

Creating a Bone Utility Knife and Sheath Using Primitive Tools Only

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As part of the brief of the course we had to craft an item using only primitive tools and techniques. I decided to create a small bone utility knife and a Sweet Chestnut (*Castanea sativa*) bark sheath.

The bone utility knife was to have 3 functions. One as an Awl, as a Knife and as a Bodkin as an aid to basket weaving.

Here is a picture of the finished knife and sheath.



Part 1 – Collecting the bark for the sheath

I started the project by selecting a suitable Sweet Chestnut limb from a coppice stool to take down.

It is the limb circled in red.

After checking the tops for any dead wood I started to clear away the undergrowth using some flint.



Clearing the undergrowth away ensured a safe working area around the limb.

I am using a large sharp piece of flint for this.

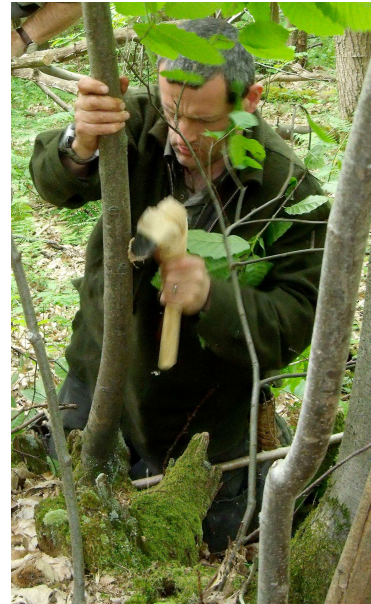
Also I want to make sure I have clear exit routes around the limb I can use when it is falling.



I had created for the job an Adze.

This is a piece of worked flint attached to a handle with rawhide.

Unlike traditional tree felling where a wedge is created and then a back cut made I am making a rosette cut all around the tree using short chopping motions.



You can see the rosette cut appearing now.

The small branch you can see in the foreground got in my way so I cut this down.



You can see that the Adze creates tears in the wood but is very effective in cutting into it.



A close up.



As I get into the heartwood I had to support the limb as I did not want it to fall uncontrollably.



Eventually I allowed the limb to fall under control.

Finally I cut through the last few strands of wood.

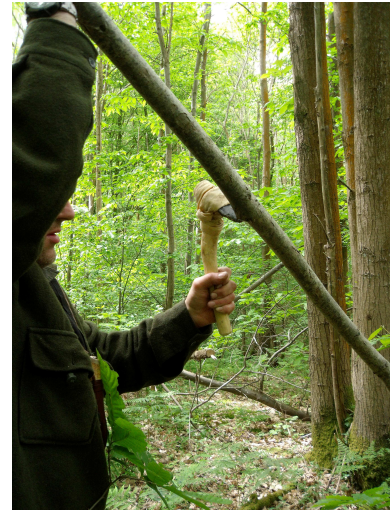


The completed cut.

Traditionally the stump would have been left like this. I however sawed the stump cleanly at the base. If a stump is cleanly cut (with a little angle) then it has less chance of getting infected and will eventually have new shoots grow out of it.



Using the Adze in a safe manner away from my body I trimmed off all the brush from the limb.



There was a fork in the limb that I wanted to remove. I placed the limb on the ground to remove it.



The severed branch.



Using the flint I cleared the undergrowth with I then scraped off all the outer bark.



This area of bark is too brittle. All I wanted to use was the inner bark.

My colleague Paul is holding the limb to secure it. This speeds up the process as I can use both hands and so makes it all safer.

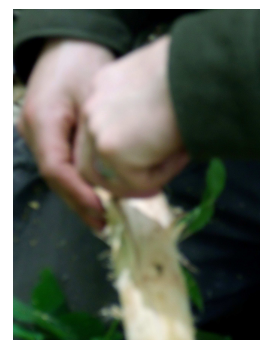


The shot is fuzzy here but I am scoring a line down the limb through the inner bark with my flint. Also I scored a line around the limb at the top and the bottom.



Using a small piece of wood I found on the ground I am using this to peel away the inner bark from the limb.

This was done in April so the sap was rising making the debarking of the limb very easy.



You can see the bark coming away clearly now.



Working the wooden tool around the bark.



The bark is released.



The tools I used for the job.

- 1) Adze
- 2) Flint
- 3) Piece of wood

I cut a further piece of bark of the limb as well.

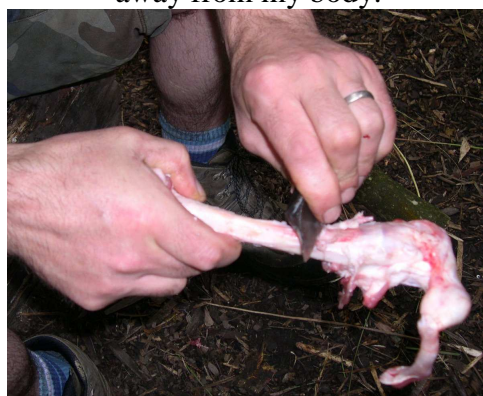


Part 2 – Creating the Bone Utility Knife

1) The bone was from a Lambs thigh. Traditionally this would have been called a Shank (from Lamb's Shank).



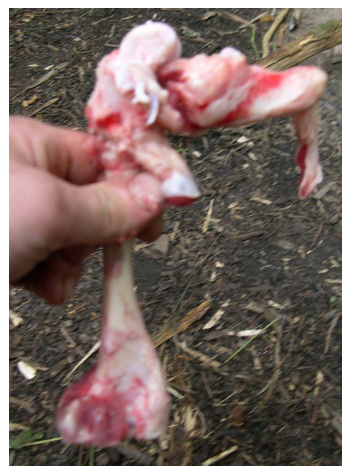
2) Using a piece of flint I started to scrape away the meat and fats. Note that the working pieces are well away from my body.



3) I worked on removing the main bone from a smaller attached bone.



4) I think this must have been the shin bone (top part).



5) The flint severed this easily with a final twist from myself to help it along.



6) Great care had to be taken around the knuckle so that I would not cut myself. I could have roasted the meat off or boiled it off but I was pretty sure this would make the bone brittle.



7) Getting a bit cleaner.



8) One final piece of fat.



9) A slightly cleanish bone.



10) I decided to remove one of the knuckles. To do this I started to score around the bone with my flint.



11) Now the score is completed.



12) I used a hot ember to heat the bone around the score to make it brittle.



13) There is a slight charring around the score.



14) Using the side of a log I tapped the bone until a crack started appearing on the score.



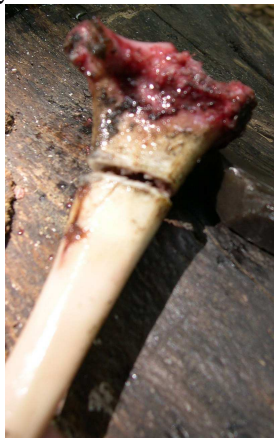
15) Tapping again and again.



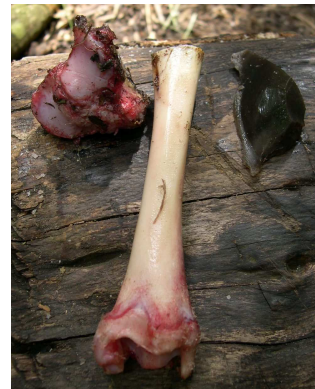
16) Finally a crack appeared that I could fit my flint into. However another crack appeared where I didn't want it so I stopped tapping it.



17) To finish the cut I resumed scraping the bone away with my flint. It did not take long to do so.



18) The severed knuckle.



19) I now had a bone to create my knife.



20) Using the flint I started to scrape out the knife's shape.



21) The scraping took me about 2 hours in total



22) I decided to scrape all the way to the marrow rather than heating and tapping the bone along the scrape.



23) I did not want there to be any chance of me splitting the bone in the wrong place.



24) Great care had to be taken using the flint as it is razor sharp and the bone was slippery from the marrow.



25) Eventually I started to get all the way through to the marrow and snap pieces of unwanted bone off.



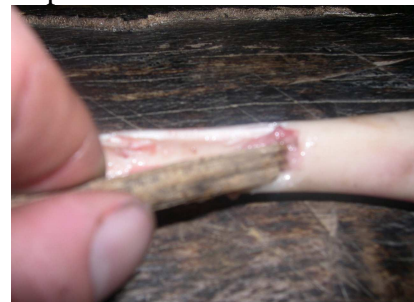
26) All the pieces of unwanted bone are now off.



27) The Awl point can be seen clearly now.



28) I used a piece of stick to clean the marrow out.



29) The last of the marrow. All the excess bone, meat, fat and marrow was burnt to dispose of it.



30) I used some shredded bark to clean the bone up.



31) To start to give the blade a bit of an edge I used a large piece of sandstone to make my edge.



32) I worked on both sides of the edge to make it even.



33) Finally I tidied whole profile of the knife up with a piece of flint. The flint took fine shavings off.



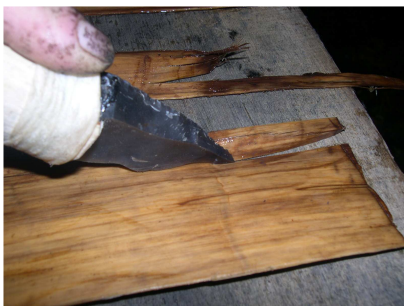
Part 3 – Making the Inner Bark Sheath.

1) I wetted the bark in a stream to make it supple again.

The bark goes very hard when it dries.



2) Using the flint knife I trimmed of the rough edges



3) Then cut the strips using my eye only as a gauge.



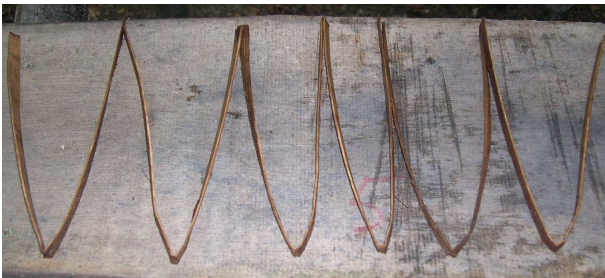
4) Excess on the left and strips on the right.



5) For this project I only needed 6 strips. The rest were given away.



6) Each strip was folded in half.



7) The right hand strip was locked onto the top half of the left hand strip.



8) The next right hand strip was locked onto the bottom half of the left hand strip.



9) The third right hand strip was locked onto the top half of the left hand strip.



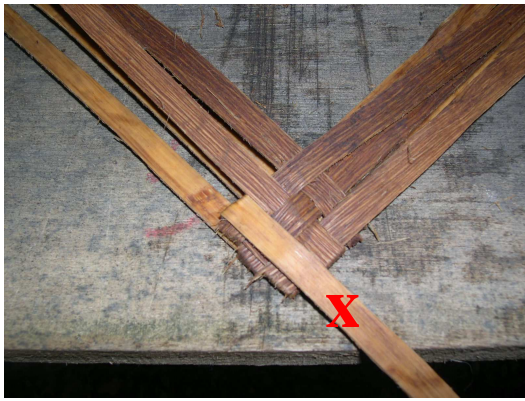
10) The second left hand strip was locked onto the top of the first right hand strip and woven through the other strips.



11) The third left hand strip was locked onto the bottom of the first right hand strip and woven through the other strips.



12) The top of the first left hand strip is folded back.



13) The bottom of the first left hand strip is folded diagonally over the other left hand strips.



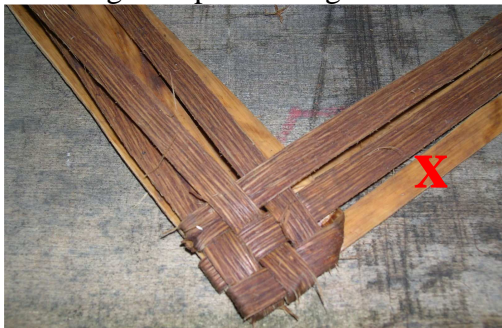
14) Then the top of the first left hand strip is flipped back up.



15) Ensure that the diagonally folded strip is woven over and under the strips it passes.



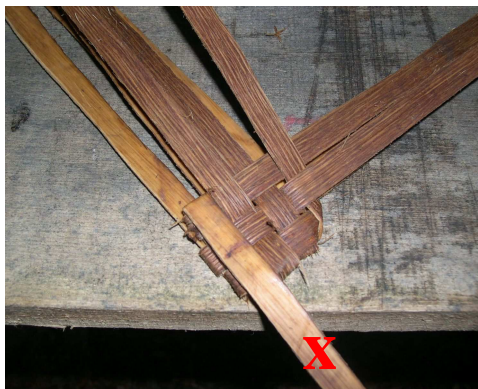
16) **Flip the whole sheath over.** There should be a single strip on the right now.



17) Now the bottom right strip is folded diagonally over the other right hand strips and woven in.



18) Starting steps 14 to 17 again repeat the process on the left hand side.



19) It will soon build up but remember to keep the weave tight as it will slacken as it dries.



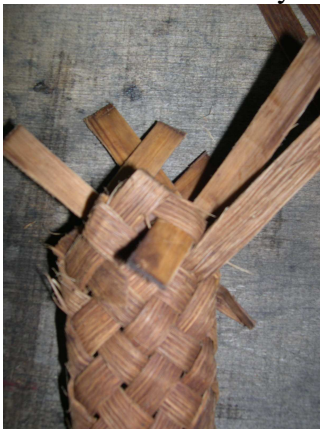
20) Ready to finish off.



21) Here you can see the inside of the sheath.



22) This is the tricky part. The ends of the strips need to be woven into each other so they are locked off.



23) A lot of experimentation was done here.



24) Tricky but enjoyable.



25) The top was now locked in and the excess ends ready for trimming.



26) I used my flint knife for this.



27) Keeping the pieces of to one side ensured a safe cutting stance.



28) The flint knife is extremely sharp and will cut you as cleanly as any sharp knife.



29) The sheath is now ready to be attached to my belt.



30) A perfect fit for the knife. You can just see the top of the knuckle in this shot.



31) To attach the sheath to the belt I decided to use some left over buckskin that I had previously tanned.



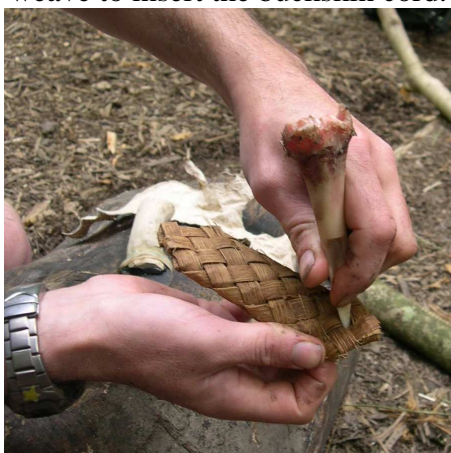
32) I cut out a strip with the flint knife.



33) Then wetted it to make it pliable.



34) The knives first job was to help separate the weave to insert the buckskin cord.



35) Using a small stick and holding the knife in place I was able to shove the cord through.



36) A loop was pulled through.



37) Then tied off.



38) This left me with two strands I could tie to the belt. Tying the sheath onto the belt with two strands stops the sheath from spinning around.



39) The full belt order now. From the left, one flint hatchet, one sheath with a soft antler hammer and tine for flaking, the bone knife and sheath, and lastly my buckskin bag. All this is attached to a Sweet Chestnut bark belt.



Close ups of the finished product in and out of the sheath.

