

CHRIS CLEMES

Fly Rod and Reel Makers

HANDMADE IN ENGLAND

BUILDING A BAMBOO FLY ROD

Since the 1800's the natural beauty, strength and resilience of Tonkin bamboo has captured the imagination of traditional fly rod makers. Their wonderful action and smooth casting ability make them the ultimate tool for fly fishing the traditional realm of streams and rivers.



The Chris Clemes bamboo fly rods are our most exclusive numbers and the flagships of our workshops. A perfect balance of form and function they are the epitome of the rodmakers craft. Each year we produce a limited quantity of our custom finished and bespoke fly rods. In this article we explain the various steps involved in the making of these rods.

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“Somehow the ceremony of unlatching the brass catches and lifting the heavy lid seems appropriate with a cane rod, I suspect I would find it all a little too much, too ostentatious, for a carbon rod. Maybe that's because I know cane rods are hand-made, that someone spent years learning the crafts needed to make this, and then spent weeks making the rod in my hand.”

Magnus Angus, Fly Fishing & Fly Tying Magazine

PART I: A BRIEF HISTORY OF BAMBOO ROD MAKING

With the expansion of the British Empire came the discovery of new and exotic timbers and species of Bamboo or Cane. It was not long before those intrepid gentleman explorers began using these materials for the betterment of their own sporting pursuits.

Up until 1845 solid wood was the most common material for building fly rods. Solid wood fly rods were constructed using many wood varieties the most popular being Lancewood and Dagama from Cuba, Bethabarra from British Guiana, and the South American Greenheart. These woods were chosen for their resilience and flexibility. However, they were heavy and Bamboo has gradually replaced these solid woods as the most popular and preferred choice amongst rod makers.

Bamboo is the largest growing species of the grass family and is without doubt the greatest natural rod building material. When properly selected, cured, split, glued, and proportioned, bamboo possesses strength, lightness, resilience, pliancy, power and balance to a greater degree than any solid wood blanks.

It is suggested that the first complete hexagonal fly rod was produced using Calcutta cane circa 1859. Before this split cane rods were constructed quadrate in shape, using 4 strips. During the late 1800's Tonkin cane was discovered growing along the Sui River in the Guandong province of China, this cane was to become prized by rod makers above all others.



PART II: AN INTRODUCTION TO BAMBOO ROD MAKING

A Bamboo fly rod is formed by splitting, planing and straightening a series of cane strips before gluing them together to form a rod blank. This rod blank may be composed of any number of tapered strips, most commonly a six-strip or hexagonal design.

All rodmakers start with the same material, Tonkin Cane or bamboo from the Tonkin region of the Guangdong province in China. Of the more than 1200 known species of bamboo, the bamboo growing in this 5 square mile region is the most highly sought after by rodmakers. The reason for its demand is that it is the strongest bamboo species, with a high density of fibres, but it is also because of its straightness, and uniformly spaced nodes.



The walls of a bamboo culm consist of three layers. The outermost layer is called the enamel, this thin layer serves as the protective natural coating on the exterior of the bamboo. Beneath this layer we find the most important layer for rod building, these are the “power fibres”. These are high density fibres which give the bamboo its strength. These are densest closest to the enamel layer and then become less dense giving way to the innermost layer, the pith.

In the process of making the individual tapered strips, also referred to as splines, we remove the enamel and pith layers by sanding or scarping. This means that when the splines are glued together the resulting blank is comprised of the maximum number of “power fibres”.

PART III: SPLITTING & STRAIGHTENING THE BAMBOO CULM

The first strike. Before we can begin the process of hand splitting the culm into tapered strips or splines that for the rod blank, we must split the bamboo into individual strips of between $\frac{1}{4}$ and $\frac{1}{2}$ of an inch wide. This is done by using a tool called a froe. This is a bevelled metal tool which is hammered into the cane to split the longitudinal power fibres. A standard two piece rod with a matching extra tip will require 18 strips of bamboo. With the matching tips made from the same culm of bamboo.



Unfortunately, these freshly split strips will often exhibit kinks, or warps, forming bends in between each node. In order to proceed each node and strip must be straightened by hand. This is done by heating the bamboo gently to make it more pliant, once done it can be bent into the desired position. If the strip is held in this position until it cools it will remain straight.

Once satisfied that the strips are straight, they are laid out and cut to the approximate length required for the rod section we are going to build. Great care is taken in ensuring that the strips are of sufficient length to accommodate the chosen node stagger. The bamboo nodes are the horizontal rings running around the bamboo culm, these are considered to be the weakest areas of the longitudinal power fibres, in order to ensure that there is no weak spot in the rod the nodes are staggered so that when the rod section is complete no two nodes will be next to each other on adjacent strips. The most common staggers are either a 2:2:2 or 3:3 pattern.

PART IV. PREPARING THE BAMBOO STRIPS INTO EQUILATERAL TRIANGLES

Once we have split, straightened and cut the bamboo and decided on our node spacing it is now time to plane the strips into equilateral triangles. When bound and glued together these six strips will form the hexagonal rod section.



We achieve this uniform configuration by carefully hand planing each strip using a wooden jig which has been set to a 60 degree angle. The resulting uniform strips are non-tapering triangles of uniform length.

Once completed the strips are assembled into a hexagonal blank before being tightly bound with string and heat treated in an oven, this serves to dry and temper the cane. When the cane cools and the string is removed each individual strip is then ready to be tapered.

PART V: TAPERING THE STRIPS TO FORM THE SPLINES

The diameter of the rod blank and how much bamboo is present at any given point along the length of the rod, match it to a given line weight and give it its overall action. This is known as the rod taper. As a natural material bamboo has remained unchanged, Rodmakers such as Garrison, Payne and Leonard dedicated their lives to perfecting tapers to build the best casting rods possible, the perfect balance of form and function, and which have come to be the embodiment of traditional fly fishing. When undertaking a commission we will offer consultation on the choice of taper. This will depend on the chosen action of the rod as well as its length, weight and number of pieces.

We begin the process of forming the splines by laying the bamboo strips on a planing form; this allows for the fine tuning of the bamboo tapers to meet the exact tolerances required to match the required taper. This is a lengthy process and the splines are continuously planed for finer and finer detail. Rod tapers are measurements, expressed in thousandths of an inch, and which are measured at five-inch intervals along the length of the rod starting at the tip and running to the butt section. Because a six-sided rod consists of six identical triangles, the size of each individual cane strip is one-half of the rods finished diameter.



The planing form consists of two parallel wooden bars with a sixty-degree groove running between the two bars along the length of the tool. This conforms to the equilateral form of the cane strip. One side of the form has a relatively deep

groove for forming large strips for butt sections; the other side has a shallow groove for forming tip sections. The hand plane is then used to shave off the excess cane above the surface of the planing form. Once the strip has been planed down to the surface of the form, the size of the strip is a mirror image of the depth that has been set in the form. The tapered strip is now referred to as a spline. This process is then repeated to plane the taper into the five remaining strips.



This method of planing is extremely accurate, rod tips may measure only about .060 inches, and therefore an individual tip strip measures a mere .030 of an inch.

PART VI: GLUING, BINDING AND FINISHING THE BLANK

Once tapered on the planing form the splines are inspected again for signs of warping and to be sure that the node spacing is in the correct sequence when they are aligned together. We then apply glue to the splines with a small brush (a toothbrush works well) and the section is then rolled into the familiar hexagonal shape of a bamboo rod and bound under pressure using a binder.

The binder serves to rotate the rod section and apply a binding cord in a spiral fashion along the rod shaft. Each rod section is passed through the binder twice, which applies two opposing spiral wraps. This cross wrapping assures good uniform pressure and eliminates any twisting of the blank. The rodmaker now inspects and rolls the section for straightness sights down it to assess the blank for straightness and to eliminate any bends and kinks. The section is now referred to as being "in the string".



The section is then left to cure. Once the glue has dried the blank is carefully sanded to remove any excess residue leaving a silky smooth surface.



After the glue has cured the string removed and excess glue is sanded, filed or scraped off of the blank. The sections are again straightened and cut to the appropriate length. This is finally the point at which the work begins to resemble a fishing rod.

Depending on the commission the rod is then either varnished or impregnated to give a resilient and durable finish. Impregnation of the blank using natural resins will add considerable time to the building process but provides an impervious barrier and allows for nicks and scratches to simply be buffed out of the blank. When varnishing a blank we apply 3 coats of spar varnish which give an extremely resilient and glossy finish.

PART VII: MOUNTING THE FERRULES

At this point the ferrules can be mounted. Ferrules serve the important function of joining and holding the rod sections together. Premium ferrules are constructed of Nickel Silver tubing with a male ferrule (mounted on a tip section) that slides into a female ferrule. (Mounted on the butt section). Nickel Silver is the metal of choice as the zinc in this alloy makes it naturally self lubricating less likely to stick. It is imperative that time is spent preparing the ferrules to slide together well and are mounted permanently on the bamboo rod blank.



The most popular type of ferrule is called a “Super-Z” and was designed by Louis Feirabend. This type of ferrule is designed so that the inside diameters of both

the male and female ferrules are equal, as opposed to the Step-Down or Leonard style where the inside of the male and female ferrules are different diameters. Both ferrule types are designated by the inside diameter of the tubing which is measured in 1/64ths of an inch.

The Super-Z design is often considered the stronger of the two designs, the reason being that since the inside diameters of a ferrule are the same, therefore less cane is removed from the rod blank when mounting them.

The overall fit of the ferrules is determined by the rodmaker. As standard all male ferrules are supplied to the workshop oversized, meaning that the slide portion must be turned smaller in order to adjust how tightly the sections connect. The serration tabs of each ferrule must also be tapered before they are fitting to the rod. Tapering the serration tabs allows the rod blank to flex freely at the join and gives a smooth transition from the ferrule edge to the rod shaft

Once this is done the ferrules are mounted by turning the cane to the required diameter and applying glue to the inside of the ferrule and the seating area of the blank.



PART VIII: FINISHING THE ROD

We are now ready to finish the rod blank to the customer's specifications. Each fly rod is fitted with either one or two premium black nickel and red agate stripping guides with matching snake guides depending on the length and weight of the rod. Each guide is wrapped with gudebrod grade A thread and 3 coats of spar varnish to give a refined and highly durable finish.



The rod is then fitted with a hand turned flor grade cork handle and Turkish walnut and nickel silver reel seat. The reel seat can be engraved with a choice of initials or family crest. Each fly rod is inscribed giving the length, weight and serial number.

Each split cane fly rod comes complete with a custom cotton rod sock and black powder coated aluminium rod tube or bridle leather fly rod tube. Embossing of initials or family name is available on commissioned fly rod tubes.



