Bamboo Journal

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Italian Bamboo Rodmakers Association

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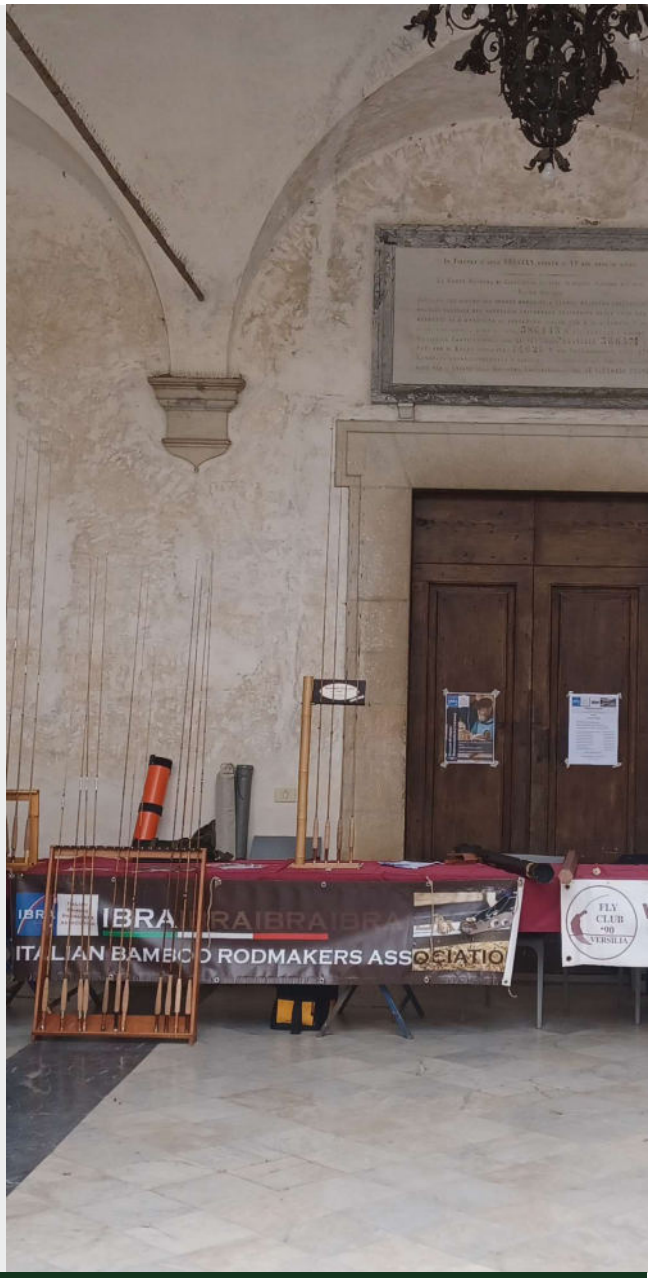

Bamboo Journal issue 27 - June 2024

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Front cover:	Mauro Moretti's rod 9'6"#8, ferrule by Luca Marzi cast BY Pino Messina in Patagonia
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EDITORIAL

by Maurizio Cardamone

I recently came across a heated discussion in a well-known online fly-fishing forum about an ethical problem connected to the use of synthetic materials in the construction of artificial flies. It is certain that synthetic fibres such as nylon, polyester and polypropylene, which have integrated or replaced traditional natural materials such as feathers, fur and wool yarns, have enormously expanded the repertoire of artificial flies available to fishermen. However, the production of synthetic fibres consumes non-renewable natural resources and can generate polluting emissions during the manufacturing process. Furthermore, the dispersion of plastic fragments in the aquatic environment, both through wear and tear on fishing equipment and through inappropriate waste disposal, represents a threat to the health of ecosystems and fish species.

Some then argue that the contribution of a few artificial flies is certainly not to be compared to the many and much more massive sources of pollution that we can notice on a daily basis just by looking around. But ethics is ethics, and it does not always have to do with pure rational calculation!

As far as the rodmaker community is concerned more directly, however, we can feel proud of the fact that the construction of bamboo rods can certainly be read as a return to naturalness, both from the point of view of the materials used and with regard to the fishing with the fly philosophy itself.

Furthermore, the construction of bamboo rods is intrinsically associated with an artisanal and traditional process, which favours manual skills and particular attention to detail. This can be seen as a return to the values and beauty of "handmade" in contrast to the industrial mass production typical of synthetic materials. This return to simplicity, tradition and connection with nature can enrich the fishing experience and help preserve the authentic essence of this fascinating sport.

The problem of synthetic materials in artificial flies had already been raised in 2019 in a Fly Line article with the iconic title “Just Biofly”. Even then – I remember – it sparked quite a debate, but I believe that this represents only one of the many facets of the more general theme of ethics in sport fishing. And this, if we want, even leads us to reflect on the ethics of the exploitation of natural resources in a social community

In his famous 1968 essay “The Tragedy of the Commons” Garret Hardin, a famous American ecologist, forcefully supported the need for a system of ethical principles that regulates community life with this example: a group of shepherds share a plot of land dedicated to grazing livestock

The meadow is very large, but not enough to feed an infinite number of animals. For individual interest, just one more sheep would obviously mean a greater profit, but even a few more animals would lead to premature exhaustion of the resources that support the entire community of shepherds. In order for the pasture to always be sufficient for the needs of the community, each shepherd will necessarily have to give up a portion of personal gain in the short term to protect collective well-being in the long term.

The parallel with fish resources appears easy, even with those that feed the varied world of so-called sport fishing. We should in fact ask ourselves whether sponsoring the practice of C&R is not enough, but that some form of self-limitation of fishing pressure in general is necessary to hope to recover the naturalness of our waterways and the fish species that populate them! To return to Hardin's book, the problem does not have a technical solution: the question is only moral!

We now come to this issue of the Bamboo Journal, the 27th. An issue truly rich in technical content, but with a pinch of general culture on bamboo, and also pseudo-philosophical reflections.

Very important: IBRA announces the establishment of an important recognition named after Gabriele Gori. Reports and applications are being collected starting today. I invite you to read the details in the general regulations that you will find attached to the article!

Another very important service communication concerns the index with interactive links of all the articles published in 17 years of life of the BJ, edited by our partner Sandro Piatti. All readers can access it from the "Articles" - "Articles List" page. The indexes can be used in both the Italian and English versions and allow easy searching of topics of interest.

I won't spend many more words: the index of this issue speaks for itself and I just want to highlight that in addition to the articles of those who are now among the loyal collaborators of our magazine, this issue hosts some important contributions from "distant" friends, but certainly close to the spirit of the Bamboo Journal and IBRA. Thanks to all the authors for wanting to share your experiences with the large rodmaker community!

The Panda

IBRA Gabriele Gori Award For Innovation

by Maurizio Cardamone

On the occasion of the annual meeting held on 25 and 26 May last at the Belgioioso Castle, the Board of Directors of the association brought to the attention of the assembly the proposal to establish an IBRA award named in memory of the late co-founder and historic president Gabriele Gori.

The proposal to establish the prize was approved unanimously by the assembly.

The "IBRA Gabriele Gori" award will be awarded annually to the Italian or foreign rodmaker, member or not of our association, who has distinguished himself for having contributed to the growth and development of the world rodmakers community, both through the introduction of new approaches, techniques, tools, or for having adapted modern theoretical or practical knowledge to the complex of rodmaking disciplines, or even for having created important opportunities for sharing knowledge and skills, which have proven relevant for the entire community.

The awarding of the Prize, which aims to constitute a prestigious recognition within the international community of rodmakers since the first edition, will be supervised by a Management Committee nominated and elected among the active IBRA members, which will collect nominations and reports in the required forms from the attached regulation starting from the promotion of the Award through publication in the Bamboo Journal, on the institutional website of the association, on the FB page.

The collection of reports ends each year at the end of December to allow the committee sufficient time for an exhaustive evaluation of the reports and for choosing the winner, who will then be announced coinciding with the spring release of the Bamboo Journal.

It is important to note that if none of the reports received meet the requirements for awarding the prize, it will not be awarded for that year.

The prize will have an important symbolic value and will consist of a golden plane for 2025, engraved with the title of the prize, the year of award and the name of the winner.

Good luck therefore to the large international community of rodmakers! We look forward to receiving many reports and don't forget to provide all the elements useful for correctly evaluating the merit of the proposals.

PRIZE RULES

1. The international IBRA Gabriele Gori award, hereinafter for brevity "the Award" is established.

2. The award is awarded annually by "IBRA Gabriele Gori" to the Italian or foreign rodmaker, whether a member of the association or not, who has distinguished himself by having contributed significantly to opening new horizons in the art of rodmaking, both through the introduction of new approaches, techniques, tools or for having adapted modern theoretical or practical knowledge to the complex of rodmaking disciplines, but also for having created important opportunities for sharing knowledge and skills, which have effectively inspired the growth and development of the entire community of rodmakers.

3. Both personal self-nominations and reports from third parties, not necessarily members of IBRA, which must refer to merits disclosed or otherwise made known in the previous year, are accepted.

4. However, only proposals or applications formally sent electronically to the address Premio@rodmakers.it will be taken into consideration. These applications must be accompanied by an explanatory text, which includes images and references useful for an exhaustive evaluation of the merit of the proposal.

5. In the year of assignment, several nominations from the same rodmaker are admitted if they refer to different elements and contents, while multiple nominations for the same content will be automatically merged.

6. The awarding of the Prize is chaired by a Management Committee (hereinafter CDG) made up of 6 members, all nominated from among IBRA members.

7. 3 members elected by the assembly are part of the CDG, as well as a member appointed by the administrative body (hereinafter ODA) from within it. The CDG is chaired by the president of IBRA and also includes the editor of the Bamboo Journal, who is responsible for coordinating the work of the committee. These works take place in person, videoconferencing, or even through collective email communications.

8. The annual meeting elects three members of the CDG from among those entitled, providing at least one additional name who can automatically take over in the event that one of the members of the CDG of the Award becomes a candidate for the award itself or due to any other impediment. The internal member of the ODA in office is also indicated.

9. The CDG takes into consideration and selects the applications received according to merit and decides by majority on the winner of the award and prepares the motivation before the annual meeting of the association.

10. If there are not sufficient requirements for any of the applications received during the year, the CDG decides not to proceed with the awarding of the prize for the current year.

11. The winner of the prize is announced on the occasion of the meeting, communicated in the Bamboo Journal and in the "Events" section of the IBRA website www.rodmakers.it.

12. Changes to this regulation can only be made by the IBRA Board of Directors, while the resolutions relating to the awarding of the Prize fall solely to the CDG whose decisions are final.

The first French Gathering in Miramas - 2008

transport along the river

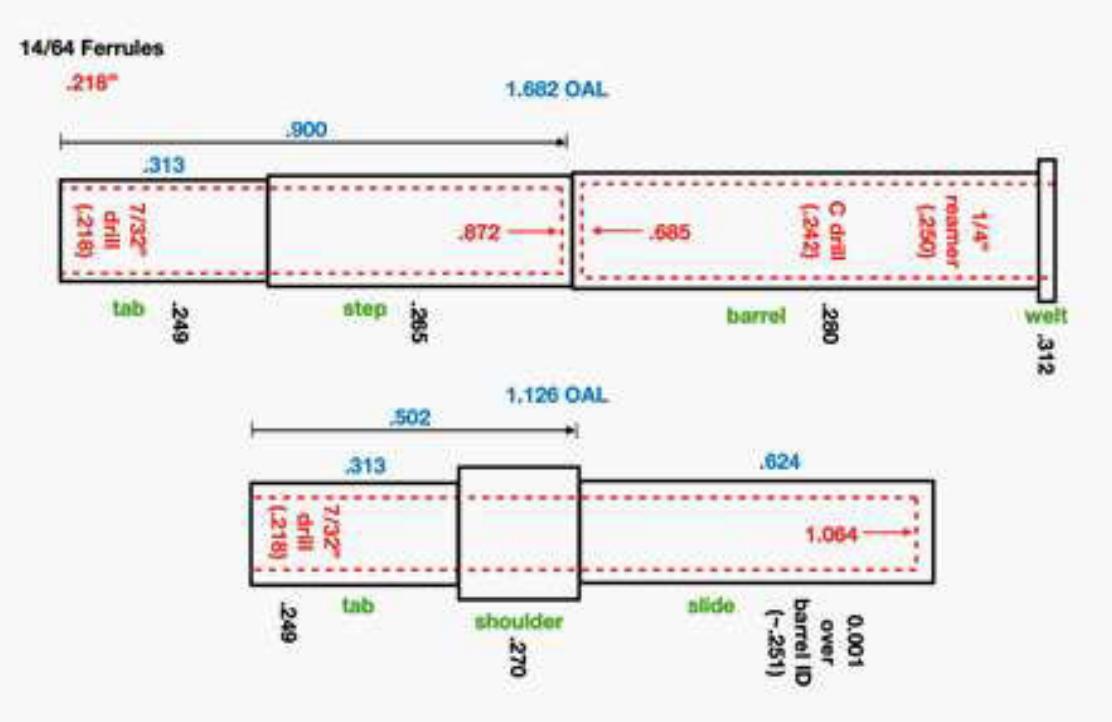
Machining Ferrules

by Mike Falduto and Tom Millar

When we started making bamboo fly rods about 6 years ago, we fairly quickly decided we wanted to make all the hardware as well. The problem was we had no lathe and little machining skills so we thought ferrules would be the last thing we would be able to figure out. As luck would have it though, we were given an old (1930s) Elgin Toolworks Precision Split-bed lathe. Fairly soon thereafter, we acquired a very similar, albeit slightly older (1920s), Elgin lathe that came with a collet set. Although very old, both these lathes had good headstocks with runout at the spindle nose well under 0.001". With some reading and video tutorials, machining instruction, kind assistance from fellow rodmakers, and some hands-on practicing and testing we were making serviceable ferrules in a few months time. In this article we thought we could de-mystify the process of making ferrules for relative novices like us by describing our process to make functional and nice looking ferrules that complement our rod builds.

We make ferrules from bar stock obtained from online sources. We've made ferrules from Nickel Silver, Duronze (Silicon Aluminum Bronze, Alloy 642), and Nickel Aluminum Bronze (Alloy 630). These metals are all available inexpensively in round bar stock in sizes 5/16" (0.312") or 3/8" (0.375") which covers the size needed for most ferrules. Nickel Aluminum Bronze is the strongest and lightest of the 3 materials but is also somewhat more difficult to machine. For all three metals we drill at the slowest speed setting on our lathe (~400 RPM) and use water-based hand lotion as lubricant. If any heat is generated, indicated by smoke/steam, the drilling feed or speed needs to be slowed down or the drill needs sharpening.

Ferrule dimensions are available online and are obviously different depending on if you are making standard, truncated, step-down, or micro length ferrules. We make all of our ferrules to dimensions that are somewhere in the range of a truncated size. No matter which style you are making, you could use this same process and order of operations to machine ferrules. So, we won't go into the exact dimensions to use but we would suggest having a working drawing similar to the one shown that indicates all the dimensions for each ferrule size you will be making. You may want to have the drill and reamer sizes indicated on this worksheet as well.



Note that the dimension drawing shows flat bottomed holes but actually they are conical due to the angle of the drill tip so all depth dimensions are measured from the tip of the drill. For drilling we use inexpensive high speed steel drills that we sharpen as necessary rather than investing in expensive drills that may break and dull anyway. Accordingly, we keep complete sets of fractional, metric, wire gauge number, and letter size drills. This allows us to drill almost any hole size required. We keep a chart next to the lathe that shows all the decimal equivalents of these sets in order from smallest to largest to make it easy to choose the drill size necessary for any operation.

A drill sharpener is one of the least glamorous, but one of the best tools we have in the shop. The difference between drilling an accurate hole with a sharpened drill compared to a dull one is like night and day. Dull bits will make drilling exceedingly difficult and will lead to excessive heat, irregular hole sizes, and can warp the ferrule. If there's any doubt about its cutting edge, we sharpen the drill before use. Holes to be drilled are started using an appropriate size center drill to prevent wandering of the larger drill.

High speed steel, straight flute, chucking reamers in ferrule size increments (1/64") are used for final accurate sizing of the female barrel. Polishing and removing machining marks in the female barrel is done with blind hole laps and 280 grit lapping compound. For facing and turning operations we use indexable 60° carbide lathe tools. Final outside turning operations are done at high speed for a good finish followed by polishing with various grit sanding sticks.

For part holding, collets are the easiest to use and provide the accuracy necessary to make consistent ferrules. Four jaw independent chucks work as well but take more time to dial in the part, but the runout can be adjusted to virtually 0 with a little patience. A 3 jaw scroll chuck can work for making ferrules as long as it has acceptable and repeatable runout somewhere in the range of less than 0.002".

To maintain concentricity between outer and inner diameters in thin wall parts it is critical that the order of operations is well thought out before beginning. Every time the part is removed and re-chucked the concentricity is compromised.

Our process attempts to minimize re-chucking and avoids holding the ferrules with mandrels which could amplify concentricity errors. Mandrels (drill blanks) are only used to support the thin wall of the tab end of the ferrule when held by the collet or chuck. Whenever possible, we use a live center in the tailstock to minimize chatter, deflection, and axial runout. When we started making ferrules, we were using drill stops to drill the hole depths but have since added a digital readout to the tail stock in the form of a modified caliper attached to the nose of the tailstock shaft. This provides a very fast method to know the precise hole depth drilled.

Finally, before machining of the male ferrule slide portion, it is critical to check and adjust the lathe feed so that there is no taper produced in the ferrule slide area. A digital micrometer accurate to one tenth of a thousandth of an inch (0.0001") is indispensable for measuring very small differences in both ends of the slide portion. Before lapping the male ferrule to final fitting, we use a Tom Morgan designed ferrule hone that should correct any small amount of taper introduced during the machining. These hones used to be produced by Lee Gomolchak at Gray Hackle Rods, until his passing in 2023. Similar external honing tools not specifically intended for ferrules may be available elsewhere. We also use a micrometer for quick measurements of progress for determining final outer dimensions as well. For checking final internal dimensions, we have 2 complete sets of pin gages that cover the range from 0.061" to 0.500" in one thousandth inch increments. A dial test indicator on a magnetic stand is also useful for checking runout or concentricity especially when dialing in a part on the 4-jaw chuck.

Below is our process. It's convenient to think in terms of 4 major steps for the female ferrules and 3 steps for the male ferrule. In this way, multiple sets of ferrules can be taken through each step as a batch without having to change the setup and gather the tools for each step. We lap our ferrules on the lathe to a snug fit but finish them up when the rod is complete. The final step is creating the slits in the tab end which can be done in various ways, so we won't go into additional detail on that step.

There are certainly other ways of making ferrules, but this works well for us with our lathe and setup. We hope this short article inspires other rodmakers to give ferrule machining a try, or for those that already machine their own ferrules, to take away some ideas that may make their process more efficient or enjoyable.

Female ferrules

Mount stock in lathe (collet) with barrel length exposed
Face the end of the rod & center drill
Drill depth of barrel with ~ 0.005" undersized drill bit
Ream barrel to final ID with reamer, chamfer inner & outer edge
Lap inside of barrel with blind hole lap & lapping compound
Measure, score, & cut off to final overall length with portable band saw

1

Reverse ferrule in lathe (collet) with enough exposed to machine to step
Face the end & center drill
Drill depth of tab end with ferrule size (#/64") drill bit
Deburr inner edge & engage the live center/tailstock
Using 60° cutter, turn step OD
Disengage the live center/tailstock & turn tab OD

2

Reverse the ferrule & mount tab (with mandrel) in collet (or 4 jaw chuck)
Engage the live center/tailstock
Using 60° cutter turn welt OD & then barrel OD
Polish with 400 grit sandpaper & sanding sticks
Smooth lip of welt & clean inside barrel with isopropanol/Q-tips
Check & note barrel ID with pin gage

3

Mount ferrule in lathe (3 jaw chuck) with tab end exposed (use tubing to protect barrel/welt)
Cut tabs at 60° increments with slitting saw in Dremel

4

1

2

3

Male Ferrules

Mount stock in lathe (collet) with more than the overall length exposed
Face the end of the rod & center-drill
Drill depth of tab end of ferrule with ferrule size (#/64") drill bit
Deburr inner edge & engage the live center/tailstock
Using 60° cutter, turn entire length to OD of shoulder, polish shoulder area
Mark shoulder-slide junction & turn OD of slide to ~0.001" over female ID
Disengage the live center/tailstock & turn tab to final OD
Measure, mark, & cut off at top of slide with portable band saw

1

Reverse the ferrule & mount tab (with mandrel) in collet (or 4 jaw chuck)
Face the end of the ferrule to final length of slide, chamfer edge
Hone slide with ferrule hone & cutting oil
Lap to fit with the female ferrule using 800-1500 grit sandpaper

2

Mount ferrule in lathe (3 jaw chuck) with tab end exposed (use tubing to protect slide)
Cut tabs at 60° increments with slitting saw in Dremel

3

1

2

3

The fumigation

General notes on bamboo, its characteristics and its strange mysteries

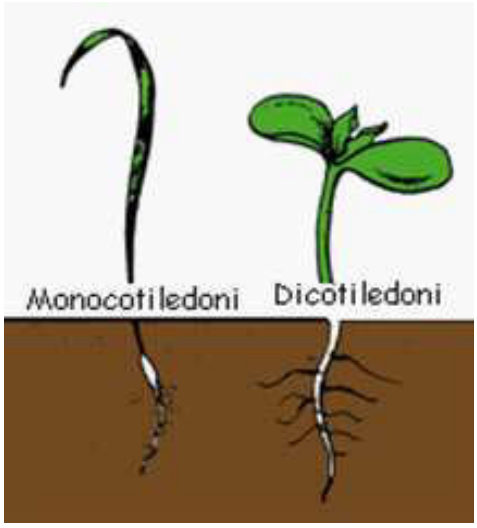
by Angelo Arnoldi

We very often talk about bamboo and even if our attention is directed practically only to Arundinaria Amabilis, loved and appreciated by us for its mechanical properties,

we must not forget that bamboo is a plant that is part of a very large family and whose characteristics can be very different when compared to those belonging to the same family and which can have curious aspects that are still not understood by botanical scholars.

Bamboo is a perennial and evergreen plant, which belongs to the division of Phanerogams, i.e. with visible reproductive organs, and to the subdivision of Angiosperms, plants with ovules enclosed in the ovary.

Angiosperms are further divided into Dicotyledons and Monocotyledons.



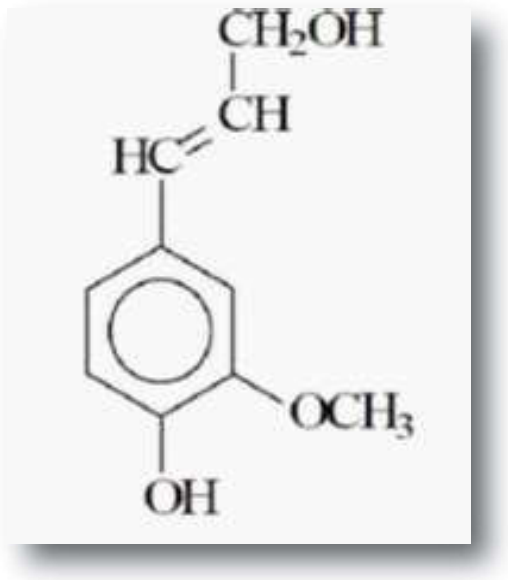
Bamboo belongs to the latter. Monocots are characterized by single growth in height, they only have the so-called primary growth, that is, growth occurs through division and differentiation of the cells of the apical meristems. Dicotyledons, on the other hand, plants such as chestnut, poplar, beech, grow in two directions, height and width, this so-called secondary growth occurs through division and differentiation of the cells of the lateral as well as apical meristems. (ref. 1)

The group of Monocotyledonous plants includes the Gramineae family, an enormous and very important family, commonly called grass.

A family that is fundamental to us, because, above all, it gives us food. It includes rice, corn, sugar cane, sorghum, barley, wheat, millet and many others.

Bamboo is also part of it; indeed, it is the most represented and numerous, but it has some

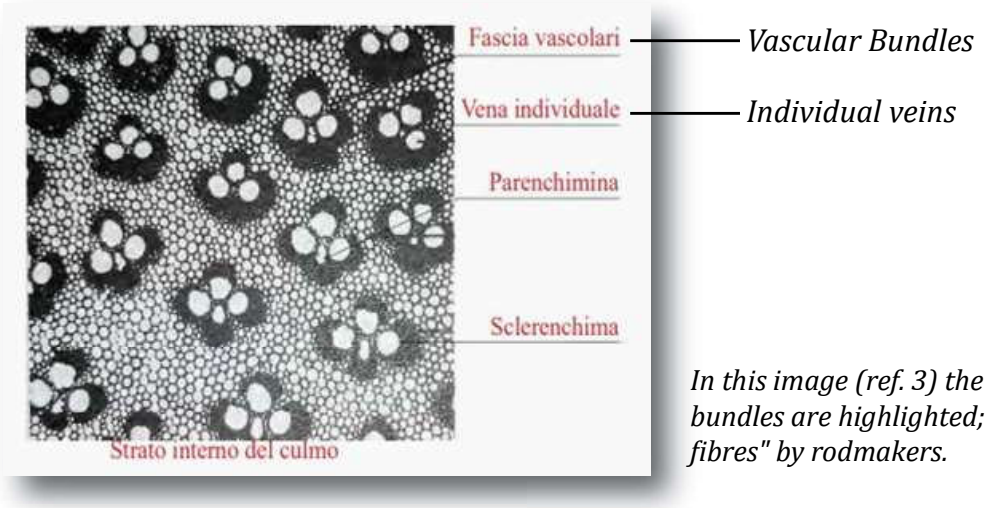
differences and characteristics, which distinguish it greatly from its "family members". The bamboo plant is long-lived, it lives for many years, it forms branches, but above all inside it there is a complex macromolecule, an organic polymer, the second most abundant polymer on earth after cellulose, which the other plants belonging to the Gramineae family, do not have, and which give bamboo its own characteristics: lignin. (ref. 2)



Phenylpropane molecule, the monomer that is repeated many times, gives rise to lignin

The name bamboo is characteristic of grasses with a tree-like or bushy shape, usually large in size, characterized by a creeping and branched rhizome, with a perennial stem and numerous branches. The stem is hollow and for this reason it is called culm. This stem in the outermost layer is smooth and very hard, both due to the high content of silica, silicon dioxide, absorbed by the soil, and for the lignin present in the cell wall of the plant.

Silica and lignin give bamboo characteristics that other grasses do not have and which make it very similar to wood.



In this image (ref. 3) the so-called vascular bundles are highlighted; they are called "power fibres" by rodmakers.

Vascular bundles are part of the plant's transport systems, called phloem and xylem from the roots, due to the difference in osmotic pressure given by the transpiration of the leaves, water and organic salts are transported to the leaves and upper part of the plant, and from the upper part they transfer nutrients, mainly sugars produced by chlorophyll photosynthesis, to the bottom. (ref. 3)

These vascular bundles are bound by lignin, which acts as a binder and filler, cellulose and hemicellulose, instead have a structural function for the cell walls, these proportions of one substance compared to another are those which will then give a structural difference between the culm of one type of bamboo compared to another, and will make us prefer a type rather than another, with which to make a fishing rod.

Unfortunately, knowing beforehand, and objectively, the quantity of power fibres, the quantity of lignin and other binders of one bamboo plant compared to another, that is, knowing its mechanical and elastic qualities, which are of great interest to us, is practically impossible.

Only an accurate observation of a sawn culm or the breakage of a strip can give some subjective information on the quantity of vascular bundles, but it must still be considered.

Keep in mind that these are not the only elements that give the characteristics we are looking for, it is a combination of many factors.

Furthermore, it is not yet clear why plants that are more or less similar in development, foliage, height and characteristics, but from different families, have even abysmal differences in the quantity and distribution of vascular bundles, which transport solutes or nutrients to the plant, as well as in the quantity of lignin present. Bamboo is a plant of many mysteries, and this is just one of many.

Native bamboo growth areas.

The main genera of bamboo are Arundinaria, Bambusa, Dendrocalamus, Melocanna, Oxytenantera and Psyllostachys.

In general, the bamboo plant is native to the tropics, in all likelihood India and Asian countries are the original countries. In Europe there are no native species, in America there is only one.

They are plants that grow in areas with high humidity, approximately between the Tropic of Cancer and the equator, with a temperature range that goes on average from 8.8 degrees C to 36 degrees C, with some exceptions: Moso bamboo can tolerate up to -10 degrees, and in the Himalayas, bamboo can be found at over 3600 meters above sea level. (ref. 4)

Now let's see some curious and very mysterious things about this plant....

Has anyone ever seen these flowers? They are bamboo flowers, and the probability that any of us has ever seen them in real life is truly negligible...

Because bamboo does not behave like other plants that open their flowers in the warmth of the morning in spring, hoping to attract pollinating insects...

Bamboo blossoms about every 40 or 60 years, some species, such as black bamboo, every 120 years, the Psyllostachys Bambusoides, the Madake, every 130 years... (ref. 5)

And among other things, the flowering of bamboo is not seen as a joyful thing, like we Westerners accustomed to the opulence of a comfortable life, might think, as the roses bloom in our garden, but on the contrary, it is considered a real calamity.

In India the flowering of the Melocanna Baccifera bamboo in 1959 triggered a famine called “mautam”. And it didn't just hit the Indian states of Assam and Arunacahl Pradesh or Manipur, or Mizoram, it also spread, with fortunately smaller effects, to regions of South East Asia, Myanmar, Laos, reaching as far as Japan, Madagascar and some areas of South America. (ref. 6)

In the Indian state of Mizoram alone, the 1959 famine caused between 10 and 15 thousand victims. (ref. 7)

The blooming of bamboo is divided by botanists into three systems: sporadic flowering, annual flowering and gregarious flowering. While the first two are of little importance since they concern only a limited number of plants, they produce sterile flowers and are usually influenced by environmental factors, drought first of all, the blooming called gregarious is the characteristic one of the bamboo plant. (ref. 8)

However, this blooming, at very long intervals, is only the beginning of the strange behaviour of this plant. When the bamboo blooms, all its plants species bloom at the same time, whatever the age of the plant, whatever its location, it blooms.

It blooms both in Africa, in China, in America, or in my home garden. All the plants of that species, whether young or old, bloom at the same time...

For the moment, no botanist has yet understood the reason for such synchronous behaviour, plants that live in different environments, grown in different soils, with different conditions different climates, with different ages, all have similar behaviour. This is obvious behaviour is written in their genes. However, why this happens is not known.

But the oddities don't end there. We all know that plants produce flowers and that these flowers will become fruits. And bamboo obviously bears fruit too.

The fruits are caryopses, tapered with apex, sometimes depending on the species, they can resemble small nuts or berries.

It makes a lot of them, and after forming the fruit, the plant dies. Indeed, all plants die, everywhere, at the same time, regardless of the place and regardless of the age of the plant, in a very short time they all die.

And even for this behaviour which recalls the fate of salmon, no explanation has yet been found. Theories that speak of strong stress for the plant to form the seeds, or others that believe that it dies to make room for the plants that will grow from the new seeds, do not find much confirmation. All plants make seeds, and all plants die at the end of their life cycle, but only bamboo has such drastic behaviour that involves all plants of a species, regardless of age and place.

This death of bamboo plants brings with it some unpleasant consequences.

For example, there are some animals that live on bamboo…

After a flowering and death of Fargesia bamboo in the 70s and 80s, 138 of these cute

pandas died of starvation. (ref. 9)

But there are also consequences that are not direct, but much more tragic to the flowering and death of bamboo…

Bamboo produces many seeds, around 85 tons per hectare. An enormous quantity, which certainly does not leave insects or other cute animals, such as the jungle rat, indifferent, which rush to take advantage of the abundance of food. There is an explosion in the number of these rodents following the flowering, many rodents, not just rats or lemmings, have a population explosion in case of an overabundance of food. The problem is that once the bamboo has run out, they turn their attention to local crops, mainly rice, destroying entire crops and starving entire rural communities. (ref. 10)

In 1959, Mizoram, a state in north-eastern India, was brought to its knees by famine following the flowering of the Melocanna Baccifera bamboo, called mautak. This bamboo covers almost the entire hilly territory of that state.

And in 2004, there was another bloom, also followed by a famine and more victims.

Obviously, such tragic events had then given rise in this state to strikes, riots, political upheavals and the birth of the Mizo National Famine Front party, which then took power. (ref. 11)

But without reaching the tragic excesses of these famines, the simultaneous death of so manyplants, leads in any case to a sum of problems that cannot be resolved quickly or easily.

In Japan, in the next few years, around 2028, we expect the flowering of Phyllostachys Nigra bamboo, the Henon variety, which is widespread in those islands and is cultivated for food as well as ornamental purposes. When it flowers and dies, it will leave a barren and desolate land, with major changes in vegetation, with dangers of soil erosion, loss of biomass and a hole in the Japanese menu... among the solutions studied, that of cutting it to prevent it from flowering, solution already adopted in many Indian states, seems to me the simplest one

However, bamboo is a plant that gives a lot to the populations of the areas in which it grows, but it does not give obviously only famine problems. It is widely used in construction, it replaces wood in many manufactured goods, it is used as fabric, in food and obviously, importantly, it is irreplaceable in rodmaking.

And it is a plant that managed to resist, perhaps unique among living beings, the highest episode of human destructive madness.

In the autumn of 1945, a bamboo plant peeked out from the earth of the crater caused by the atomic bomb dropped on Hiroshima... the enormous quantity of ionizing rays caused since the explosion, she had not been able to get over it. (ref. 12)

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12. *S. G , IL 31 Bambus/Bamboo, Stuttgart, Institut für leichte Flächentragwerke, Stuttgart, 1985, p. 46*

The images are taken from the web.

If anyone would like to delve deeper into the Mautam topic, I suggest the article by a journalist, Marina Forti, entitled: "India, bamboo will flourish and there will be hunger" (Feltrinelli), one of the few articles in Italian on the topic.

If you would like to see a service on YouTube, please note:

https://www.youtube.com/watch?v=iS_2O25vbiY

https://www.youtube.com/watch?v=avH1VIVqBdE

The flaming

EPOXY RESINS FOR FINISHING WRAPPINGS

by Davide Fiorani

Two-component epoxy resins are commonly used by fishing rod manufacturers to finish the bindings that hold the coils or single-bridge guides to the blank, creating a smooth, shiny protective surface on them.

There are now several specially formulated ones and they are normally designed to be mixed in a volume ratio of 1:1. The same brands also offer different versions, more or less viscous. By following simple general rules, they are easy to apply, obtaining excellent results both in terms of finish and mechanical seal.

Let's see what steps and precautions are necessary for their use.

Storage and mixing

Proper storage and blending techniques are key.

Regarding storage, you need to keep the epoxy at around 20°C (68°F), in a dark place and with the cap tightly closed. Even unmixed, light, heat, significant changes in temperature, oxygen and age all contribute to its degradation. When preparing the mixture, we must follow these simple criteria:

• It is important to make sure that the two components have a temperature of approximately 25°C (77°F) or slightly higher: you must not overdo it to avoid the risk of accelerating the chemical reaction. If necessary, we must therefore heat them by immersing the packages in hot water or placing them near a heat source.

• Dose a minimum quantity of product into a graduated glass, which we can quantify as a total of 5cc. If we mix a smaller quantity, we risk that even the slightest mistake on our part in the preparation could compromise good polymerization and the compound could remain sticky on the binding forever. In addition to being dosed by volume, resin and hardener can also be weighed. If their weight ratio is not reported in the instructions, it is necessary to contact the manufacturer: the specific weight of the resin is usually greater than that of the hardener. For example, the correct dosage of FlexCoat Lite Build in weight ratio for the same volume is 1g of resin per 0.84g of hardener. We recommend a minimum total quantity of 5g to obtain regular polymerization.

• Proceed to mix: how should we do it and for how long, to make sure that the two components are well mixed? It is essential to use a thin plastic stick, sometimes supplied with the resin, and mix at a moderate speed. This, together with the warm temperature of the mixture, prevents the formation of microbubbles. It is recommended to mix for a minimum of 3 minutes, performing at least 300 total turns, and periodically scrape the internal walls and bottom of the glass well. Lower product temperatures require longer mixing times and the formation of microbubbles may be unavoidable. Some resins change their transparency as they are mixed, becoming opaque and then returning transparent when ready, as in the case of the previously mentioned FlexCoat. This visual change is a useful indicator.

• At the end of mixing, spread the mixture on an aluminium sheet placed on a paper plate. According to what one manufacturer states, this last step increases the pot life of the resin compared to leaving it in the plastic cup. It basically helps dissipate heat, further reducing the reaction rate and extending processing time. If necessary, wait for any microbubbles to gradually disappear, then the resin will be ready for use.

Application and layers

The polymerization times to obtain an initial hardening to the touch and, subsequently, the final hardening may vary depending on the products: it is necessary to check them in the instructions before carrying out the application and then using the rod.

The less viscous resin versions are preferred because they ensure better yarn impregnation and uniform coverage. These epoxies are designed to have good self-levelling ability and adhere well to surfaces. Flat brushes with synthetic bristles are used to evenly spread the mixture on the bindings and the product is applied in several stages until the desired thickness is obtained. However, these must be done following a certain timescale. Generally, if you apply epoxy over the previous layer when it is not yet superficially cured, the base coat is still chemically reactive and can cure with the next layer. However, if you wait longer and the first layer has already hardened, the second will appear to be overlapping. In this case, if the surface is sanded before the second application, mechanical adhesion is promoted.

Adequate environment

Another condition to keep in mind to ensure that the epoxy cures properly is to mix and apply it in an appropriate environment.

The temperature and humidity of the working environment are important, and problems tend to arise when high humidity and low temperatures combine. Low humidity levels and maintaining temperatures above 20°C (68°F) are necessary.

Epoxy resins polymerize through an exothermic reaction: the more heat, the faster the cross-linking occurs and therefore the faster it hardens.

Safety

Whenever you mix these products, you should take some basic safety precautions.

The resins could cause contact dermatitis and therefore it is advisable to wear disposable gloves.

During mixing and application, it is important to avoid breathing the vapours. Protecting yourself with a mask equipped with an activated carbon filter, as well as keeping the environment ventilated, and wearing glasses is highly recommended.

UV Resistance

One of the most desired features in an epoxy coating of this type is UV resistance. Fishing rods are exposed to the sun: over time, UV radiation and heat can cause the resin to yellow, compromising the aesthetics of the rod. Almost all of these products are formulated with UV inhibitors. We must not be fooled by the appearance of resin and hardener in the packages.

They don't have to be transparent, because that doesn't mean they will stay that way for long. UV inhibitors are yellowish in colour and usually contained in the hardener of the epoxy, which will therefore have that appearance. However, when you mix resin and hardener, the result is practically transparent.

Conclusions

Epoxy resins offer several advantages compared to traditional paints, normally used to finish bindings in the construction of bamboo fishing rods.

The main benefits are summarized below:

• Coverage and elasticity. Epoxy resins provide excellent coverage of the bindings compared to paint, and offer adequate elasticity without being excessively rigid.

• Superior mechanical seal. These products guarantee greater mechanical strength, making the bindings more robust to stress. This is particularly appreciable for holding in position the coils of rods carrying heavy lines and for making the bindings of the female ferrules of rods with bamboo grafts more robust.

• Overall construction improvement. These products also contribute to improving the aesthetic appearance of the finishes, giving a "glossy" appearance and an extremely smooth surface to the bindings.

The planing

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 theese. Howewer, 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 perferences, 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 acquirng 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 succes.

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 Demark dedicated to making bamoo 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 souce) 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 recepies 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 irrellevant 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 quikly moving it forth and back, while turning it around its own axis, in an insulated metal tube, heated with a gas flame though a hole in the side of the metal tube.

My "oven" was build 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, castabiility 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 plaing 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 ½ 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 grove in a piece of wood, aligned with two aluminum profiles. I adjust the depth of the grove 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 grove 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

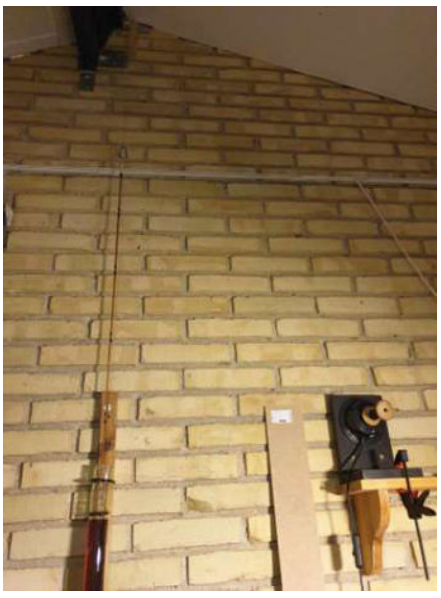
I have also made graphite ferrules.

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

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


The chrysalis

A Fast 8' Taper for Coastal Sea Trout

by Jens Dahl Mikkelsen

In Denmark, we have more than 7000 km coast line, where much of it is suited for fishing sea trout (sea run brown trout). Fishing for the sea trout is popular, and over the the last 50 years or so, fly fishing has become increasingly abundant.

The fishing is typically performed wading in the shallow water. Flies are either bait fish or shrimp patterns, typically size 2 -6. Most places, the sea trout will come quite close to the shore, and can be caught in knee deep water – or even shallower. At other times, long casts are desired in an often windy environment.

Typical Sea Trout Habitat, Helnaes, Denmark

When you cast your fly out, you may get the feeling that the ocean is so big, and your fly only fish very little of it, so fly fishers have optimized their gear over time to cast as far as possible. This means shooting heads with thin shooting lines, or short head WF lines. The standard equipment is a 8-10 foot (mostly 9 foot) fast action #6 graphite rod casting 14-16 grams shooting heads. Thus, the classification is not true to the AFTM system, but to modern WF lines with a somewhat heavier weight.

I have used this type of gear successfully as well, but I wanted to see if I could make a bamboo fly rod that would cast equally far as my graphite rod with a short head WF line, but still have the ”bamboo feeling”.

After some iterations, I have now made a couple of 8’ rods that do just this. I would like to share the taper with other rod makers, encouraging you to try make one if you need long casts in windy situations.

I use hexrod.net a lot for finding tapers, as well as analysing these and develop my own tapers. I found two promising tapers – a 7 weight 8 foot Bob Nunley salt water taper, and a Dickerson 8013 8 footer. I made both of these and tried them, and they cast very well. But I couldn’t help modifying the tapers to even better fit my desires and the intended lines.

At one point, hexrod had an experimental feature called ”Speed Index”. It has been removed again now. I don’t know why, nor the calculation behind it, but it gave a clue on how fast a taper is. Many English tapers from the past have a speed index below 1, Garrison tapers around 1, and e.g. the Dickerson 8013 has a speed index around 1,6. The taper I finally came up with I call it the ”Coastal Seat Tout” has a speed index of 1,74!

I have now made it as a solid 2-piece rod, a hollow 2-piece rod, a solid 3-piece rod, and a solid 3-piece rod with spliced connections. They do cast a little differently, and the fishing buddies who have tried casting them like them, but there is no consensus to which one is the best – casting style and personal preferences vary! Personally, I like the 2-piece solid rod the best.

The hollowing I make is of the ”bridge” type – having groves of 13 mm width separated with a small bridge. The butt has 1,7 mm wall thickness, the top 1,5 mm. The butt section is hollowed from a little bit above the handle to around 5 inches from the ferrule, and again in the top from 5 inches from the ferrule until the splits are 1,5 mm themselves. Thus, the hollowing is not so ”aggressive” as other makers describe for their rods – I want to be sure the rod can take some ”beating” (double hauling) while being fished! The hollowing only reduces weight ca. 6 g, but it does change the action slightly, which may be described as more ”crisp” compared to the solid rod. I have kept the same measures for the hollow built version as for the solid version.

The taper is as follows (unvarnished):

JDM Coastal Sea Trout 8' #6

Station (inches)	mm
0	1,88
5	2,38
10	2,77
15	3,18
20	3,56
25	3,93
30	4,26
35	4,62
40	5,03
45	5,44
50	5,80
55	6,18
60	6,60
65	7,11
70	7,59
75	8,10
80	8,64
85	9,16
90	9,16
95	9,16

The 2-piece version has a 15/64 nikkel silver ferrule and the guide placement is (cm from top of rod, assembled): 0 – 11 – 22,7 – 37,8 – 54,6 – 72,5 – 92,7 – 117,8 – 145,3 – 180,5 (stripper).

I use a 15 - 16 g short head WF line having a thin coated shooting line, as I am annoyed with shooting heads connected to very thin mono-shooting lines – the connection clicks in the guides when stripping line and casting, and it is harder to stretch the leader in the cast than with a full WF line.

I believe a rod with this taper may be useful for other species of fish as well, especially under windy conditions. Personally, I have been very successful with it when in Greenland being a fishing guide, and fishing rivers for sea run arctic char. There, it is also commonly windy, however the very long casts are not necessary, but the taper is fine for fighting the fish, which are most often in the 1-4 kg range, similar to the sea trout in Denmark.

If you make a rod with this taper, I would like to hear your thoughts and what you use it for.

You can contact me at jens_dm@yahoo.dk.

Coastal Sea Trout rods.
From right:
2-piece solid,
2-piece hollow,
3-piece solid w. ferrules,
3-piece solid w. splices

The finished rod

The rodmaker's paradox... in the third millennium

by Giorgio Grondona

Here I am again!!!

After the break from the previous B.J. issue I would like to ask you: “Have you eagerly browsed through issue 26 and not having found me, you were deeply disappointed and you avoided reading the other articles?!!! Did you miss me?!!!”

You don't have to feel embarrassed; I avoid the uncomfortable question. It's almost certain, in fact very certain, that the only one who, perhaps, noticed that my "lines" were missing was our editor, if only because he was missing them during the layout; a few pages!!!

After the "dutiful" initial preamble I can delve into the "reflection" for the 27th issue of the Bamboo Journal, the warning is always the same: "If you are looking for some innovative ideas to improve your rodmaking, move on... do it peacefully.... I'm not offended!!!"

Let's start from the event that I.B.R.A. organized: The Bamboo Rod Show on 25 and 26 November 2023, the location chosen for the occasion, the Hotel Melià in Milan, proved to be excellent in every aspect and the work of those who conceived, organized and took care of the two days dedicated to bamboo fishing rods (I will return to this "detail"), produced an excellent event... but I am sure that someone will speak in a complete and exhaustive way about the I.B.R.A. Bamboo Rod Show, this poor donkey will try to tell you what he brought home... thoughts and sensations...

The first impact was pure wonder: seeing how everything had been planned and organized by people who, although animated by enthusiasm, not being physically close to the location had to take on "direct" contacts, inspections, supplies of materials, etc. wonder? No!!!

Simply the I.B.R.A. Style!!!

I had been missing appointments for some time and being able, at least in the final stage of the setup, to collaborate actively gave me the opportunity to re-establish that direct relationship which makes sharing a passion like ours even more pleasant.

The opening hours to the public immediately put the organizers in a good mood, the Hotel Melià is certainly a structure that lends itself magnificently to an event such as the Bamboo Rod Show, as demonstrated by the fact that on the same days it hosted the annual Show / Gathering of knife makers who have been meeting there for years but, it should be remembered, that it is in any case in a metropolis like Milan, a city with rhythms, traffic and spaces that we are not all used to, nevertheless there has been no shortage of visitors from the beginning .

Several groups formed between the tables, the rodmakers illustrated with patience and passion the fruit of their work, I in turn went around the exhibition hall trying to listen to the questions of people who, from memory, were unknown to me and therefore I imagined (hoping to not be mistaken) curious about fishing with a bamboo rod.

It is undeniable that the work of many Italian and foreign rodmakers is of a very high level and the rods on display, considering the finish, attention to detail and presentation, were truly excellent, I'm talking about the recently produced rods, for the "vintage" section the same (personal) consideration applies with greater personal “esteem” for the latter!!!

Let no one think that I don't appreciate the fruit of the effort that goes into the creation of any rod, whether short or long, single-handed or D.H., fly or spinning, fresh or salt water, my preference for fishing rods The era arises from the fact that, perhaps not all those on display, are rods that have been fished because they are fishing rods!!!!!

On the fact that after wooden (woody) rods and before the advent of fiberglass (before) and carbon fibre (immediately after) bamboo rods have "accompanied" every freshwater and sea fisherman when fishing for more than a century we should all have agreed, but perhaps it escapes many that this is no longer the case today... and the material with which the rods are made is not the culprit.

Let's focus on fishing with artificial flies or, if you prefer, fly fishing, let's focus even more and do it with bamboo rods... who or rather how many of those who practice fake fly fishing usually use a bamboo rod?!!!

When we talk about fishing with the fly and we refer to fishing in general, obviously talking about sport fishing, we state that the practitioners are numerically inferior compared to other techniques, we could define ourselves as a niche and who among the fly-fisherman use bamboo rods are still, always numerically inferior... a niche within a niche!!!!!

And in the niche of the niche, how many people actually go fishing?!!!

For this poor donkey, going fishing means going on water, river, lake or sea with a certain continuity throughout the year with the aim of catching fish!!!

Even though I am a donkey, I like the company of you humans, I like your ways of meeting, I like your "themed gatherings". I remember that a few years ago I took part in an "evening" where we talked about Astronomy, organized by a group of enthusiasts of this subject. I remember a definition from that evening that I particularly liked:

“Water, in liquid form, on the surface...this makes planet Earth a habitable planet!!!

Nice definition, at least for me, but, always for me...insufficient.

Water, in liquid form, on the surface, inhabited by life forms including... fish!!!

Here is the definition that I consider complete, so planet Earth would not only be habitable... but also FISHABLE!!!

As always, after writing a few lines, I wonder if these lines will be read by anyone. Let's pretend so and if so, I imagine the reader's amazed expression:

“What is more normal than fish living in water?!!!

It was certainly "normal" for a long time, now it's no longer like that and EVERYONE (yes EVERYONE... without exception) knows it well, those who were at the Melià with whom I spoke about the fishing trips we take, few of them, less and less and almost always far away and more and more often disappointing, someone will have noticed that I talk little about rods despite being among rodmakers, I talk about it (braying???) but to get into the topic of fishing because...we should build fishing rods!! !

How many are those who can say that the rods they build have passed, perhaps even through different hands who have used them for hours, days, months, years in different situations and contexts with different climates in order to have "data" on which to base continue their rodmaking as they have done up to that point or make some changes?!!!

The time has come to give you my (very personal/"very ass") conception of a fishing rod: to fish with an artificial dry, wet or nymph fly, it must first of all be reliable and long-lasting, it must be perfectly suited to the characteristics and needs of the fisherman who will use it and who, after days of fishing, will not experience fatigue or, worse, pain in the limb that operates the rod and in the back. It must also be well finished so as to be beautiful!!!

Regarding beauty, it must always be considered that it is a subjective "value", influenced by details that have little or nothing to do with ease of use and durability.

I don't think I've "brayed" any weird things, the weirdness is, unfortunately, that we've been reduced to building bamboo rods for "virtual" fishing. We spend hours admiring and weighing, almost always without even mounting a reel, rods that have (almost) never been fished. When things go well, we gather in an open space, lawn or car park: in this case the only difference is that on the grass the line "suffers" less than on the concrete or asphalt of a car park. In the most fortunate circumstances, the clearing gives way to a tank with water where at least the friction of the liquid element on the line comes into play.

I am optimistic: I have seen nature recover after being heavily offended by natural disasters or human-caused disasters, now I fear I no longer have time to wait for the waters of almost the entire world to recover.

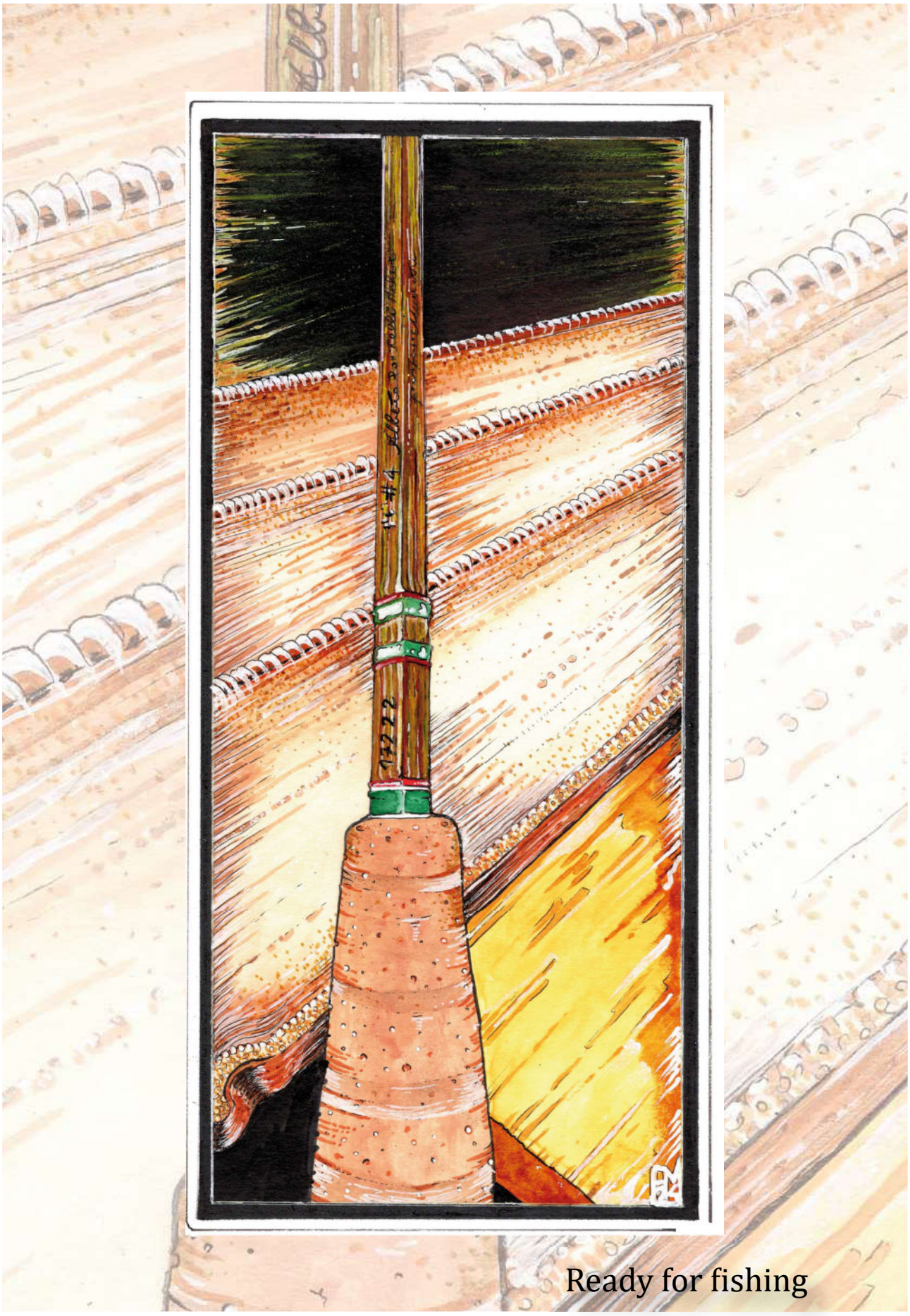
Travelling thousands of kilometres to reach Italian or foreign rivers which in most cases host at most a few incoming fish makes me sad.

At Melià, I repeat, wonderful rods were on display, the result of careful planning. If there had been a way to "cast" them we would certainly have had the opportunity to understand that, at least for the casting question, the objective had been achieved, but we will hardly ever know. if those "wonders" are also wonderful fishing machines as many of the rods that were exhibited in the "Vintage" section certainly were!!!!!

Here's the paradox: continually trying to improve without having the chance to test (continuously) the fruit of so much effort.

I hope I haven't saddened anyone, once again I would like to point out that this is just my personal thought, I'm sure I haven't affected the enthusiasm of those who aren't "satisfied" in the slightest because as always:

"Donkey braying doesn't rise to heaven"!!!



Ready for fishing

Glimpses on a minor rod making technique

by Marzio Giglio

1. Introduction

It is possible that some of you have already read some of my articles in the past ("The Former Beam Method Revisited", BJ 13 page 37 and BJ 15 page 81) on the attempts to resurrect a very ancient and practically unknown construction technique: that of the Former Beam. The first construction technique that I saw with my own eyes, and touched with my own hands, during my fishing trip in Scotland, in Brora, in Rob Wilson's shop. Absolutely by chance. Before the appearance of Carmichael and Garrison's book. When there was no Internet and it was completely unclear how the hell tapered bamboo strips could be made, which then glued together to form a bamboo fly rod.

Now I finally knew that at least there was a method and it was conceptually very simple.

A few years later the famous book by Carmichael and Garrison was released which revealed to the world all the arcane of the planing form technique.

A shock! A deluge of details explained in detail. It was impossible not to be attracted by it and I, like almost everyone else, followed that path.

But the memory of that first rudimentary technique has always remained in my head, and at the same time a sort of moral obligation to try to improve it so as to make it practically usable with profit.

Because, if you look carefully, the technique offers priceless advantages.

The bamboo is planed while glued to a tapered seat according to the chosen taper. It cannot move under the plane. Cannot budge. It can't get up. You don't have to press it against an edge, in fact it is forced to adhere perfectly to the track, even where the fibres are twisted, such as on nodes. And the finish with the plane becomes unbeatable. Why don't you plan a thin strip. You are planing the edge of a heavy laboratory table. If you have one, try it!

And then if the planed surface ultimately needs to be flush within a thousandth of an inch of a reference surface, you don't need to measure. You can appreciate it by eye using a ruler with a bevelled edge. You plane, you look, you decide... another planing stroke, but lighter... you look... that's it. Instant feedback, while you plane!

This work describes recent important improvements in the construction procedure obtained in the last year. In particular, a new former built by gluing together pieces of melamine-faced chipboard already cut to size. The one for making kitchen cabinets. And which has a hard and flat surface, ideal as a surface for sliding the sole of a plane onto, but always keeping the muzzle of the blade above the bamboo strip, but outside the laminated surface. Improvements that greatly simplify the procedures and construction of the necessary "do it yourself" instrumentation.

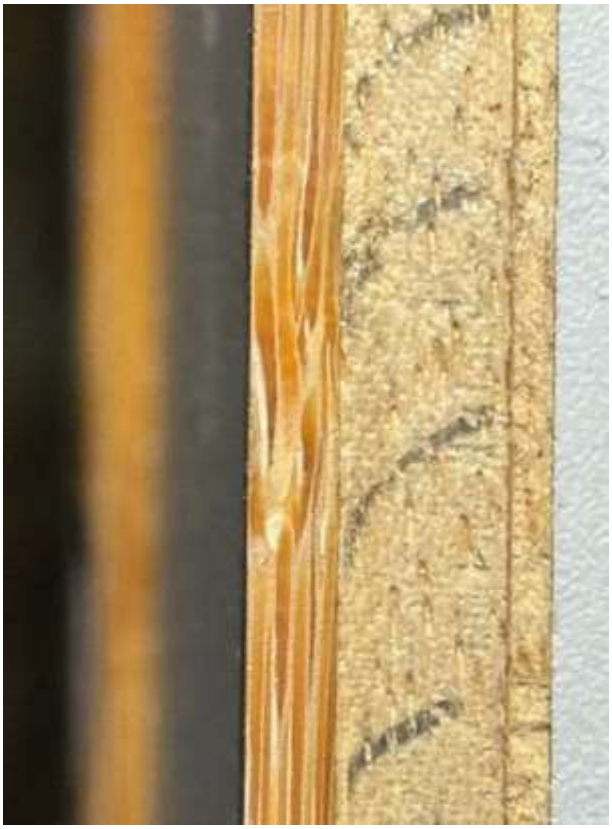
I believe it is the most basic and economical technique that exists, but now accurate enough to be of particular interest to the growing number of people interested in two-handed bamboo rods. And for those (like me) who insist on building square rods, but with an almost natural curved enamel side, very respected power fibres!

Before closing this introduction, I take the liberty of showing you two pairs of photos that I find summarize the main points on which the technique is based.

In the first pair of images, I show the thread of light that passes between the bevelled edge of a precision ruler and the surface of laminated chipboard.

In fig. 1.1 The light thread is extremely thin and granular due to the embossing of the surface. Embossing which is very useful because if you see it, it means that the blade is exactly flush, that is, it only touches the peaks of the embossing. An excellent way to establish zero.

This image must be compared with the following one (fig. 1.2) where instead a narrow strip of "Spanish paper" 1000th of an inch thick has been interposed. The comparison shows how the simple use of the bevelled edge cue allows you to appreciate misalignments of the order of a 1000th of an inch. Quickly, without having to remove the strip to measure it.



In the second pair of images, I show (fig.1.3) the plane used during the last passes, with thin shavings produced mainly on one side. Obtained using an innovative planing technique: skewed plane and with skewed blade protrusion. With this you obtain transparent chips less than 1/1000 inch thick.

The second image (fig. 1.4) shows the cleanliness of the last planing on a node.

2. A historical image. The technique, in short, as it was.

For readers who know nothing about the former beam technique, I consider it useful to give some brief indications starting from a historical image that I borrow from a 1952 book written by one of the most representative figures in the world of rod making at the time: Richard Walker.

The sequence of images shows the use of the technique for the creation of hexagonal rods.

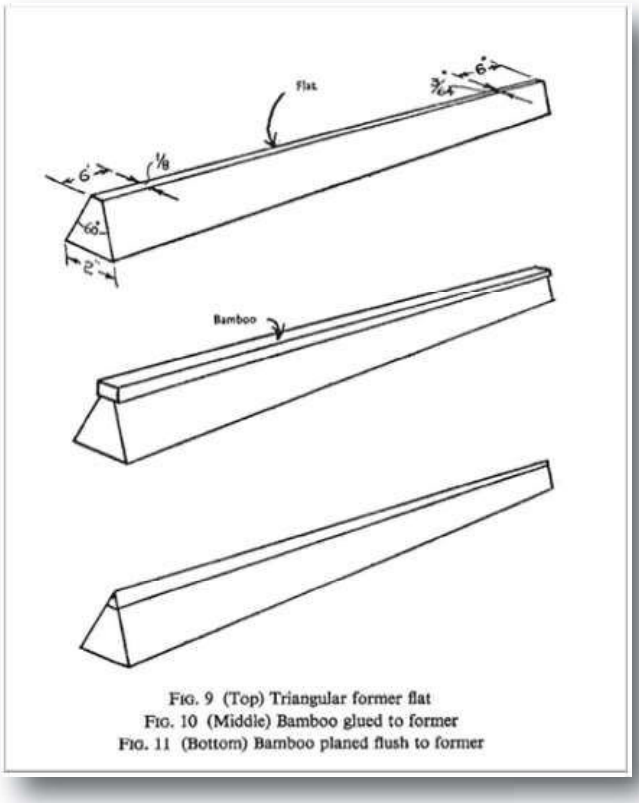


FIG. 9 (Top) Triangular former flat
FIG. 10 (Middle) Bamboo glued to former
FIG. 11 (Bottom) Bamboo planed flush to former

As shown in the figure above, we start with the construction of a wooden bar of triangular section with equal angles. Only the top edge is planed flat but with a variation in width and height that replicates the dimensions according to a chosen taper. Moving on to the intermediate figure, you can see how the bamboo strip, rough-hewn and rectangular in shape, is glued to the plane of the flat-planed corner using animal glues, i.e. reversible glues.

Note how the external part of the bamboo strip has been made flat so as to guarantee bonding in ideal conditions. Consequently, the strip protrudes outside the flat track.

The final planing is shown in the last figure below. The strip is planed so that the two faces that form the apex become exactly coplanar with the faces of the Former Beam.

We have rebuilt the top of the bar, but now it is no longer made of wood but of bamboo!

Not shown in the figures is the last necessary operation, namely the detachment of the bamboo strip using steam and heat.

The diagram just shown is in its most basic form which provided for only one strip to be generated at a time and the name "former beam" comes from the fact that that bar was a kind of stencil that generated identical strips.

I remember reading in some manual from 70 years ago that the procedure, decidedly for a hobbyist, was as follows: in the evening we began by planing the rough-hewn strip glued the evening before. Then detaching it from the former which was washed with hot water. And finally, the rough-hewn strip was glued for the next day. It indicated the time needed: two hours!

3. The construction of the new former

The construction begins with a visit to a shop where they sell melamine chipboard and can cut the required pieces to size. I suggest choosing thicknesses of eight or better 10 mm. For a first test I suggest making a short former which is good for very short two-piece rods or three-piece rods, let's say a 1m long former.

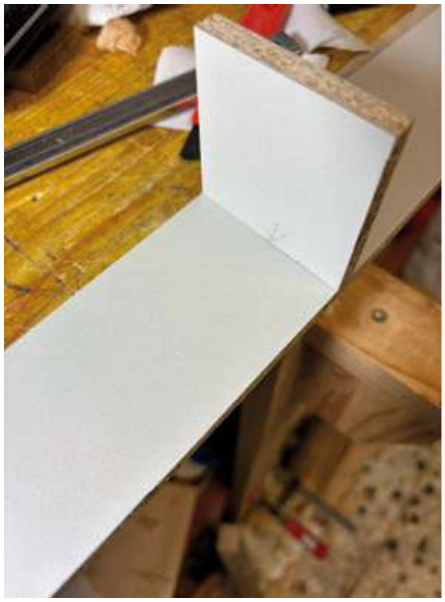
I therefore recommend cutting six strips 60 mm wide and 1 meter long. Four of these will be used to make the four faces of the former. Keep one strip in reserve; have the other, the sixth, cut into pieces, with the same cutting setting, so as to obtain six-eight square frames with 60 mm sides.

In fig. 3.1 and 3.2 show both the stripes and the square ordinates.

Arrange one of the strips on a reasonably accurate work surface and using epoxy glue and glue the strips, one at a time (fig. 3.3 and 3.4).

Position them vertically and taking advantage of the fact that they have a fairly wide base, taking great care that the edges of the ordinates coincide with those of the base strip.

It is very important that the glue thickness goes almost to zero by moving the frames back and forth and pressing in such a way that the irregular surface of the chipboard literally rubs against the melamine surface.



Use all the time necessary by taking advantage of the only opportunity you have to glue the frames one at a time!

The quality of the work depends significantly on how accurate this first phase is because the other three strips will be glued onto the other three sides one at a time, but against all the orders, in one go. See fig. 3.5 and fig. 3.6.

Since the strips have exactly the same width as the ordinates, you will end up with a square bar where however there are four 10 x 10 mm edges still free. To these you will glue 10 x 10 mm strips of obeche (fig. 3.7).

Obeche is a reasonably compact, light, stable and very homogeneous wood. ideal for being planed with precision.

The choice of this material is strategic because on these strips the four taper tracks will be obtained to be planed with a small curved luthier's plane, with a radius of 25 mm shown in fig. 3.8 together with its twin, with flat sole.

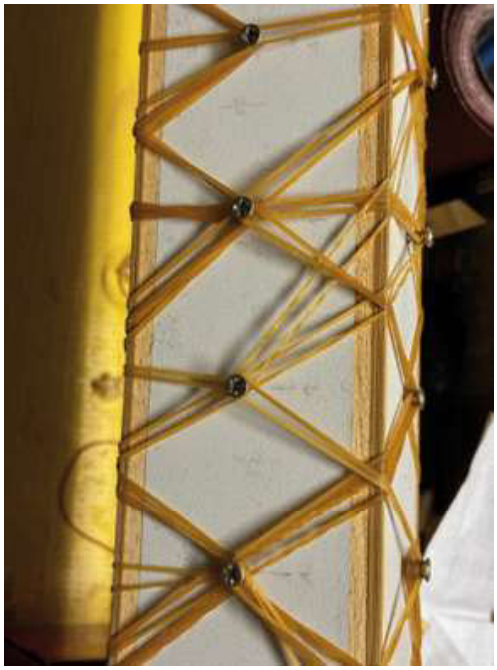
Obviously, this planing cannot be done by hand in any way. A special guide is required to mount the curved plane and keep it well centred in order to maintain perfect symmetry. The rail is constructed in mahogany and birch plywood, and is shown in fig. 3.9. Both the guide and the planer are extensively described in the work on Bamboo Journal no. 15, page. 81, to which I refer for brevity

However, I want to take advantage of this opportunity to introduce here some topics never detailed in previous works and concerning the advantages of digging concave taper tracks. I have received comments on the pointlessness of having to worry about this detail: much more appropriate to plane the external surfaces of the bamboo flat, and make the taper slopes flat without getting lost in useless aestheticism. I don't share this opinion. There is a rational reason it is clearly more advantageous to make concave tracks.

I often read that those who plane and make square rods often complain about imperfections on the sharp 45° corner. Conversely, if you dig the curved tracks and especially where the diameter is conspicuous like just above the handle (where everyone turns their gaze and from there, they will evaluate the quality of your rod) the acute angle increases there by even more than 10° and consequently the angle at the sharp edge becomes greater than 55 degrees. Consequently, when the four strips are assembled, the angle on the corners instead of being 90° becomes 110°. Therefore, substantial benefits both for the integrity of the edge of the single strip and advantages in the binding and gluing phase.

I would also add that the guide slides astride the dihedral formed by two faces of laminated chipboard and is designed to carve out a curved slot of a constant depth, which can be set as desired. A hollow level!

For a chosen rod section, the depth corresponds to the maximum value of the half diameter. Example: for a butt, it is the half diameter under the corks. I anticipate that the shim packs are used to raise the plane to form the taper. For the butt, the two packs have maximum thickness at the ferrule.



The construction of the former is almost complete. I suggest drilling a series of 2.5 mm holes, one every 2" roughly in the centre of each of the strips (see fig. 3.10). These holes will be used to screw in 3.5 mm diameter countersunk head wood screws. They will be used to tie rubber bands, of the office type, to glue the bamboo strips with very diluted animal glue (fig. 3.11).

The carpentry work ends with the construction of some system to support this bar at the ends in the two positions, i.e. with the faces vertically and horizontally but also in the other position, i.e. with the diagonals vertically or horizontally.

This is the orientation you will need to use to dig the taper tracks, always positioning the track you are working on at the top. And it is also the orientation that you will have to use during the gluing phases of one strip at a time onto its cylindrical groove using isinglass. Gluing one strip at a time by tying it with its elastic bands is the right way to proceed because gluing with animal glues must be done quickly. In fig. 3.12 I show two supports suitable for this purpose.

A few additional words on the use of this former. The chipboard box structure can be used many times. The obeche slats on the other hand must be replaced every time.

The obeche edge on the bamboo strip must be removed by making a 45-degree cut, with a Japanese Rioba type saw and using an appropriate guide to block the cutting plane using permanent magnets that can be adjusted in order to maintain the angle. Saw and guide are shown in fig. 3.13.

The bamboo strip and its “obeche peel” are then separated with steam and boiling water. The decision to use this Gordian cut guarantees that the structure of the former is not disturbed in any way by operations involving water and heat which in the long run can distort the structure.

Therefore, after the first use there is a residue of the strip which must be regularized using an economical plane like the one shown in the fig. 3.14

The plane has a 45° edge and allows you to prepare a clean and uniform 45° surface on which a new strip of sacrificial obeche will be glued. This second time, like other subsequent ones, it is best to glue the new strip at 45° as shown in fig. 3.15, which will then be planed to recreate an edge and start again with another taper track excavation.

4. the excavation of the taper slopes. The new thickness packages (the stairways)

Almost everything I will say in this paragraph is contained in previous articles already published in the Bamboo Journal. I decided to write it anyway because it contains important innovations that make good use of the cleaning of melamine surfaces.

The big news was the discovery of technically very sophisticated tapes produced by 3M for masking when varnishing cars. Their peculiarity is that they can be detached and reattached an infinite number of times if the surfaces are perfectly clean. And this is possible because with each detachment no glue material remains on the surfaces themselves. Rummaging in a stationery shop, I discover adhesive tapes in different colours, and I discover that they have the same properties as 3M tapes. I show them in fig.4.1.

Tried! After a hundred attachments and a hundred removals, as good as at the beginning. Perfect for use on melamine sheets from which they must never be detached except for the short period of transposition from one sheet to another! Modestly priced, very easy to use. Certainly not created with such controlled thicknesses as those of 3M. Small differences of a few percent between spool and spool. Thickness 4 thousandths of an inch.

Therefore, a single strip placed on one of the melamine faces at 45° forces the guide that holds the luthier's plane to move upwards by approximately 2.8 thousandths of an inch, and an equal movement horizontally. This is the reason the shim packages must be placed on both faces that define the dihedral, almost completely eliminating the total horizontal displacement.

There is a procedure that allows you to design the "master" for the construction of the thickness packages. A strip of cardboard with a sequence of alternating-coloured lines indicating the distances between the edges of the various glued tapes used to create a section of rod with the desired taper. It has already been described in one of my works in the Bamboo Journal and for brevity it will not be repeated here.

I show in fig.4.2 the two shim packages for a tip, seen from the tiptop side. The packages are arranged on both sides near the obeche strip on which the taper track is to be made. On the right, thrown there somehow you can see the master that was used to create the two packages; each transition from yellow to red corresponds to the edges of the tapes which must be applied on one side while each transition from red to yellow corresponds to those on the opposite side.

In the construction of the two packages, the ribbons all start from the tip and go towards the ferrule, becoming increasingly shorter. As a result of the tip top, the maximum thickness is reached for both packages, because it is there that the depth of the excavation must be minimum.

Precision: despite the rudimentary nature of the method, the results are really very good. the differences in depths of the four quarries at the same station fluctuate with an error typically better than plus or minus 1/1000 of an inch.

Processing times: the slots are typically generated in about twenty passes and require a few minutes each. Of all the operations that are necessary, the excavation of the taper slopes is the one that has created the least number of problems.

I conclude by showing the technique for measuring the depth of a hollow (fig. 4.3). The measurement is performed with a Mitutoyo dial gauge which palpates the depth of the hollow using a small wheel that rolls on the bottom of the concave excavation (not shown in the figure).

Symmetry;

How symmetrical are the slots? A crude evaluation is possible with the method visible in fig. 4.4: tentatively I would say that the axis of symmetry does not even rotate plus/minus one degree.

5. Planing

In this paragraph I will talk about the various planing phases. These include preliminary planing where the problem is to remove a lot of material, but in an orderly manner. I'll talk about these at the end.

By reversing the order, I first want to focus on the most complicated problem, that of the final planing, where the goal is "one mil accuracy".

Returning to the figure in the introduction, the one taken from Walker's book, the conceptual scheme of the technique is truly very simple. A strip in three shots! But one of these is anything but trivial: planing the two faces of the strip exactly co-planar with the two faces of the corner: right up to there and exactly up to there, but no further! Because you could ruin the “mould”!

To solve this problem, I have developed a planing technique that I call "double skew". It consists of moving the plane while keeping the body of the plane at an angle to the planing direction.

The second "skew" refers to the protrusion of the blade from the sole which comes out skewed: if you plane the strip on the right, the maximum protrusion will be on the right edge of the blade. And vice versa for the left.

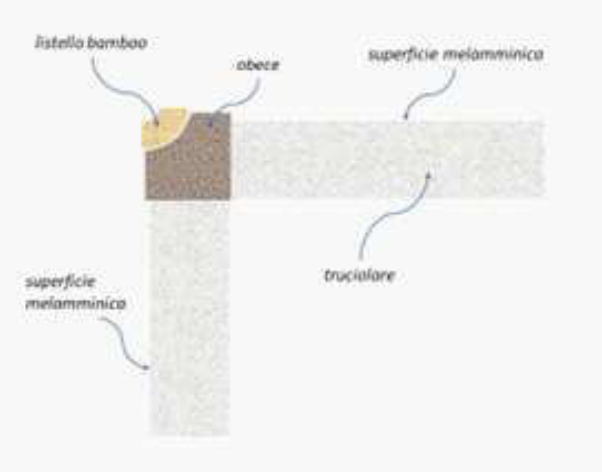
In figure 5.1 you see a Veritas block plane in this position, skewed and with very fine composite chips (bamboo and obeche) coming out only on the right side of the throat.

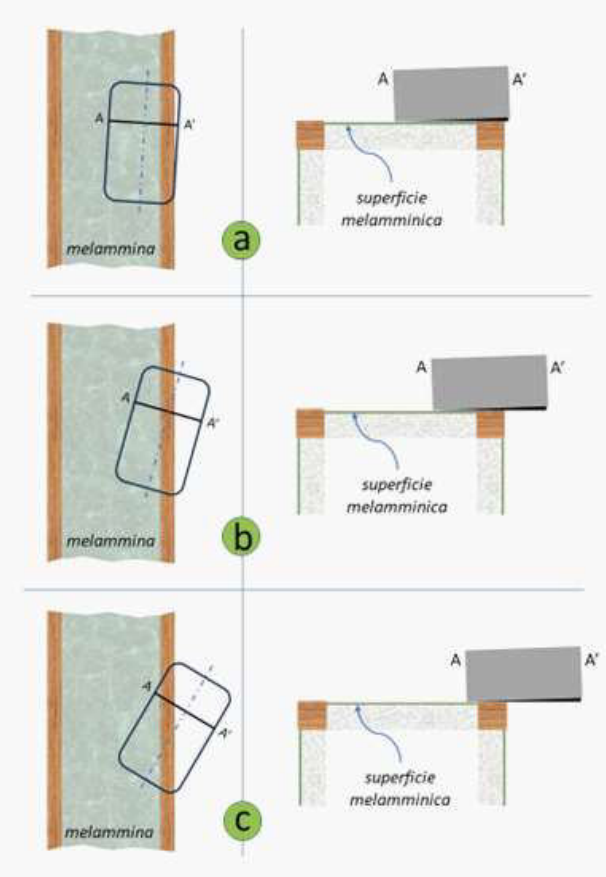
The protrusion is very small indeed, a couple of thousandths of an inch, and diminishes to zero near the opposite end of the throat.

The aim we want to achieve is to have the possibility of changing the thickness of the chip from a few 1000º of an inch to a fluff of impalpable thickness. Simply moving the plane to the side changing the contact point between the blade and the bamboo strip as shown in fig.5.2

Even in this fine planing, the edge of the plane opposite to that of the bamboo strip is kept in contact with the melamine surface. You must always plan on the same side and try to keep the residual thickness to be planed as uniform as possible.

he evaluation of the thickness still to be removed is obtained by lowering one edge of the reference ruler onto the polyamide surface and lowering the other until it intercepts the surface of the face of the bamboo strip, and illuminating appropriately with an LED torch. A very thin luminous line forms between the edge of the blade and the surface of the strip. The criterion is to choose a cutting depth that is approximately half that observed.





In the last passes it is also a good idea to move the plane body to the side as well as rotate it. This is to bring the area where the plane does not cut to the line that divides the melamine surface from the obeche strip.

I guarantee you that you will notice when you reach that condition because at this point the blade begins to dent the right edge of the melamine surface. A very clear signal will be the variation in noise produced by the planer, and the increase in resistance to pushing it.

Stop there: you have achieved almost exactly what you wanted to achieve: the planed bamboo strip face almost coplanar with the melamine surface. Actually, slightly lower but by a fraction of a thousandth of an inch. That's fine.

How to adjust the skew of the blade.

At first glance it seems like a difficult problem but it is not at all if you follow the procedure indicated here.

Everything you need is shown in fig.5.3. A small piece of soft wood, a very small goldsmith's hammer, and a gauge for objectively determining the protrusion of the blade. A small sample of Spanish paper, with a bright colour tail (it always gets lost!) of one thousandth of an inch, a cash receipt (2 thousandths of an inch). And the block plane, with a red mark where to hit. In the centre is the line for planetary control already introduced in the presentation. With ridiculously high precision, about three microns. The most accurate and perhaps most used tool after the plane.

Bring out the cutting edge of the blade so as to obtain even and very thin chips, about a couple of thousandths of an inch. I am not a fan of the Norris scheme for angular adjustment and I much prefer to tap with a small hammer on the tail of the blade, at the point indicated by the red sticker, on one side or the other in order to introduce a variation in the thickness of the chip from zero near one of the edges and about one thousandth of an inch (one thousandth and a half) on the other side. In the approach phases it is very convenient to test the protrusion in the various points by simply holding the plane upside down with one hand and rubbing the small piece of wood along the grain. This will be very useful to check where the blade stops protruding.

Adjust the maximum protrusion to be a thousandth of an inch at most. Less is better. very easy operation with the gauge, which also has a scale in hundredths of a millimetre. Finally, tighten the blade well with the knurled disc

Some important observations.

As a consequence of the small angular variation imposed compared to a melamine face. and taking into account that the other face will also undergo this variation, it follows that the angle at the top of the strip will be slightly increased compared to 90°. All things considered we are talking about one or two 1000's of radians. Very little, but keep in mind that 1° is 17 milliradians.

Everyone who owns a Morgan Hand Mill knows that using a 92° vertex angle for the squares is necessary to bring about changes to the height of a taper by approximately 4%. It follows that since in our case the increase in angle is 10 times lower, I don't think any correction to the tapers is necessary.

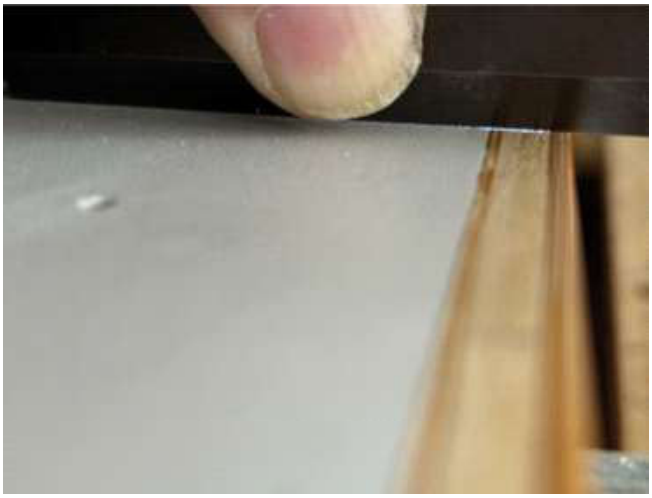
Conversely, this technique could be used to impose more important variations in the increased angle at the vertex, possibly intermediate compared to those of the Morgan Hand Mill and therefore partially exploit the undeniable advantages of a slight increase in the angles. One of many ideas for the future. Seems promising!!

Train before trying directly on the former. All you need is a strip of obeche glued next to a piece of melamine-faced chipboard so that it protrudes a little above the surface of the melamine sheet.

Examples of pieces to practice on in fig 5.4. And also, an example of a successful test planing in fig.5.5.

In figure 5.6 the same test is shown, but in the case of a bamboo strip, i.e. in actual working conditions, how the test with the bevelled edge ruler appears in the case in which the bamboo strip has been planed on the same plane as that of the melamine surface.

Note the small scratch on the edge of the melamine surface, where a little light passes through for a small stretch. But the edge of the ruler touches very well simultaneously on the reference melamine sheet and on the face of the planed strip.



In reality, once you evaluate that the two faces on the two sides of the melamine surface lie on the same plane, and this happens for all four faces, the game is over. We know that the four strips will close perfectly. Anyway! Although the angles vary a bit around 90° along the former, the crucial point is that at any station, one section through the corner, the eight planed faces are on a quadrilateral.

Consequently, by geometry, the sum of the angles must be close to 360° degrees. An unbeatable argument. In conclusion, the validation comes precisely from these qualitative observations made with the rounded edge ruler. Truly the basic tool. Beautifully analogy.

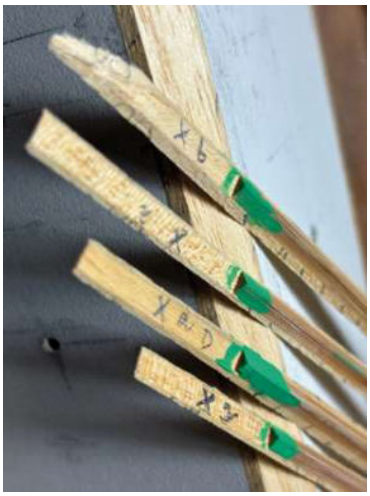
A few words about rough planing. I recommend considering using two-handed bench planes of the Bailey type with some small modifications. I would bring the attack angle from 45° to 57° with a back bevel of 12°. increasing the bevel (rake angle) from 25° degrees to 28°. With these modifications the included angle of the blade increases by 15° and therefore the sharpness of the blades is much more durable and is perfectly suitable for planing on bamboo strips.

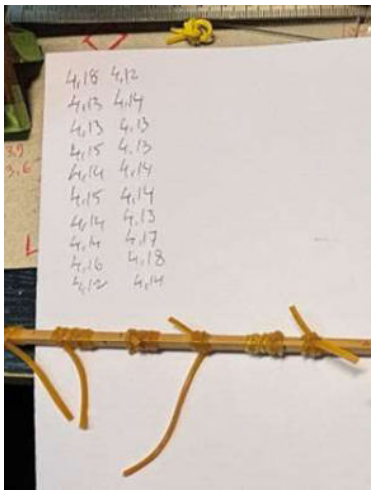
In figure 5.7 we see a Bailey 4.5 in action. Note that during planing the edge of the sole opposite to that of the bamboo is kept in contact with the melamine surface thus allowing a very orderly removal of strips all of the same thickness. With four or five planes you remove 1 mm of thickness! In figure 5.8 I show a set of very regular chips planed from an obeche strip.

First tests of planing bamboo slats.

I show the first tests carried out on four level strips of reduced length.

In figure 5.9 I show the strips just sawn off the former and with the stop of the obeche corner attached. Note the concavity of the tracks to which bamboo strips are glued. In figure 5.10 we see the four bamboo strips tied with office rubber bands. They are placed on a piece of paper with the first ten measurements of the two diameters written down. In millimetres. These are the first measurements ever made and I must admit that they are certainly no worse than the best results obtained with a planing form.





There still remains some way to go.

In closing, I would like to thank the friends at IBRA who have lent an ear during this journey into unmapped terrain. Among these are Alberto Poratelli, Giovanni Nese, Paolo Zetti, Davide Fiorani. Thanks also to Maurizio Cardamone for his help in writing.

Thanks also to Edward Barder for his encouragement and valuable information on the history of the Former Beam. And thanks to Peter Behan, who took me to Brora.

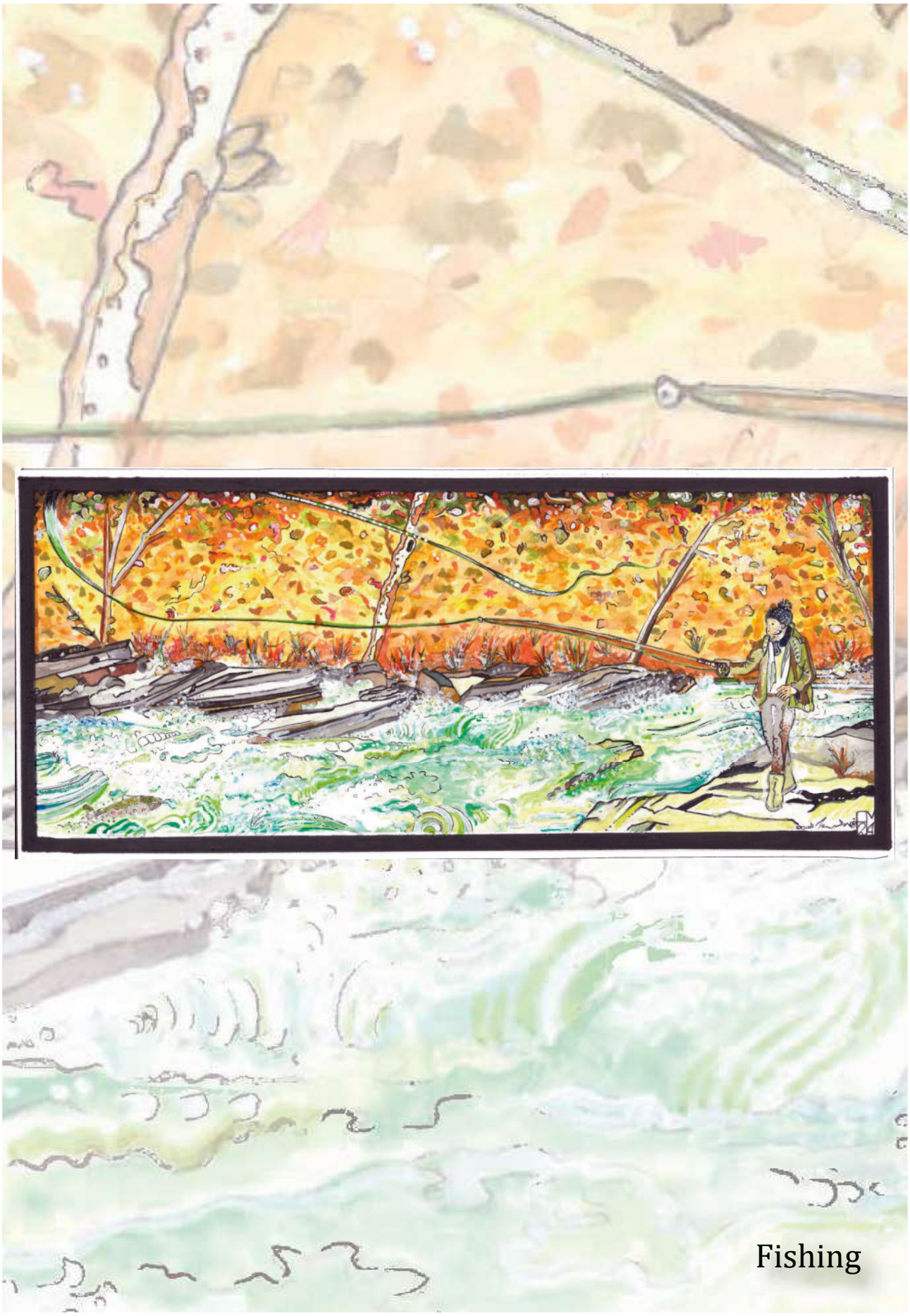
An important update.

In the last few weeks, after writing this article, I have been looking for a method to dry peel the bamboo strip.

It is with satisfaction that I report to you that this can be done using the heated blades used for cutting polystyrene. Crucial for success is the use of highly diluted isinglass (5 grams of flakes per 100 cm^3 of water), and a minimum thickness of glue.

Since the above planing procedures do not damage the taper slots, the former beam can be re-used for a small number of identical rods.

Comments and requests for any clarification are welcome: *email.marzio.giglio@gmail.com*



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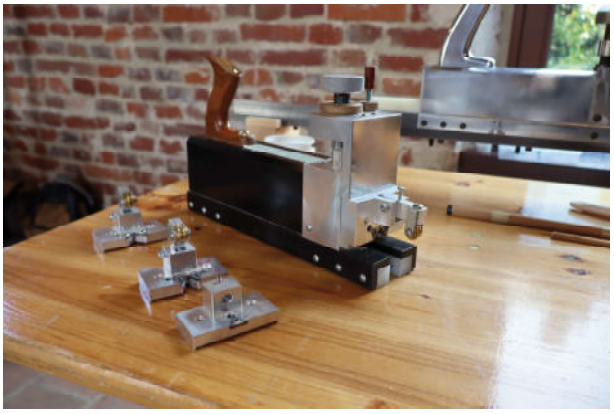


Digital
PLANE-CHECK GAUGE


EPILTECH
ET400

Federico Mussatti

The illustrations between the articles of this issue are by Federico Mussatti, a young artist born in Modena where he still lives and works.

Federico finds inspiration in the perfection of nature in which he immerses as soon as he can, taking refuge in the Casentino house among foxes and other wild animals, the same ones with which Saint Francis of Assisi spoke.

Being a fly fisherman led him to enthusiastically accept the proposal to illustrate the inserts of the Bamboo Journal and thus created a small story of the journey of bamboo from the forests of Guandong to the laboratories of rodmakers.

Newsletter e Bollettino
of Italian Bamboo Rodmakers Association

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