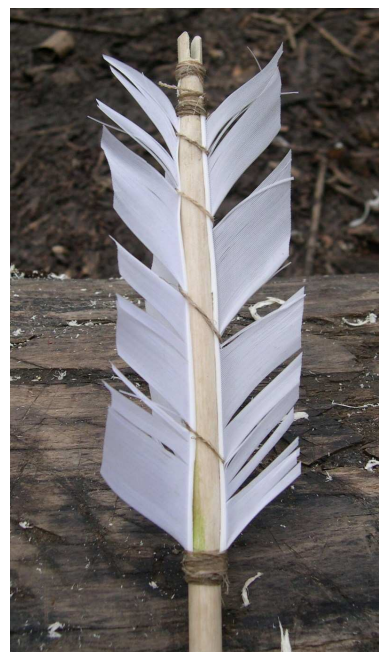
Flights wrapped at the bottom with sinew.



Flights wrapped at the top with sinew.



To finish the sinew stage the body of the flights were then wrapped with sinew.



To protect the sinew another glue was needed. This was Pine Pitch.

Technically our glue was Spruce resin but the traditional name is Pine Pitch.

After collecting the resin that had oozed from Spruce trees (the tree uses the resin to seal any damaged areas on its bark) it is mixed with fine charcoal (to give it strength) and beeswax (to give it flexibility)



A large flat rock was used as a preparation table.

The square rock was heated in a fire to melt and mix the mixture.

The smaller rock was used to grind (as above) the charcoal.

The sticks were used as mixers and to store the resin (see this later).



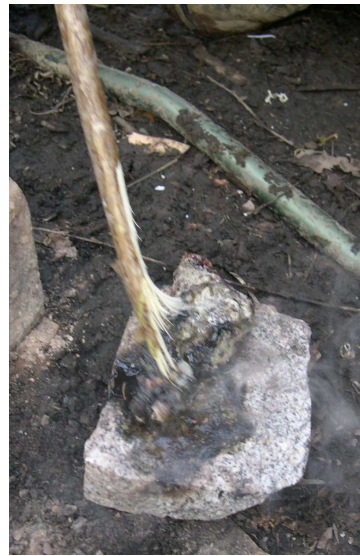
On the heated rock the first lump of resin was melted. As it melted any debris such as bark was scraped off.



More resin was added.



And mixed until it all melted.



The rock was superheated so great care had to be taken not to burn yourself.



Here you can see the pine pitch in its soluble state.



Using two sticks, one to scrape the pine pitch up and one to hold the cooling pine pitch.

I coated the holding stick with the pitch mixture then submerged it in a pot of cold water to harden it. I would then repeat the process adding more and more layers.

Using cold water speeded up the whole process.



Here you can see the pine pitch building up on the stick.



Two completed pine pitch sticks.

The stick on the left has been charred and can be blown to create heat to melt the pine pitch again so it coats the sinew on the arrows.

This protects the sinew and gives the arrow a nice finish



Heating the pine pitch to melt it.



Coating the sinew.



As the pine pitch is dripped onto the sinew I wet my fingers so that I could smooth the resin out and spread it evenly.

If you do not wet your fingers the hot pitch could burn you and also it will stick to your fingers.



The next stage was to create some arrow heads.

Here you can see a flint arrow head created by John Lord our Flint Knapping instructor.



After striking flint with hammer stones and antler hammers I collected some suitable pieces of flint to make into arrow heads



The next stage was to pressure flake the pieces with an antler Tine (tip) into usable arrow heads.

The glasses were worn to protect my eyes from flying pieces of flint.

The glove was used to stop myself from getting cut.

Placed under the flint was a strip of leather to give support and further protect my hand.



The picture did not turn out very clear but there is one arrowhead ready for inserting into my arrow shaft.



Using the same method of making the knock a groove was made at the arrow tip.



I then coated the arrow with some Pine Pitch and placed it into the groove.



The inserted arrow head.



Sinew and Pine Pitch was then wrapped around the arrow head.



Here you can see that the sinew is now covered in Pine Pitch.

Based on archaeological evidence I decided to add a barb to the arrow.

I firstly scraped a groove along the arrow shaft then put some Pine Pitch into it.



A sliver of flint was placed on this and further secured with Pine Resin.



This barb is designed to cause maximum damage to the prey animal.



Here is the other arrow I knapped and is fixed into the arrow shaft.

The two finished arrows



Using similar techniques I was able to produce an Atl atl set.

