

# ROD MAKING – A PRAGMATIC APPROACH

by Jens Dahl Mikkelsen

Bamboo fly rods were not frequent when I started fly fishing in 1971. My first fly rod, was made of glass fiber – the standard at the time. Short after came the graphite rods, and I switched to those, and have been fly fishing around the world with these. However, I had a desire to try fishing bamboo, and I bought a used rod. I liked the "bamboo feeling" but it was quite soft, and I wondered if I could make my own bamboo rod to my preferences, as the ones from well known makers were quite expensive to buy.

Thus, I got hold of various books about the topic. It seemed that acquiring the needed tools would cost a fortune, and it also sounded complicated. With a background as a Biologist, having worked in the software industry with analytics, I only had limited workmanship skills. So I believed it was too risky an investment to start making rods, as there were no guarantee for success.



However, I had tied so many flies, made so many fishing knives and leather reel cases, that I needed to do something else when I retired, which I did five years ago. Luckily, by accident I found out that there is a club in Denmark dedicated to making bamboo rods – Splitcaneklubben af 1974 ("The Splitcane Club of 1974").

This got me started. The club has access to a workshop in a school with the needed tools, and the members helped me getting started. We are around a dozen members, meeting once a week making rods, share tips and tricks and try out our new rods, and occasionally go fishing together.

Over time, I have bought the most essential tools and made some tools myself, so I can perform all steps in my workshop, except making the hardware parts, which I buy.

Now, after having made more than 50 bamboo fly rods, from light dry fly rods to salmon spey rods, I'd like to share my way of rod making, and try take out some of the complexity and tool costs, with the hope to make it easier for others to get started – or maybe re-think their methods to make life easier. I shall not take credit for inventing the methods myself, they are a result of ideas and experiences of the co-members of the Splitcane Club and others - so I owe them big thanks – in addition to what I have picked up from books and the Internet.

It seems that almost all rod makers have their own way of getting to the final result. I will not cover all the steps in detail, but focus on steps where I think my way is simpler/cheaper than described elsewhere. Though, I still recommend to read all the books and articles (e.g. the Bamboo Journal is a great source) that you can get hold of, to compare methods, and find the way that suits you the best.

## Heat Treating

The first process of a new rod, after selecting the culm(s) to use, is to heat treat it. Many other rod makers do this at a later stage, baking the planed strips in a temperature controlled oven. However, various makers have different recipes regarding temperature and duration. Further, it may be complicated and expensive to build a temperature controlled oven.

I believe the purpose of heat treatment is to modify the bindings in the sugar molecules in the bamboo, from single bonds to double bonds, thereby making the culm stiffer/stronger. Next, to remove water from the bamboo, and thirdly to give the bamboo a pleasant color. My logic says that it should be irrelevant at which stage in the process you heat treat. So to keep it simple, I do it up front using simple tools.

First, I ensure that there is a split in the culm, so air can freely pass in and out of all the segments of the culm. If a segment is closed, it will "explode" when heated, which sounds like firing a cannon! I heat the culm, by quickly moving it forth and back, while turning it around its own axis, in an insulated metal tube, heated with a gas flame through a hole in the side of the metal tube.

My "oven" was built by a friend, and is 1 meter long, has an inner diameter of 14 cm, and a wall thickness of 3 mm. The gas burner is a standard burner used for working with roofing felt.



*Heat Treating "oven" and Gas Burner Set Up*

I let the "oven" heat well up before I start heating the culm – where the flame enters the main tube, the metal should be red of heat. It is advisable not to use too big a flame when entering the culm into the tube, and move the culm forth/back and around in the tube at all times – it can easily become blackish if not in constant motion. It is easy to see when the color of the culm changes towards brownish, but if using a moderate flame, or moving the flame a little away from the oven, you can make fairly blond rods if you like. The important thing is that smoke comes out of the end of the culm, otherwise it hasn't been heated enough. It only takes a few minutes of treatment before the culm has a nice brownish color, and bluish smoke comes out of the end of the culm. I first heat the half of the culm, then reverse it to heat the other half. I perform the process in open air, and use insulated barbecue gloves and glasses for protection of heat and possible sparks.

### Node Treatment

I split the culms with a knife and hammer – and the hands - select the desired splits for the rod and stagger them. Then I cut the splits to desired length. Most of the inside pieces of diaphragm at the nodes are removed by a quick cut of a knife. The rest, and the outside of the node is filed down using a simple wooden device to hold the split in an arch. This eases the filing and reduces the risk of filing outside the node area.

As you can see, I'm not keen on the looks of my home made tools, as long as they work for the intended process I'm ok - in contrast to my rods where I put a lot of effort in precision, castability and looks!.

When nodes are filed down, I straighten the splits with a heat gun, and cut the first angle of the splits with a few strokes of a knife – at least so much so they will stay in the largest gauge of my wooden rough planing form.

*Simple Device to Hold the Strip in an Arch when Filing Nodes*



## Rough Planing

A friend made a rough planing form in teak wood for me. It has gauges in different sizes.

The split is held in in the form with a clamp in the one end, and I use a big 4 1/2 plane. I add a few strokes of stearin (from a candle) at the sole of the plane. This makes it very easy to plane. I count the plane strokes, so each side of the strips gets equal amount of strokes – max. 5-6 strokes at a time before turning the spit. I like the splits to be at least 4 mm thicker than the final dimension before planing. This way I have enough to plane away to correct any skew angles, which I check frequently with a center gauge. The split is moved to increasingly smaller gauges on the form and planed until it is around 1-2 mm above the final measure.



*Wooden Rough Planing Form with 60 Degree Gauges in different sizes. à  
Note the big Plane.*

## Final Planing

I perform the final planing using a metal planing form, still clamping the split in the form and using the big plane. When I'm very close to the final dimension, I measure the split for each station using a micrometer screw, and fine plane with a 9 1/2 plane to the final measure.

## Hollowing

I hollow some of my rods, using a small band-sander. I wrap the 6 splits with masking tape a few places, then cut it open, and place all the strips in a flat groove in a piece of wood, aligned with two aluminum profiles. I adjust the depth of the groove with layers of masking tape and test the depth on a scrap split.

So the hollowing is of the "bridge" type, with groves the width of the sander belt (13 mm).



*Device to Control Depth of Sanding when Hollow Building.*

*The Aluminum Profiles are renewed after about a dozen rods as they also become sanded somewhat.*



## Glueing and Binding

I apply water proof wood glue to the 6 splits and close the blank with masking tape a few places. Then I bind the blank using a simple wooden device as seen on the picture. I place the blank in the groove so the butt end comes out under the fly tying bobbin. This is a model where the tension can be adjusted. I use a non-strechable cotton tread. Then I put on my screw machine at the butt end of the blank and turn the blank with this, while pulling the blank towards me.



*Binding Device.*

*The Blank lies on a Board aligned with Side Boards. Binding Thread is tied in the butt of the Blank which is then Turned with the Screw Machine while Pulling the Blank though the Hole in the Device.*

When reaching the tip of the blank, the thread is cut and a knot made. Then I re-do the process – but turning the the blank the reverse way. This way, the same tension is kept in both directions avoiding the blank in spiralizing. So I saved the need of an advanced binding device, and this method works perfectly fine.

The hole in the device where the blank rotates has a plastic tube inside, so smaller blanks rotate nicely, and it is removed when binding thicker blanks.

## Mounting Ferrules, Eyes, Handle and Reel Seat

After removing the binding thread and sanding the blank to remove excess glue, I mount ferrules, handle and reel seat. Thereafter I mount the guides.

I buy the metal components, as I do not have a metal lathe.

I wrap the thread for the guides by hand, the Garrison way (sitting on a chair, having the spool under the hip, wrap the thread three times around the blank, cross over and turn the blank by hand). So no costly wrapping device!



*Varnishing Guide Wraps while turning the Blank slowly with a Grill Motor/ Ball Bearing Set Up.*

The windings may get color preserver, clear nail varnish and a couple of layers of clear yacht varnish while the blank is turning around. I attach the butt end of the blank to a barbecue motor and the top to a pin on a ball bearing with masking tape, so the blank is turned around slowly while the varnish dries.

### Ferrules/Splicing

In my experience, the best way to connect heavier, long rods, typically 3-piece, or even 4-piece rods, is to use splices wrapped with clear tape. Metal ferrules make a dead point in the action, and I have experienced the rod breaking just below the ferrule. Further, the nikkel silver ferrules add weight, and may make multi piece rods tip-heavy.



*Device to hold the Blank at an Angle for Planing Splices*

I have also made graphite ferrules.

They are better, as they can bend somewhat, and weigh less than nikkel silver ferrules. But they take some time to make, and the esthetics of having graphite on bamboo is not so pleasant in my opinion. I have not tried to make bamboo ferrules, as from what I hear, they are best for very light rods. But others may prove this wrong?

Splices do not add much weight, are traditional, and allow the rod to bend all the way. Casting feels good with spliced rods in my opinion. The bonus is that they are so simple to make. I use the tool on the picture. Two pieces of board, with an wooden strip in between at an angle. The strip is flush with the upper sides of the two boards in one end and 1,6 cm down in the other – 47 cm away. The wooden strip is longer than the boards, allowing to put on a clamp, to hold the blank while planing. The splices I make are 20 X the diameter (side-side) of the rod at the middle of the splice. I leave 1,5 – 1,8 mm bamboo at the very tip of the splice, to avoid it being too vulnerable.

### Varnishing

I dip varnish my rods in a clear plastic tube, 1,40 m long, 3,5 cm inner diameter (actually a drain tube for boats), with a cork lid at the bottom, and attached to a board with plastic strips. The board is mounted on the wall. I have 3 meters to the roof at the center of my workshop. I use the same barbecue motor as for turning the blank when varnishing guide wraps. It can go either way (230 V AC powered), and using the right size thread spool I have a "dip speed" of 2,5 cm/second. I dip varnish the rod two or three times. The rods are drying in a dust free closet with a light bulb inside to keep up temperature.



*Dip Varnishing Set Up*

Some of my rods are rubbed with pumice (<40 my grains) mixed with linseed oil, using a clean cloth, to make a silk like surface of the rod. But this should only be done when the varnish is completely hardened, which may take several months

## Wrap Up

I hope that other rod makers, especially newcomers, may find some of steps and simple tools useful. Many thanks to the members of Splitcane klubben for all the help and advice over time. If you have questions or comments, you are welcome to contact my at [jens\\_dm@yahoo.dk](mailto:jens_dm@yahoo.dk)



*Taking a new Rod to my favorite small Swedish Trout Stream (Vänneån) for testing in early Spring!*