

# A Set of Period Target Arrow with Footings

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## Introduction

Footed Arrows have been said by some to be, “the finest arrows”. Not necessarily the best but the finest.

Footed arrows are arrows that have the foresection of the shaft (stele) made from a different timber, usually harder and heavier, than the rest of the shaft. There are two types:

- One in which canes are used for the shafts and a hard piece is fitted in the end and,
- one in which a separate piece of timber is spliced into the shafts.

It is the second type that this article is about.

These footed shafts were the premium target arrows of the Victorian era and remained in this category until the introduction first Fibreglass and Aluminium arrows (and today Carbon Fibre). Even so they are still viewed by many to be the pinnacle of the arrow-makers Art and are available from a few arrow-makers at a price that will surprise – sting might ne a better term. Modern footed arrows tend to have four-flutes as they can be cut easier by the use of a router compared to the traditional splice which has two flutes.

Why footed arrows?

- Because they do fly better, partly because of the change of FOC and partly because they are a challenge to make and you will put a lot more time into them so they are as good as you can make,
- Because they look nice and a knowing archer will understand what they actually are.
- And last but not least because you can<sup>1</sup>.

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<sup>1</sup> Making footed shafts is not a task for a beginner fletcher/arrow-maker or a person who has limited woodworking skills. Some experience in woodworking is required.

## Are “Footed Arrows” period?

Are footed arrows period. I often see comments that they are as old as... but rarely, if ever, see any evidence to this. However, with a bit of searching the following can be found in Toxophilus, book Two, The Second Schole of Shootinghe<sup>2</sup>.

*“And thus far as concerning a whole stele. Piecing of a shaft with Brazil and holly, or other heavy woods, is to make the end compass heavy with the feathers in flying for the stedfaster shooting.”*

In this case the term “piecing” refers to making the arrow shaft from two pieces of timber. It also states that end is “compass heavy” i.e. the front is heavier. A footed shaft.

So given that the book was printed in 1545 thereabout footed arrows are unarguably period.

## Making the Arrows

### ***“Making the Shafts”***

The shaft consists of two components; the shaft proper and the foot. For the shaft proper I selected some Victorian Ash shafts of a suitable spine. For the footing I chose some square sections of “Ironbark”.<sup>3</sup>

The production of the shafts follows several steps and they need to be as done as accurately or the arrow will not be “true”.

#### 1. Preparing the Shafts

- a. I decided that the splice section would be 6” long and all shafts were marked at this length. Why 6”? Shafts are spliced as short as 4” however, experience has suggested that short splices have a tendency to split the footing, eventually.
- b. Using a small plane, the shafts were tapered from the 6” mark to the end of the shaft until the wedge so formed was symmetrical along the centreline of the shafts and roughly an eighth of an inch thick at the end of the shaft. Note; to carry out this operation a sharp plane is required and it should be set to a fine cut. n.b. Just to reiterate I said, “Sharp Plane” – time to use the oil-stone. You will also need to make some sort of fixture to hold the shaft as you plane it down.

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<sup>2</sup> Toxophilus is often referred to as the first book on Archery and was printed in 1545 – the same year as the Mary Rose went to her watery grave.  
Toxophilus, The Schole of Shootinghe Conteyned in Two Bookes, By Roger Ascham, 1545

<sup>3</sup> The timbers for the shaft were chosen from what was available. To be truly authentic timbers from the period should be used along with period glue.

- c. After the shafts were tapered, using a plane, the wedge shape was finalised by sanding, using a Linisher. This operation could be done by hand if a Linisher was not available.



**Figure 1** A blank shaft with mark for taper to be cut.



**Figure 2** The end of the shaft tapered. Edge on view.



**Figure 3** End of the shaft. Side on view.

2. Preparing the Footings

- a. The footings were sawn down the centre on a bandsaw for a distance of six inches. Hand sawing the footings is possible however, good sawing skills are required.
- b. After being sawn the slots were cleaned out with some abrasive paper



**Figure 4 Foot blanks. These are all nominally the same size as the arrow shaft.**

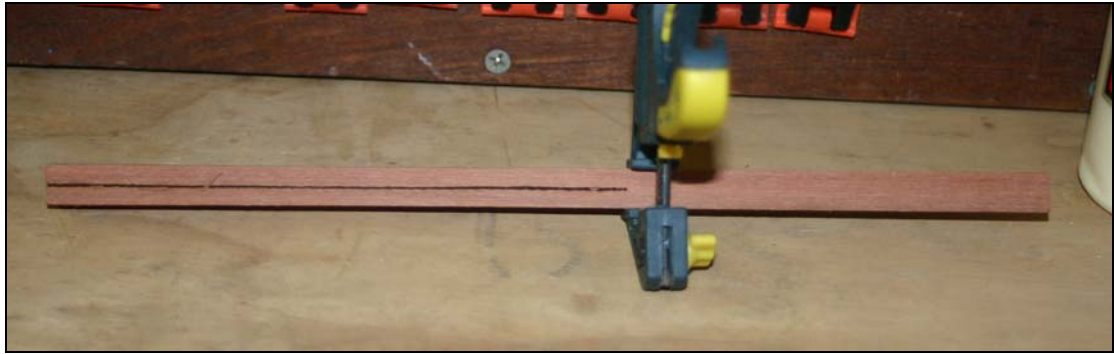


**Figure 5 Foot has been split the required distance.**

3. Joining the footing blank and the shaft
  - a. Fit a clamp just below the bottom of the slot in the footing blank. This will stop the footing from splitting when the shaft is forced into it.
  - b. Do a trial run and make certain that the wedge will enter the sawn slot in the footing for its full length. You may need to tap the wedge home with a soft mallet.
  - c. Take the two pieces apart and coat the wedge section with some High Strength PVA glue or other strong glue<sup>4</sup>.
  - d. Fit the wedge into the footing and clamp the footing in several places to ensure a good bond. Set aside and allow to dry. An alternative is to wrap elastic bands, string or tape around the joint while it dries – it all depends on what you have.

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<sup>4</sup> If you were making replica arrows then hide glue would be used.



**Figure 6** Clamp on the foot just below the sawn slit. If you do not do this the foot will split.



**Figure 7** Shaft has been smeared with glue and inserted into foot and tapped home. Clamps have been applied to ensure good contact and resulting bond.



**Figure 8** This is the Wood Glue I use.

4. Planing the shaft
  - a. After the glue has dried remove the clamps, or whatever, from the shaft.
  - b. If you feel confident you could saw the bulk of material from the wings where they extend from the shaft.
  - c. Using a small plane, plane the wings and round the footing section. I do it by first planing the footing square again and then making it eight sided, sixteen sided and finally rounding it all with some sandpaper. This is the same process as making arrow shafts from scratch using sawn blanks. **WARNING.** As you sand be careful, soft timber will abrade faster than hard material and it is easy to end up with a messy result – which you will throw away.
  - d. Eventually you will have it all together and the two pieces of timber will have a neat clean join and the shaft will be complete. **ADVICE.** It will take some time to make your first shaft – perhaps an hour or so. Do not rush it. Speed will come with experience and practice.
5. Finishing the shaft blank
  - a. Make certain that all the footings are the same length. If not you will need to cut those that are longer to the length of the shortest. (It happens.)
  - b. Cut the shaft to the required length and cut the self nock.
  - c. If you are going to taper the shaft then now is the time to do it.
  - d. Check the mass of each shaft and adjust the shaft mass so as to bring them all to the mass of the lightest. **WARNING.** If one shaft is particularly light scrap it or use it for a Flu-Flu and make another. If you have sand to off you may decrease the spine to much and thus have a set of arrows that are unsuitable for the bow.



**Figure 9** Clamps have been removed from foot and you can see the wings sticking out.



**Figure 10** The wings have been planed down.



**Figure 11** More planing to make it 16 sided and then sanded.



**Figure 12** Turned 90deg so you can see the other view. Next step is to cut the foot to the required dimensions.



## ***Fletching the Arrow***

6. Once you are happy with the shafts you need to decide if you are going to finish in a modern manner or a period manner.
  - a. If you choose a modern finish sand and apply the finish
  - b. If you choose a period finish which usually contains wax is better to wait until are you have fletched the arrows,
7. Cut your fletches either using a chopper, pair of scissors or whatever – *or buy some from your local Archery supplier.*
8. Fletch the arrow and bind the fletchings<sup>5</sup>.
9. Fit the points<sup>6</sup>.
10. Now that the arrow is complete coat the bindings with a Varnish and then in the case of a modern finish give the shaft a final coat the finishing material. In the case of a period finish then coat your shaft with whatever finish you normally use. I usually use a mixture of Bee's Wax, Carnuba Wax, Linseed Oil and Gum Turpentine. It will polish up nicely and protect your shafts as long as you remember to apply it again after you have been shooting.

Having reached this stage enjoy the pleasure of shooting your Two Flute Footed Period Arrows.



**Figure 13 The Final Product. A fully bound, self-nocked, two-flute footed period target arrow.**

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<sup>5</sup> There are several different styles of fletching that period and these can be seen in illustration of the period or as Ascham says "*If a feather only be fit, whether a goose feather only or no ? If a goose feather be best, then whether there be any difference as concerning the feather of an old goose and a young goose ; a gander or a goose; a fenny goose or an uplandish goose ? Again, which is best feather in any goose, the right wing or the left wing; the pinion feather or any other feather : a white, black, or grey feather; Thirdly, in setting on of your feather, whether it is pared or drawn with a thick rib or a thin rib, (the rib is the hard quill which divideth the feather,) a long feather better or a short, set on near the nock or far from the nock, set on straight or somewhat bowing; and whether one or two feathers run on the bow? Fourthly, in couling or sheering, whether high or low, whether somewhat swine-backed (I must use shooters' words) or saddle-backed, whether round or square shorn ?*"

<sup>6</sup> If the arrows are going to be used for competition then a suitable point should be used. Typically these are steel Field points. However Brass Bullet Head points make a fine alternative and if you choose ones that internally threaded they will not come off in the target. ☺



And for those who want a new challenge – well a set of four-flute shafts will keep you busy, ☺