Power Fibers Online Magazine

June 2022 (Volume 65)

# Dedicated to the Making of Fine Bamboo Fly Rods

Inside this issue:



Photo of basket-weave rod tube from Chris Sparkman














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# The First Cast

**Todd Talsma, Editor**

Again, this issue is long overdue. As many of you know, I was diagnosed with a form of cancer early in 2021 and most of the year was taken up with treatment. I have been very fortunate the treatments caused much less issue with my general health than it could have. This isn't to say it was a walk in the park, but not nearly as bad as it could have been. As of right now, I'm in remission and under surveillance for the next five years.

I'm coming off a weekend at the Rodmakers at Grayrock gathering in Grayling (well, really Fredric), Michigan. It was very good to be around that many rodmakers again in one place after a couple of years not being able to gather. A lot of friendships were reinforced and new ones were formed. As I've said before in the past, if you want to increase your enjoyment of the rodmaking craft, you owe it to yourself to get to one of these gatherings.

This issue could probably be titled "The Rod Tube Issue." There are three different articles about how to make different types of tubes! One of the articles is about making woven tubes and I was able to see one of these in person this weekend. Chris Sparkman has done some great work on these. I may have to try making some of these tubes.

If everyone wants to see the magazine start to be published on a regular basis, articles are needed. Do you have a jig or technique you think is helpful? Let's talk about how we can get this done. I'm going to work at gathering articles over the next few months with a goal of starting to publish next January again. If I get enough articles, I may start earlier than that, but want to have enough to publish without scrambling for each issue. I can't do it without the community though.

I can always use more ideas, feel free to contact me. If you have a suggestion about improving *Power Fibers,* drop me an email at the following email address: power.fibers@bamboorodmaking.com

## Warning!

**Because many aspects of bamboo rodmaking bring the maker in contact with machinery, bladed tools, volatile chemicals and gases, the editor and advisory board of *Power Fibers* ask you to exercise the utmost caution when attempting to build or mimic any devices or activities mentioned in this magazine.**

**Please have any devices you build and use in your shop checked by a safety professional before attempting to use such devices. This is to guarantee your personal safety and that of others around you.**

**If you choose to build any device or use any technique found in this magazine, you are doing so at your own risk.**

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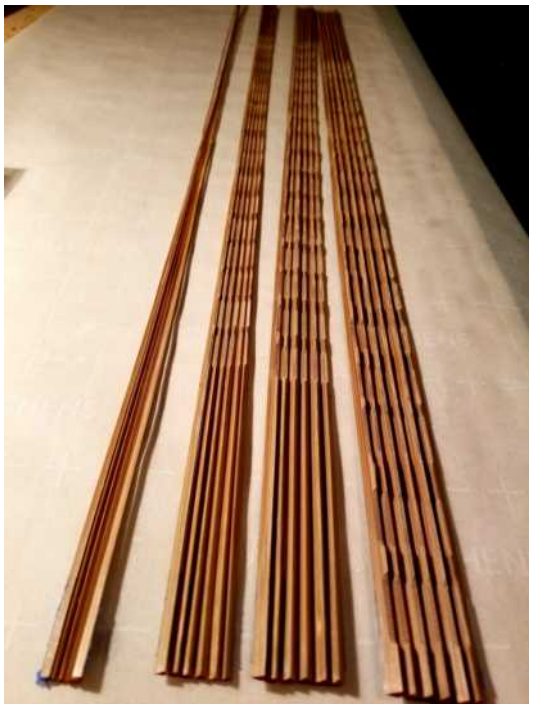
# Spliced Joint Competition Rod

***Text and photos from Munsey Wheby***


For the 2019 Catskill Rod makers challenge, we were tasked with making a four piece travel rod. I had never built a rod over a three piece and wondered if the additional ferrules would drastically effect the swing weight of the rod. After much discussion with some other rod makers, I decided I would use a splice joint. I can honestly say that my experience with the splice joint was fairly limited, but the few rods I had built using this method had fished and performed well under some pretty harsh conditions.



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I had a taper in mind that I had built as a two piece rod and it was a pretty stout WF5 line rod. I also decided that if I was going to go light weight, that I would also hollow all of the sections except for the tip. When building a splice rod, a rule of thumb to follow is a 20:1 slope for your splices, so the length of the joint is 20 x the rod diameter at the center of the splice. Section length will be (rod length + length of splices divided by number of sections). One of the critical factors of this challenge was that the rod, when fully assembled, could not exceed or be under the eight foot mark by more than one inch. I had to make sure that my splices were very accurate. On my eight foot rod, my joints were: 1st section six inches or 3 inches a piece, 2nd joint 4.88 total joint length and the last joint was 3.52 total joint length. Fortunately for me, when assembled, my rod was right at eight feet in length.

A few final points on building a splice rod, I did swell my joints 10% of the rod diameter at the center of the splice and continued the swell for the entire length of the splice. Also, it is important not to make the tip of your splice less than .040. As I stated earlier, I did hollow three sections of this rod and I made sure to stay 3.5" away from each of the splices.

I built this rod a year in advance of the gathering so I would have plenty of time to test it out in fishing situations. The first trip I took it on, I ended up fishing through a heavy snow storm. At this

*(Continued on page 7)*

point, I had used color preserved wraps and a wipe on Tru oil finish, unfortunately, the wraps faded and the finish ended up looking poor. So, for the first time, I stripped the entire rod of guides and finish, and decided to put tape over the joints and dip varnish the rod. This was a first for me on a splice rod and it has worked out well. I have no finish on the joints themselves: a good, well taped joint seems to keep out the moisture even when fishing through a hard snow!

Last but not least, tape: for quite a while I had used a wide width hockey tape which left my joint looking somewhat clunky. I have recently found a very narrow and quite clear electrical tape that has excellent stretch and stays tight even when very moist. The tape is made by 3M and is an 850 polyester Film tape ½ in wide, low profile, high strength splicing and sealing tape. Handles temperatures from -60f to 300f doesn't shrink, fade, ooze or dry out! I got it from ULINE for $29.00 and it is on a 72yd roll.

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# Bio of Bamboo rod maker of *Daniel Gowe*

***Text, figures and photos by Daniel Gowe***


I'm Daniel Gowe of Zia~Rods. I was born in '51 and grew up in Southern California, along the San Diego beaches. I graduated from High School in '69, then started work as a fireman with the U.S. Forest Service in '72. I moved all over the state of California from South to North. After a career in fire management, I then became a Federal Law Enforcement Officer, Defensive Tactics Instructor and Armorer. After my Federal retirement in '96, I went back to school to be an Aircraft Mechanic and Pilot. I'm a licensed airplane pilot, licensed aircraft mechanic- Airframe and Power Plant, (A&P), with Inspectors Authorization (IA). I conducted primary maintenance on Helicopters and General Aviation aircraft in Redding, CA. I have owned a few airplanes, too. While living in Northern California, within casting distance to the mighty Klamath and Trinity Rivers, I chased Salmon and Steelhead whenever/ wherever the bite was on. My wife, Jane and I moved to Santa Fe, New Mexico in '06. I worked at the Santa Fe Airport as an IA, performing maintenance and inspections on General Aviation aircraft and Corporate Jets. Fully retired at 62 years young in '12. I'm married and have two grown children and two grandsons. Life is good.

***What is your business?***

Back in '06 I researched and then gathered all the tools, supplies and equipment to make Bamboo Fly Rods, I specialize in creating them from the raw materials to the finished product, I sell them under the name Zia~Rods.

***How has your business changed, if at all, over the years?***

I keep my production rate at no more than one rod per month. This schedule fits my lifestyle and business objectives. I don't want to be over -burdened with orders. As is, orders are completed and delivered three months from deposit. I also offer presentation rods for raffles, retirement gifts, and welcome consignments and

*(Continued on page 10)*

commissions. I now offer and conduct one week bamboo fly rod making classes from my studio.

***What has been your biggest challenge as a business owner?***

The making of a bamboo fly rod is a true art form; this is reflected in the final product delivered to the customer. The customer may request custom features, which are at times demanding and challenging, but rewarding when accomplished.

***What differentiates you from your competitors?***

I specialize in the Classic and Traditional Style of Bamboo Fly Rods for Trout fishing. My bamboo rod models are *influenced* by a variety of proven and Classic Tapers derived from the past masters, which includes; *Dickerson, Edwards, Garrison, Leonard, Payne, and Young* . I also offer my proprietary tapers that I've developed, which have become quite popular. My rods are expertly crafted with uncompromising skill and great attention to detail. I make only one grade of rod, "Deluxe." This my standard grade.

My bamboo fly rods are designed to perform and are formed to perfection. This is the result of years of experience, fanatical attention to detail, and a desire to work to the highest standards. Combining tradition with innovation, my designs, hand-building techniques and equipment are state-of-the-art. All of my bamboo fly rods are thoroughly tested and proven. All this ensures that my bamboo fly rods maintain the highest levels of effectiveness, sophistication, and elegance.

Bamboo fly rods are not for everyone, but to those who appreciate their value, the bamboo fly rod will enhance your fishing experience, as it connects you to the roots of a tradition.

***What else we should know about you and your business?***

If you're as passionate about bamboo fly rods as much as I am about building them, then contact me, and I will fulfill your desire. Your welcome to visit me at my Bamboo Fly Rod Studio/Shop any time you're in the Santa Fe, New Mexico area.

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# Hex Rod Tube Construction

***Text and photos from Stephen Garten***

By the time I made my first bamboo fly rod and case, I had been woodworking and spin fishing for several years but had not tried fly fishing. After going through the process of building my first bamboo rod and learning some new techniques, I really wanted to try put my woodworking skills to the test and make a nice place to store and protect my new rod. I really didn't do too much research ahead of time, honestly. I think sometimes things turn out better in the end that way. In my mind, I knew what I wanted to make and I was pretty confident that I could 'figure it out' as I went. Over time, I (naturally) made mistakes and found better ways to do better looking things for my boxes, so I'm happy to pass along what I do now. In the future, I look forward to making even more mistakes and 'figuring out' even more cool stuff to add to what I can offer in these projects! In any event, here's a brief walkthrough of how I build my rod cases.

Each completed case (ignoring any engraving) takes me a minimum of between 12 and 15 hours to build from start to finish.

The first thing that I do is try to find wood that generally looks interesting to me. I do not stain or paint any of the woods I use in my cases. There are tons of woods out there with beautiful grain patterns and colors, so I will usually go to my local wood mill and just walk around. Once I've found some wood I think will do the job, I mill it into between six and eight strips of slightly oversized dimensions for the finished product. It's always better to have extra pieces already milled in case something bad happens and you need them rather than having to back up and start completely over (See Photo 1).


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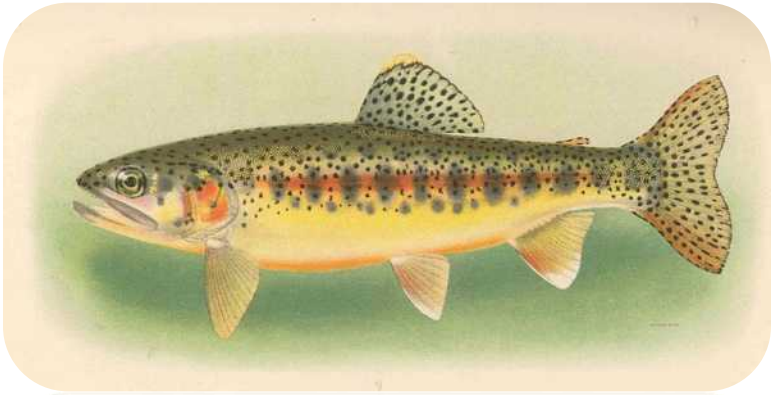

Once I have my strips, I'll use my table saw to cut 60 degree angles on the ends and sneak up on the perfect final width for each piece (see Photo 2).


With the strips still at an oversized length but at final width, I lay the strips out and decide the order in which they are going to end up. I'll usually either try to match up grain patters so they look like they're running continuously throughout the box, book match them, or arrange them so they just look interesting. Once they're in order, I use tape to hold them loosely in place (see Photo 3).


*(Continued on page 15)*

Once in order and taped together, I glue all joints except for the two that will be used on the opening and hinged sides. If I can grab a second set of hands, they're really, really helpful for this part of the process. As soon as I lay down the glue, I roll the sides of the box up and tape them closed. I dry fit this first, naturally, to see if there are any glaring issues (see Photos 4 and 5).


4


5

As quickly as I can, I start wrapping the box with cord – in a way that is similar to when I bound the bamboo pieces, building my fly rod. I wrap up the full length of the box, not losing tension at any point, then back down the length again. This wrap goes on tightly (see Photos 6, 7 and 8).


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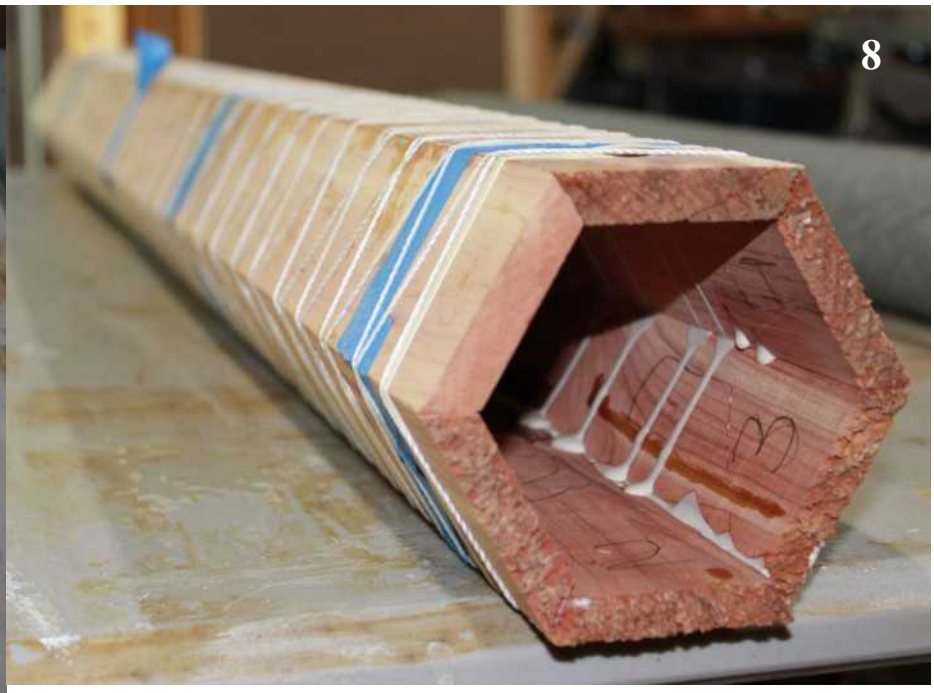
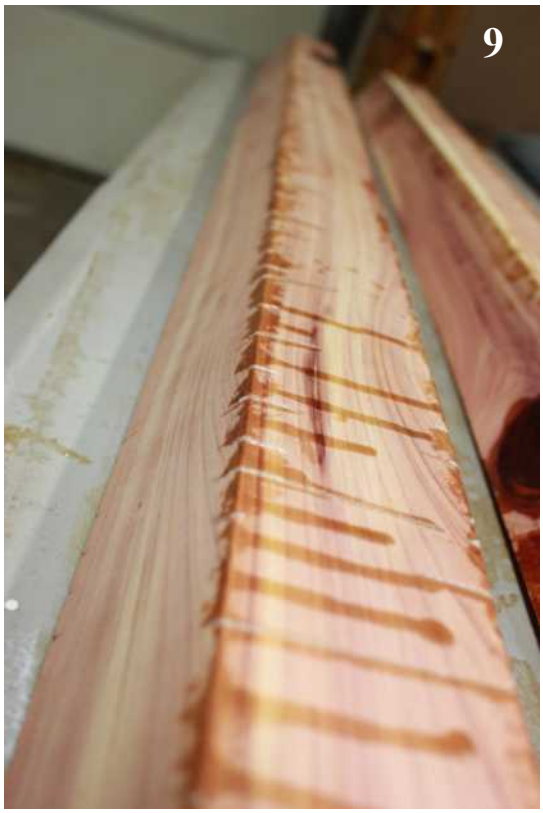



Once the glue has cured, I unwind the wrapping and take off any tape that's left from the process (see Photo 9).

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The squeeze out from the glue leaves a mess and I have to clean it up before moving along. This is the final sanding which has to get done to the full length of the box before beginning any detail work (see Photo 10).

Once things are cleaned and smooth, I lay out the hinges I want to use. If I'm using smaller hinges which do not need to be cut in, I place them and mark where they'll go. If I'm using larger ones (which would not look good simply laid on top of the wood and screwed in place), I'll score a place where the hinges will end up and remove the amount of material which needs to come out so the hinges fit nicely once installed. When the hinges are ready to go in, I predrill all the screw holes and glue the screws in place; I don't want them to go anywhere once they're placed. The hinges are not quite ready to be installed for the final time, though. Once they go on, they are a nice touch (see Photos 11, 12, 13 and 14).





*(Continued on page 18)*

From here, there are five more items to be addressed – magnetic catches for the box body, leather-work for the handles, the end caps, finish for the wood, and the upholstery.

I use rare earth magnets to help keep my case bodies closed. I use my drill press and a jig to ensure that my holes are exactly straight and the magnets get epoxied in place (see Photos 15 and 16).



*(Continued on page 19)*


Next, I take care of the leatherwork. I cut my leather pieces for each build and hand stitch them all. I will cut two for each box. They're laid in place and installed using Chicago screws and some adhesive to make sure that they stay put (see Photos 17 and 18).


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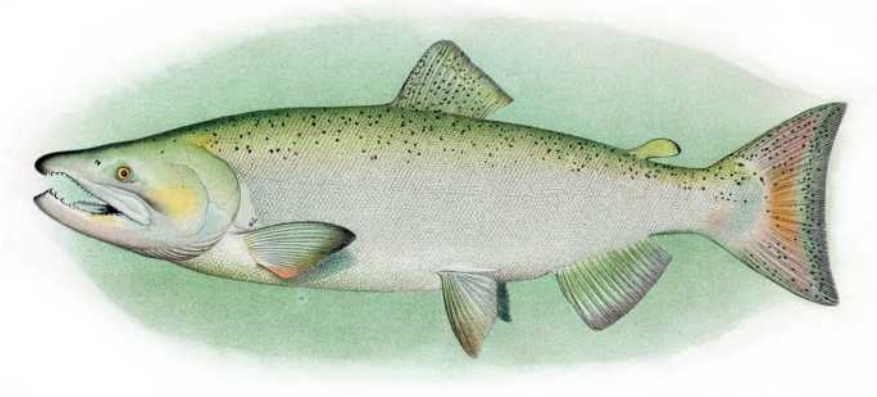


The last piece of actual woodwork that I need to do is for the end caps. I make these to mimic the hexagonal shape of the box and remove material so that they sit just inside the case body. When I'm picking wood for this, I spend time to choose something nice. I will pick a figured wood or one that is colored just right to accentuate the rest of the case features (other wood, leather, hinges, etc.) (see Photos 19, 20 and 21).





Sometimes I'll engrave my end caps, too. This is done by making/picking a design and putting it onto the wood as a pattern. Once the pattern is there, it's just a matter of taking my time and making it right. I'm a bit of a perfectionist, so I will do things over until I'm happy. Engraving/carving wood doesn't always lend itself as well to certain designs as does metal, which can be frustrating – but often times, it comes out nicely (see Photos 22 and 23).

*(Continued on page 21)*

Once I'm done with whatever I'm going to do with my end caps, I'll clean up the shop and start applying finish to all my wood parts. Sometimes, I'll finish my boxes with a natural wax, and sometimes I'll use oil or something else.

Getting just the right finish on these things can be a finicky process. I find that when I try to hurry this part of the project along, it ends up actually taking me more time in the end – because I have to fix the mess that I generally make. I think that a poor finish can make a perfectly constructed and prepared box look horrible but a nice finish job can do the opposite for one with flaws; it's absolutely worth taking time to make sure that it is just right.

Once my finish has cured, I epoxy my end caps in place – to the bottom half of the box, only. Clamping is a bit challenging for longer boxes in a small work space (see Photos 19, 20 and 21 on prior page).

At this point, I will install my handles and hinges before installing my upholstery.

In the past, I tried a few different things with my upholstery before finding a faux fur that ended up being fantastic. The fabric has enough body to cradle the rod (in its sock), it cleans easily, and it is so soft. I have used felt over foam in the past and it didn't work out well. EVERYTHING is drawn to it like a magnet, so cleaning things off that will inevitably be picked up while in the woods is frustrating. The box that I had felt in was reupholstered pretty quickly. People think I'm crazy to do this, but I actually USE the things that I make and I just couldn't take that box out with me. The faux fur is just nice stuff. I can brush things off of it or blow it out with my air compressor with no problem at all (see Photos 15, 16, 19, 20, 21, 26, 27 and 30).

Once the upholstery is in, the case is ready to go.

I hope that you've enjoyed this walkthrough of my process. I really enjoy making custom rod boxes for folks. If you'd like one, let me know! I'd love to make your fly rod a beautiful home

**PICTURES OF FINISHED BOXES** (see Photos 24, 25, 26, 27, 28, 29 and 30).


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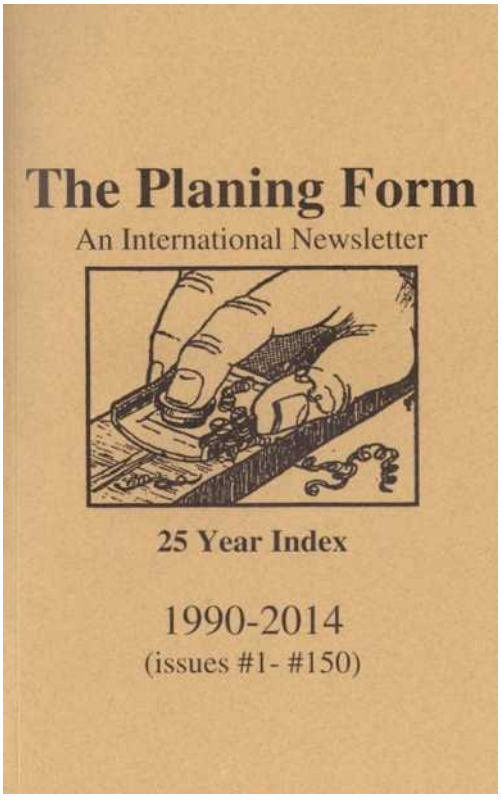

# Avoid nodes, use Vietnamese bamboo!

**Text and Figures by Peer Doering-Arjes (www.Springforelle.de)**

## Introduction

There was a time when Calcutta cane was considered being superior to Tonkin: "… very few professional rod makers will admit that anything can equal first class Calcutta canes." (Frazer 1908, p. 36). The first known importation of Tonkin to the USA by Demarest was just before 1895 and Hardy Brothers began to use Tonkin in 1912 (Simmonds 1956). Several years later, Calcutta cane was out of fashion. It is a common phenomenon when something works well, people hesitate to try something new, even if it could be advantageous. "Fishermen adapt slowly and stubbornly, and insisted on Calcutta bamboo with its darkly mottled sections, instead of Tonkin cane and its pale node patterns." (Schwiebert 1978, p. 944). Nowadays Tonkin is still *en vogue* after 127 years of usage. But is Tonkin the best bamboo for making fly rods? Several textbooks about rod making claim this to be the case. However, there is no evidence for this statement except one. Luis Marden (1997, p. 31) says the Research Institute of Subtropical Forestry of the Chinese Academy of Forestry Science furnished this information: "Tea Stick Bamboo [Tonkin] has the highest fiber content – 53 percent – of all bamboos." Not only its straightness, the fact that the knots are not very prominent, and the good mechanical properties made Tonkin the preferred species of rod construction, but also its good availability. "Its universal adoption by the trade is doubtless due in part to the fact that a large bulk of a uniform and well-prepared product is available on the market." (Simmonds 1956).

Ivor Davies, a former employee from Hardy Bros., told me that in the early 1880s Hardy's first used bamboo in the construction of its "Palakona" range of rods. Tonkin was not selected by chance. Numerous samples from various regions in China were tested in Alnwick for toughness and recovery power. Unfortunately, no record of the species and the exact origin was kept.

Very little is known about other bamboo species and their suitability for rod making. White (1948) states, "In the past few years bamboos growing in the Western Hemisphere have been tested for these special uses. In some cases, certain species, such as *Bambusa tulda* have been found to yield culms from which very satisfactory split rods can be made." Photos show the production of split bamboo rods by Wendt Campbell, Inc., Mayaguez, Puerto Rico.

Yuki Bando's book gives good examples of other bamboo species successfully used for fly rods. He interviewed rod makers in Japan and besides Tonkin and Madake, they are using three other bamboo species (Bando 2020).

Worldwide exist 1,675 bamboo species (Vorontsova et al. 2016). With this natural richness in mind, I travelled to Vietnam. I was lucky to get in contact with the botanist My Hanh Diep, who founded the bamboo village of Phu An, where she gathered over two hundred bamboo species from Vietnam, Laos and Cambodia (Diep et al. 2016). Strolling through this impressive garden facilitated my quest. I preselected species, which looked promising regarding internode length, wall thickness and straightness (fig. 1 to 3). Mechanical properties had to be tested in the laboratory. To collect samples, we travelled to locations where these species naturally occurred (fig.2).

*(Continued on page 27)*

Fig. 1 Author with samples of single internodes from Viet-1 bamboo, average length 31 inch.

*(Continued on page 28)*



Fig. 2 Diep My Hanh and Jacques Gurgand sampling Viet-2 bamboo.

*(Continued on page 29)*

Fig. 3 Viet-2 node, internode length 35 inch, fresh-cut cross-section diameter 2.7 inch.

I included the Vietnamese variety of Tonkin in my test for comparison of its dimensions and mechanical properties. Although it possesses longer internodes than the Chinese variety, they are too short for nodeless rod making. It may be of interest that Hardy Brothers used the Vietnamese variety, which is proofed by a specimen in the Economic Botany Collection of the Royal Botanic Gardens, Kew (catalogue number 33937). During my Vietnam expeditions, I found only wild specimens, but no cultivations, which must have been in existence about a hundred years ago to provide the large amounts of culms needed for the rod production.

The samples were used for two kinds of tests. A scientific test, which gives objective results about the mechanical properties, and a hands-on test, which gives subjective results with rods built from the samples by various rod makers. The tests were conducted independently. The rod makers had no information beforehand about the mechanical properties. I asked them to use a taper, which they knew well, so they could compare the test rod with a rod made of Tonkin or Madake, and to report about their experience regarding building, casting and possibly fishing the rod.

The tests aimed to answer the question if good rods can be made from Vietnamese bamboo. But what defines a good rod? Even if everybody might give a different answer, basically we all strive for rods, which cast and fish well.

If the mechanical properties were sufficient, an outstanding advantage would be long internodes allowing to make rods without nodes. Rod makers could save an enormous amount of time. Moreover, the weak points in a splice could be avoided and node staggering would become obsolete. The morphological structure of a node (fig. 4) makes it impossible for any kind of treatment not to weaken the node to a certain extent.

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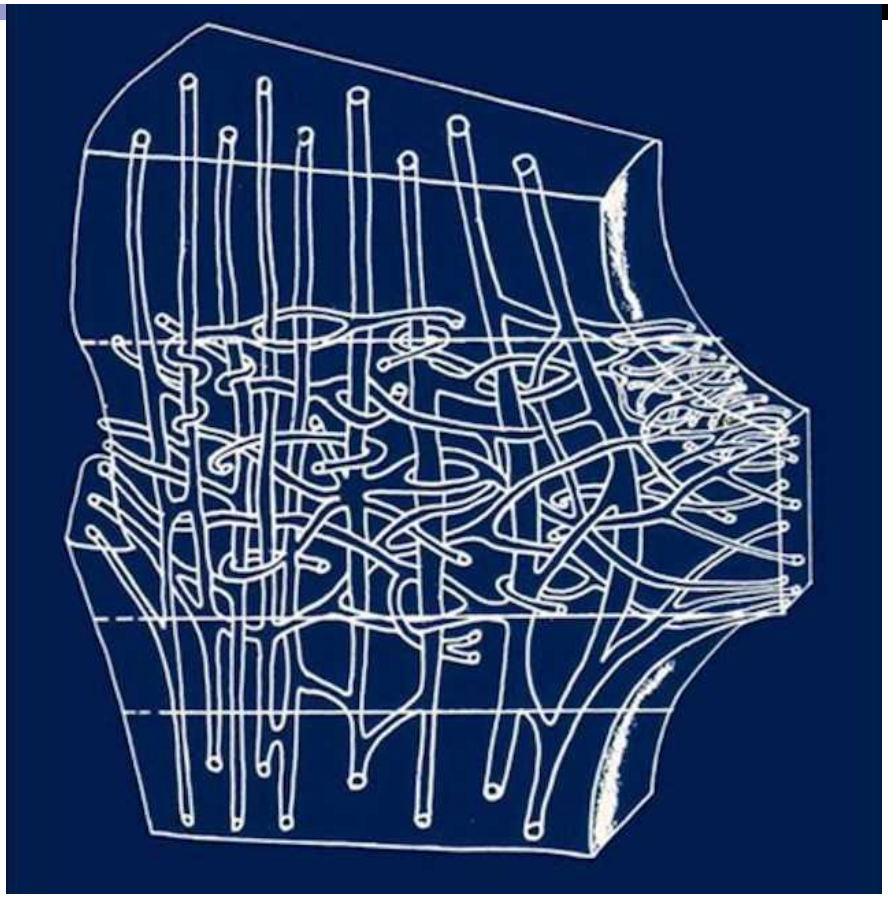

Fig. 4 Illustration of the intertwined vascular bundles within the nodal region of bamboo (Liese 1998)

**Scientific test**

A scientific test is indispensable to acquire unbiased information. This enables a solid comparison of different species, which is not based on opinions, but on data. Certain prerequisites must be fulfilled in order to perform a three-point-bending-test. Samples of equal size (fig. 5) must be conditioned in controlled chambers with a standard climate (20 °C, 65 % humidity) for about two weeks until constant mass. The bending machine measures the distance and the power, which is required to break

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each sample. One needs a decent laboratory with the appropriate machines to conduct conditioning, three-point-bending-test and measuring the samples with precision (fig. 6 and 7).

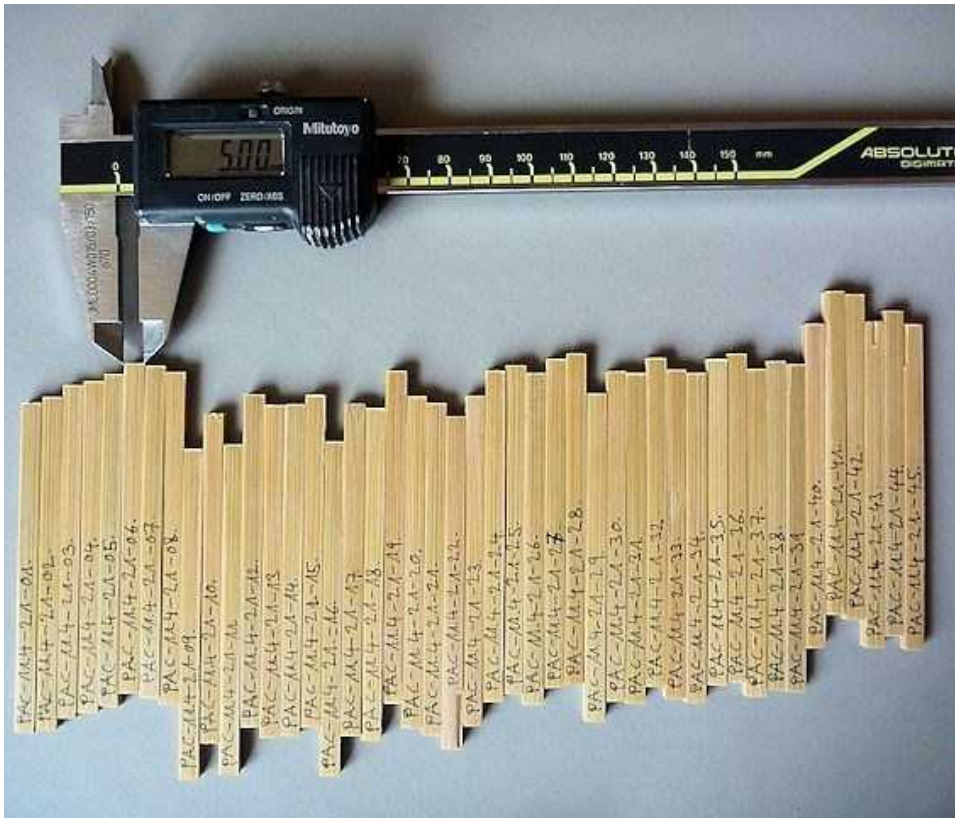


Fig. 5 Hand planed Tonkin samples for three-point-bending test, 3 mm height, 5 mm width, 80 mm length (in inches: 0.118 h., 0.197 w., 3.150 l.). Before bending each sample's dimension and weight is measured individually.

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Fig. 6 Laboratory of the Institute of Wood Science, Universität Hamburg, Germany. Large three-point-bending device behind Goran Schmidt.

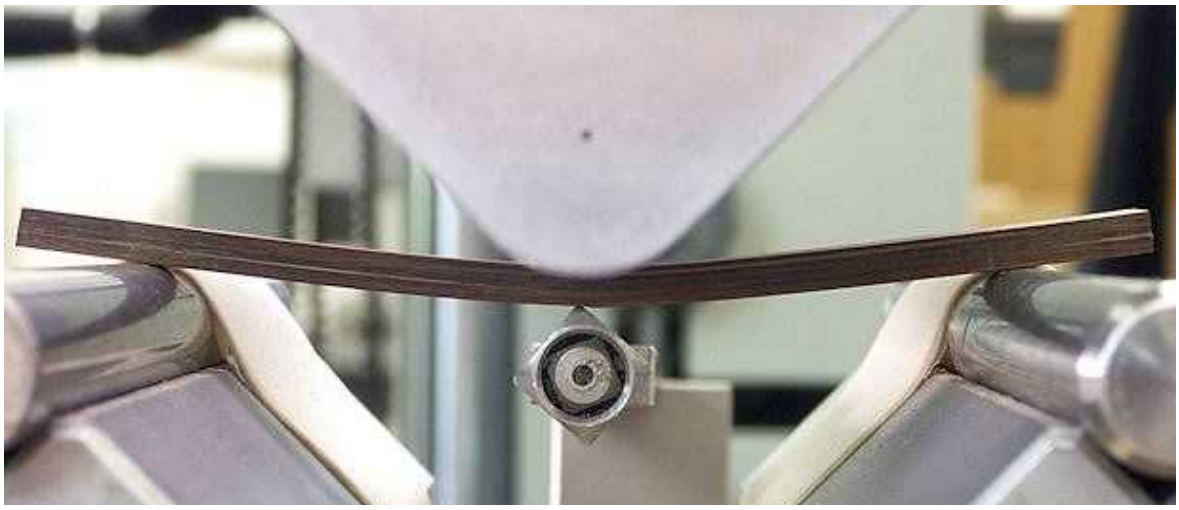

Fig. 7 Detail of three-point-bending device with sample.

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From the data, bending strength (fig. 8), elasticity (fig. 9), and density (fig. 10) are calculated. These variables are used to compare the bamboo species. We know that from Tonkin and Madake very good fly rods are made. In this respect, these two species serve as a reference to which the test rods can be compared.

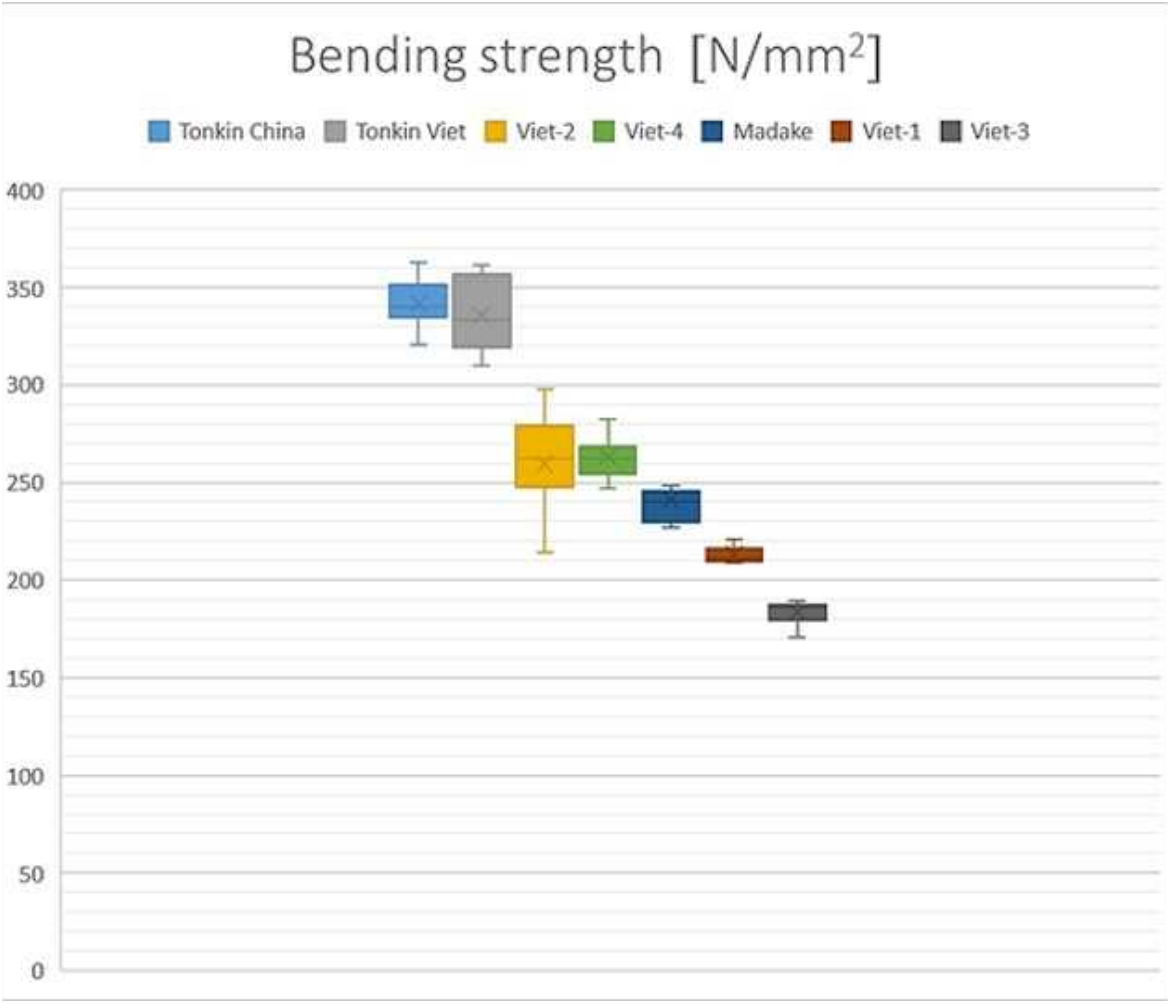


Fig. 8 Bending strength of the outer 3 mm (0.118 in) of seven bamboo species. Whisker-Boxplots showing mean, median, minimum and maximum values.

*(Continued on page 34)*

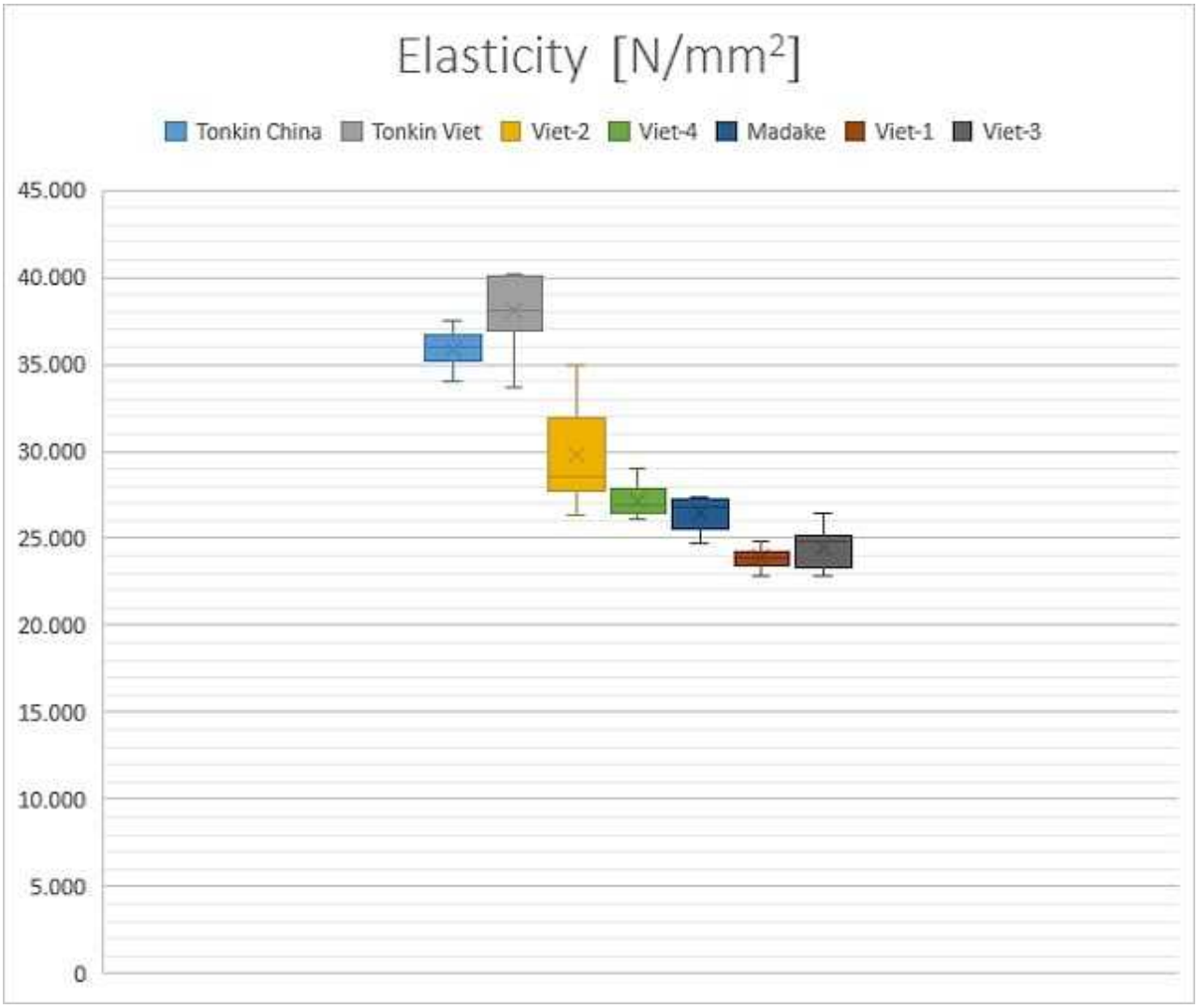


Fig. 9 Elasticity of the outer 3 mm (0.118 in) of seven bamboo species.

*(Continued on page 35)*

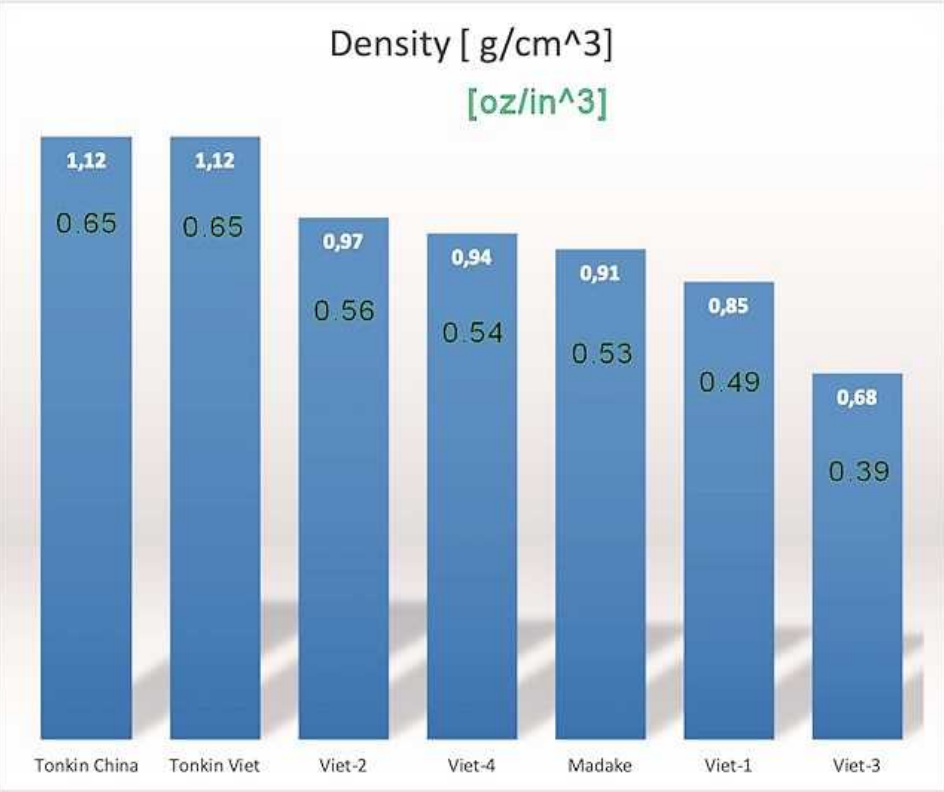


Fig. 10 Density of conditioned samples from the outer 3 mm (0.118 in) of seven bamboo species.

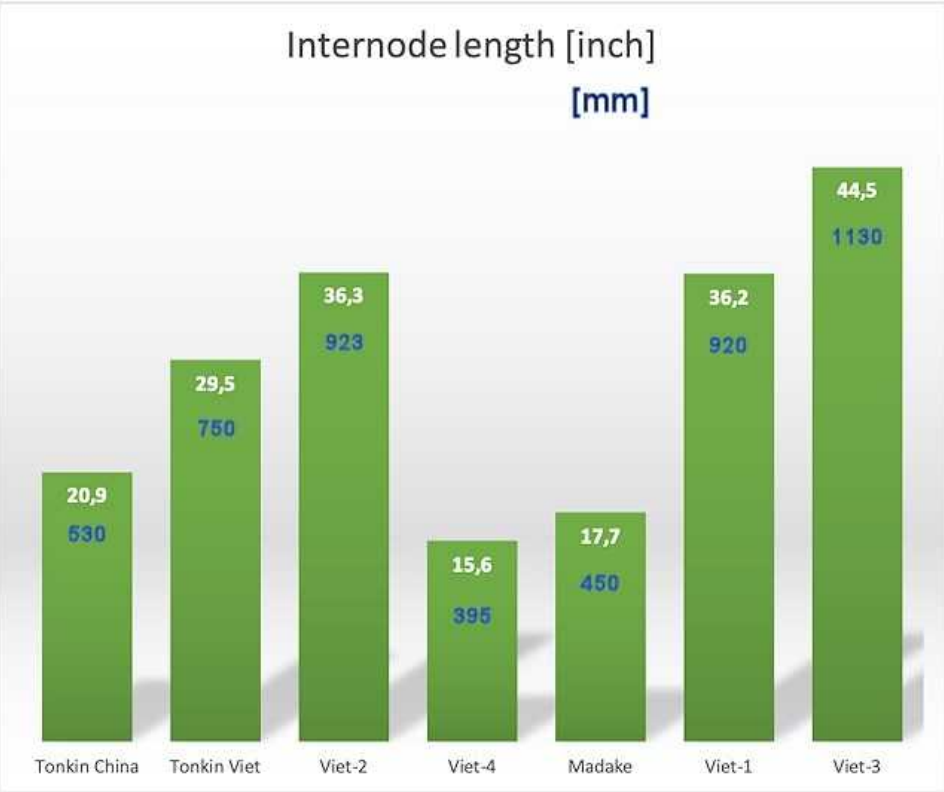


Fig. 11 Maximum internode lengths of seven bamboo species.

*(Continued on page 36)*

Viet-1 and Viet-2 were selected for the hands-on test for two reasons. Both have very long internodes (fig. 11), which allow nodeless rod making, and the values for bending strength, elasticity and density are closest to Tonkin and Madake. Viet-3 possesses an even longer internode, but the mechanical values are relatively low. Viet-4 has good mechanical properties, but the internodes are the shortest of all tested species.

## Hands-on test

Before I gave samples to other rod makers, I myself built three rods with the same taper from Tonkin, Viet-1 and Viet-2. I clamped each rod horizontally in front of a chart, attached 50 g (1.76 oz.) to the tip, marked the tip position without weight (starting point) and the position with weight. All tips arrived within a circle of 4-inch diameter. Compared to bending charts from other tapers this is a minor deviation from each other, which means from each bamboo species a rod with very similar bending properties can be build.

The photos show each rod maker with the rod he built from Vietnamese bamboo followed by his comments about the making, casting and fishing the rod (fig. 12 – 19).

*(Continued on page 37)*

**Rolf Baginski, Bremen, Germany**
Viet-1, hex 7’ 3” #4, 3 pieces, spliced joints

Fig. 12 Rolf Baginski

“The bamboo is much easier to work with. It seemed "softer" to me. Because the nodes are missing, everything goes much faster, of course.

The rod felt a little slower and softer to me. Why not, but I am afraid that with rods over eight feet softness could be a problem. If this species were available, I would want to build rods with it.”

*(Continued on page 38)*

**Jörg C. Benedikt, Dresden, Germany**
Viet-1, two quads 7' 3" #5, 3 pieces, bamboo ferrule

Fig. 13 Jörg C. Benedikt

“When casting the two Vietnamese blanks there was hardly any difference to Tonkin. These load a little deeper, but I did not notice any difference in the reset speed.

Conclusion: beautiful, functional blanks. Unfortunately, the material frays easily during processing. Especially with the quad blanks, I struggled to plane exact edges.”

*(Continued on page 39)*

**Masataka Akaike, Yamanashi, Japan**
Viet-1 and Madake, hex 6' 3" #4, 3 pieces, metal ferrule

Fig. 14 Masataka Akaike and bending chart of a rod made from Madake and one from Viet-1 with same taper and length with weight attached to the tip.

"If I cast, I may not be able to tell if it is Viet-1 or Madake. I did not compare those two with Tonkin cane, but I assume Viet-1 is still a little sweeter than Tonkin.

Comparing the Vietnamese bamboo to Madake, it was almost the same as Madake and I had no difficulty making the rod. I felt Viet-1 was a little easier to plane than Madake because its fibers are thicker than Madake. Since straightening the nodes is very time consuming, it is much easier to make rods without nodes. But when I make longer rods, it should be 4 or more pieces. In that case, I do not want to use metal ferrules because of its weights.

I fished the rod. It was a bit stronger than Madake. I thought the strength was between Madake and Tonkin cane. If I can get Vietnamese bamboo regularly, I am interested in using that."

*(Continued on page 40)*

## Moreno Borriero, San Ginese, Italy

Viet-1, hex 7’ 3” #3, 3 pieces, metal ferrule

Fig. 15 Moreno Borriero

“The rough planing was very easy, which made me wonder about the integrity of the splines. Many splinters are formed. Viet-1 smells like heat-treating wet newspaper – which makes me think that there are few sugars.

Surprisingly easy to cast, it has a very sensitive tip, gives accurate casting and is easy to work with. Overall, the rod casts surprisingly well. The rod although looks good has absolutely no backbone. Needs to be tested in fishing conditions.

Interesting project but Viet-1 is not suitable for my personal use. I would like to try Viet-2.”

*(Continued on page 41)*

**Bernard Rigal, Cazeres sur Garonne, France**
Viet-1, hex 7’ 6” #4, 3 pieces, carbon ferrule

Fig. 16 Bernard Rigal

“I think Viet-1 is not good for rod building. The fibres are not regular, and the splices break easily, in some places you might think that the fibres are missing.”

*(Continued on page 42)*

**Glenn Brackett, Butte, USA**
Viet-1, hex 6' 9" #3/4, 3 pieces, fiberglass ferrule

Fig. 17 Glenn Brackett and his blank.

"Have cut and glued up a nodeless rod from Viet-1. I am very impressed with at this stage (cleaned up but not ferruled).

The bamboo reacts to heat-treating differently than Tonkin (seems to have more sugars). Different smells when heat treating and sanding and darkens very quickly compared to Tonkin. Green color went away when heat-treated. It feels good so far when bent in the hand."

*(Continued on page 43)*

## Ulf Löfdal, Ängelholm, Sweden

Viet-1 and Tonkin, hex 6‘ #4, 2 pieces, bamboo ferrule

Viet-2 and Tonkin, hex 6‘ 4“ #4, 2 pieces, bamboo ferrule

Fig. 18 Ulf Löfdal

“The most significant difference to Tonkin was that both species were softer to plane. When casting I could not feel any difference when compared to the two originals I built in Tonkin.

I might use Viet-2 in the future.”

*(Continued on page 44)*

## Philipp Sicher, Gurtnellen, Switzerland

Viet-1, Viet-2, and Tonkin, hex 7‘ 6“ #4, 3 pieces, carbon ferrule

Fig. 19 Philipp Sicher and his three test rods.

“I anticipate that I have consciously built a sensitive rod, assuming that the effects can be felt more strongly.

Processing was problem-free, from my point of view less fraying at the edges, easier to straighten.

With shorter casting distances (+ - 12 m) (39 ft.), there is hardly any difference. All three rods cast for me, but also for some very good casters, with practically no difference. Every rod casts “as if by itself” up to about 14 m (46 ft.). For longer distances, you get the feeling one has to work with the two Vietnamese rods, but further distances can be easily achieved. With Tonkin, this effect only begins at around 17 m (56 ft.); here it becomes apparent that this rod has more backbone.

Definitely interesting, if I can get Vietnamese bamboo I will build for sure.”

*(Continued on page 45)*

**Summary and Discussion**

The reported experiences from the production process vary from positive to negative and are partially contradictory.

- Positive: "I am very impressed," "because the nodes are missing, everything goes much faster," "it was a little easier to plane than Madake." "it is much easier to make rods without nodes," "both species were softer to plane [than Tonkin]," "processing was problem-free, less fraying at the edges, easier to straighten."
- Negative: "Many splinters are formed," "The rod although looks good has absolutely no backbone," "material frays easily during processing," "not good for rod building. The fibres are not regular, and the splices break easily."
- Contradictory: "seems to have more sugars [than Tonkin]" and "makes me think that there are few sugars."

Comments regarding casting are only positive: "If I cast, I may not be able to tell if it is Viet-1 or Madake," "Overall, the rod casts surprisingly well," "I could not feel any difference [Viet-1 and 2] when compared to the two originals I built in Tonkin," "All three rods [Tonkin, Viet-1 and 2] cast for me, but also some very good casters, with practically no difference."

These are the comments about fishing with the Viet-1 test rods: "Needs to be tested in fishing conditions." "I fished the rod. It was a bit stronger than Madake." I myself caught seatrout nicely with Viet-1 and 2.

Regarding the question if one would like to use Vietnamese bamboo in the future, two were negative about Viet-1, four were positive about Viet-1 or Viet-2:

- "If this species were available, I would want to build rods with it."
- "If I can get Vietnamese bamboo regularly, I am interested in using that."
- "I would like to try Viet-2."
- "I might use Viet-2 in the future."
- "Definitely interesting, if I can get Vietnamese bamboo I will build for sure."

Unsurprisingly, every bamboo species is different, and one needs to learn how to handle it. It may smell different from Tonkin while tempered and edges may fray more easily. However, results of the mechanical test revealed relatively high values for all seven bamboo species for bending strength and elasticity. These properties characterize the suitability of the bamboo species for rod making. The bending strength of the bamboo species differs from each other. These differences did not crop up in the test rods as one might expect. How can this be explained?

The range of the bending strength of Tonkin, Viet-1 and 2 extends from 200 to 360 $N/mm^2$, which is very high compared to hardwood, e.g. oak, which has a value of around 100 $N/mm^2$. One must bear in mind these mechanical properties can only be determined when the objects are fixed. Values for these variables give only a first idea how these bamboo species are suited for rod making compared to others. Even though Tonkin is the 'strongest' of the seven species investigated, i.e. it possesses the highest bending strength-to-weight ratio, this is not the answer to the quest for the best possible bamboo rod.

Casting a rod is a dynamic process and other mechanical laws apply than in the resting state. When

*(Continued on page 46)*

we move from the static to the dynamic phase bending strength and elasticity become secondary variables. Effects of the taper – how mass is distributed in the rod - and the acceleration are main factors for the rod's behaviour while casting.

A rod maker knows a minute modification of the rod's diameter changes the weight class of the rod. This dimensional change has a much higher impact than the difference of the mechanical properties between bamboo species. In other words, by changing the taper a stiffer rod can be built from Viet-1 or 2 than from Tonkin. An example is shown in the bending chart, where two rods are loaded at the tip with 50 (1.76) and 100 g (3.53 oz.) (fig. 20). The rod made from Tonkin bends more than the one made from Viet-2. The last one is stiffer. The rods should have been identical (same taper and length), but due to the author's incapacity the Tonkin rod turned out to be slightly thinner.

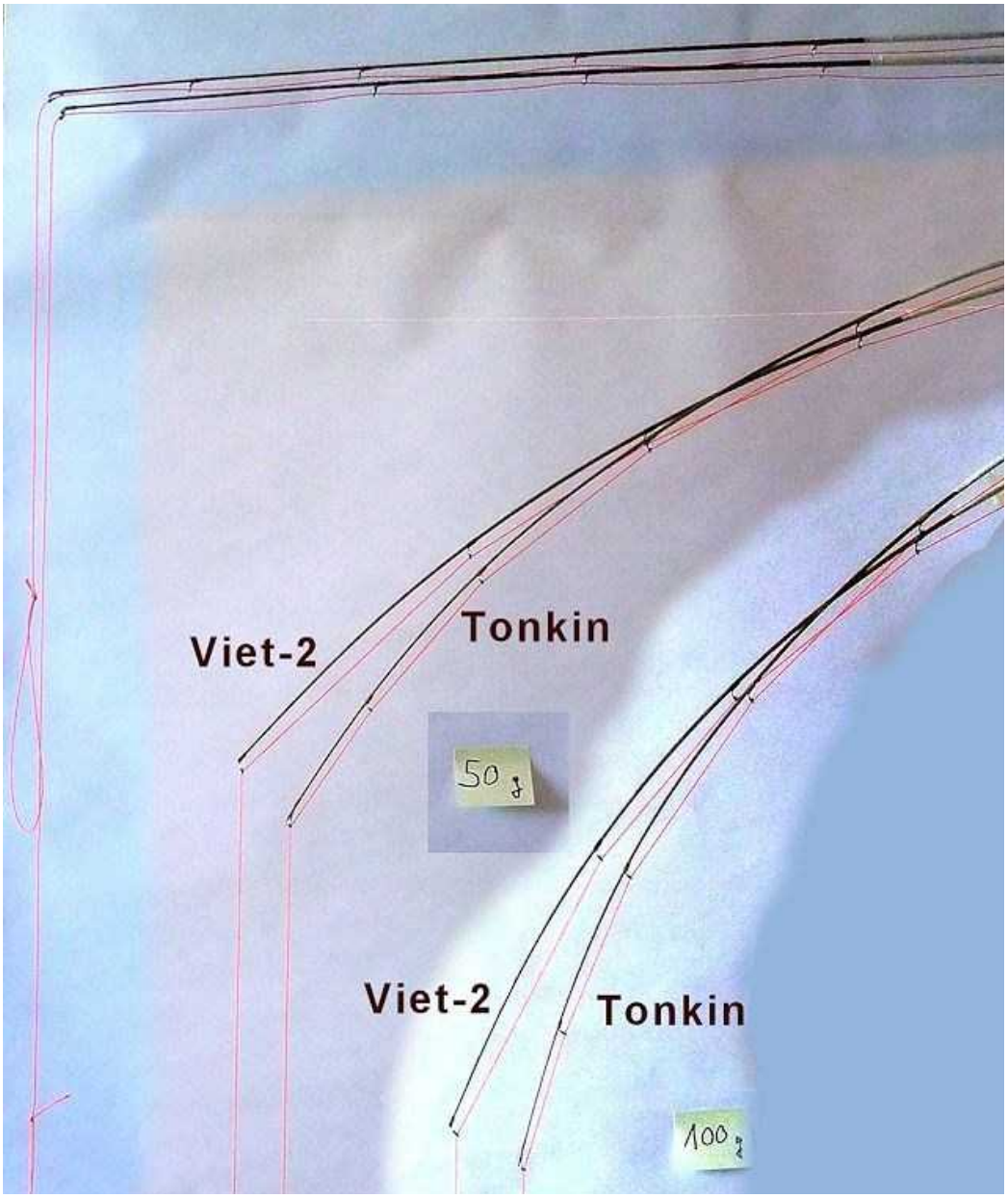


Fig. 20 Bending chart of a rod made from Tonkin and one from Viet-2 with same taper and length without weight and with 1.76, respectively 3.53 oz. attached to the tip.

*(Continued on page 47)*

Remember, looking at the bending chart is a static observation. Casting these rods, – a dynamic process – is a completely different story. Moreover, which rod you might like best is something else again. The dynamic behaviour of a tapered rod is complex and very difficult to calculate. However, one can cast a rod instead and examine its behaviour. This is a subjective method, but a practical one, which is decisive for the angler. He is interested how the rod is casting.

Node treatment requires a considerable amount of time. Vietnamese bamboo offers the possibility to build three- or four-piece rods nodeless. Therefore, internode length is certainly another quality criterion in addition to fibre density.

Bernard Rigal gave me his rod made from Viet-1 calling it “la canne carton” (the cardboard rod). So far it did not break. I even caught a seatrout with it (fig. 21).

Fig. 21 “La canne carton” was tested under harsh conditions in the Northwest Atlantic on the Faroe Islands.

Some makers will remain sceptical about the long-term properties. The answer will come in the long run, but I expect the Vietnamese species to behave as all bamboo species, which have been used for

*(Continued on page 48)*

rods. The cross section shows that the basic structure of the culms is the same as in all other bamboo species (fig. 22). The density of the fibre bundles decreases from the outside to the inside.

Due to Corona, Viet-2 culms are not available at present. If you are interested in this species, please send your contact details to info@springforelle.de and I will inform you, when the situation has improved.

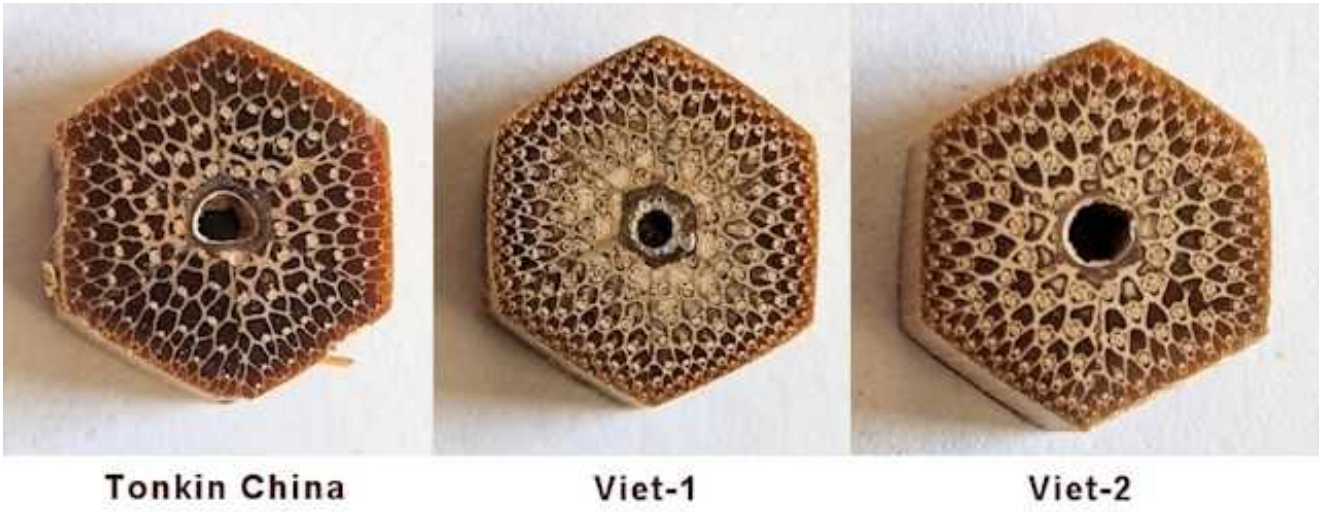


Fig. 22 Cross sections from blanks of Philipp Sicher.

**Conclusion**

It is worthwhile trying other bamboo species than Tonkin for rod making. Especially the node treatment of the traditionally used Tonkin requires a lot of time and produces weak spots in the rod. Using bamboo species with internodes of 28 to 35 inches allows making rods without nodes. However, the mechanical properties of other bamboo species should be evaluated.

Even though the mechanical properties of Tonkin, Viet-1 and 2 differ, the rods do not differ much. Values of bending strength and elasticity from samples of the outer 3 mm (0.118 in) of the culm are high for all tested bamboo species. The differences when casting the test rods of same taper from Viet-1 and Viet-2 in comparison with one from Tonkin are very subtle. The bamboo species is not the key factor for the rod's casting properties, but the dimensional property, the taper of the rod. The rod maker is the one who decides if a rod possesses less or more backbone.

Good rods, i.e. ones which cast and fish well, can be made from Vietnamese bamboo. The test results allow concluding the mechanical properties of Viet-2 are sufficient to make rods like the ones from Tonkin. Moreover, the very long internodes of this species reduce the working time considerably, eliminate node staggering and thereby weak spots. The possibility to build without nodes offers a great advantage for three- or four-piece rods.

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**Acknowledgements**

All this would not have been possible without the support and co-operation of my friends and colleagues: My Hanh Diep and Jacques Gurgand (Phu An Bamboo Village, Vietnam); Kim Hong Tang and Linh Nguyen Duy (Center for Forestry Research and Technology Transfer, Nong Lam University, Vietnam); Walter Liese, Goran Schmidt and Marco de Angelis (Institute of Wood Science, University of Hamburg, Germany); Dörte Bielenberg (Thünen Institute of Wood Research, Germany); Heiko Beyer (Köln, Germany). Last, but not least, I thank all rod makers who took part in this test.

# *Use of Rare Earth Magnets to Attach Caps to Rod Cases*

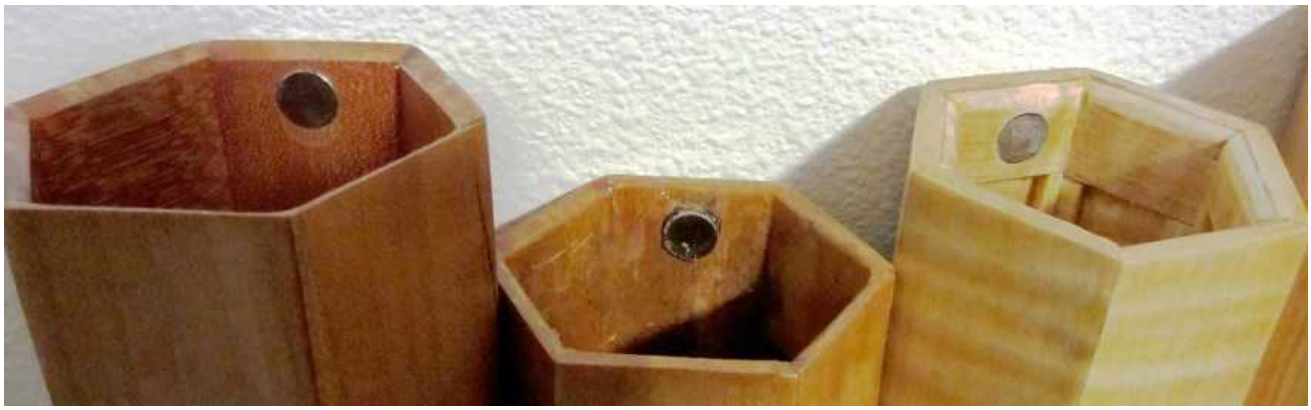
**Text and Photos by John Krueger**

I enjoyed reading the descriptions of various means (hinges, straps, etc.) for attaching the top end cap to its rod case. Here I wanted to share a simple idea, borne out of pure expediency, of using small rare earth magnets.

The idea requires 2-4 magnets, 3/8" dia X 1/10" thick (from Highpoint) that I obtained from the local WoodCraft store.

(**Figure 1**: *Selected rod cases*)

**Preparing the Case**: My hex shaped rod cases are made from strips >0.2" thick, and so a 1/10" thick magnet can easily seat flush into two of the strips that will be the opposing sides of the case. A flat-bottomed hole is created with a 0.375" end mill (see later Figure 3). The hole is centered a little lower on the side of the case (~1/16") than its respective 'center' on the inner part of the end cap. This slight vertical mismatch serves to pull the cap down snug against the case. (Figure 2)



(**Figure 2**: *Internal view*)

The depth of the hole is first checked by pressing in the magnet. Tolerances are generally snug, but the magnet can be removed by using its attraction to the broad flat surface of a screwdriver tip. More importantly, leaving the magnet on the screwdriver enables the magnet to be reinserted for gluing without inadvertently mixing up its polarity. (Both sides of those little guys look alike, after-all!) I use 5 min epoxy, with a little escape port to vent any trapped glue.

*(Continued on page 52)*

**Preparing the Top Cap**: The oversize lip of the cap and the inner part that seats the magnets are turned round. The magnets are then inserted without glue into the inner cap to verify its clearance to the case and the correct polarity of the magnet. (The gap can be rotated, as the unglued magnets are trapped in the gap and can't 'wander' about.) Use the screwdriver trick discussed above to reference the magnets upon removal and their reinserting for gluing.


(**Figure 3**: *Details of end caps*)

Finally, the hexagonal cross sections in my cases never turn out to be perfectly true. In order to insure alignment of the sides of the case with each respective side edge of the cap, the oversize hexagonal shape of the top cap is cut and finished only after the magnets are installed. The magnets are more than sufficient to hold the cap's corners and edges aligned and secure with the corresponding shape of the rod case.

**Comments**: A cap can be stored on the rod case in an 'open position', perhaps for drying, but this requires

*(Continued on page 53)*

that the ('in-to-out') polarity must be opposite orientation on either side of the case. (Figure 4, right) This arrangement also means that the cap will now seat in only one orientation (because the 180 degree orientation will repel).

(**Figure 4**: *Orientation of magnets*)

One could easily replace two of the magnets with small metal plates, as shown in brown-toned oak case in Figure 5. This enables use of thinner walls, such as those routed out to give more internal space.

**Figure 5** (*Arrows denote small iron plate replacing inner magnet.*)

*(Continued on page 54)*

The downside is the metal plate doesn't create sufficient attraction to hold the cap in the 'open position' shown in Figure 4.

It's best to finish the outer surface of the case before gluing the magnets. Otherwise small flecks of some sandpapers or fine steel wool will be attracted into the grain of the unfinished outer surface of the wood overlying the magnet. To illustrate the point, note the wooly bugger hugging the side of the rod case at the left in Figure 4. In like fashion, one could also use that magnetic site to attach a removable label outside using a refrigerator magnet to designate the contents.

Finally, I always regret having to saw off the unneeded length of the shorter rod cases, because I know I will invariably discover that I'll want to repurpose it for a longer rod. Obviously, it is easy enough to add an extension as shown in Figure 6A (here shown -as before- with the regular top 'stored' at the side to emphasize the mutual attraction).

**Figure 6A (left) and Figure 6B (right)**

What I realized is that the real virtue of using the magnets is that they facilitate using a shorter internal extension while maintaining a good slip fit. This is because, at my beginner skill level, the hexagon's cross section is never totally true. The magnet overcomes this limitation by pulling the extension down snug into the case. For example, if I rotate and then insert the section by either 60 or 180 degrees, the extension cap fits much looser. Thus the magnets facilitate a better fit when adding an extension, while at the same time permit a design using a shorter internal section.

John Krueger
Middleton, Wisconsin

# Call for Input! We need your help!

We'd like to start sharing information on how we all make our rods. There are many different ways to get from culm to finished rod, and we think it may be interesting to hear about all of these methods. Each issue, we'll pose a question which will address some area of rod-making. We'll then compile the answers we receive and then publish them in a later issue of the magazine. We'll need participation from as many readers as possible, so your input is appreciated.

For this issue, the question is: What is your process for finishing wraps?

Please be a specific as possible with your technique and send your responses to the following email address: power.fibers@bamboorodmaking.com.

# How to Make a Basket-Weave Rod Tube

**Text and Photos by Chris Sparkman**

I have made dozens of wooden rod tubes in my shop, and I've taught many people to do the same through my volunteer work with Project Healing Waters Fly Fishing. I love the look of a polygonal tube made of fine hardwoods, but back in July of 2019 I was looking for something different. Basket weaving has intrigued me for some time. I'd really like to try my hand at making a split willow creel, but I decided that my first attempt at weaving would be a rod tube.

Pictured above is what I came up with to house the rod I made based on Paul Young's Midge taper. The result was a surprisingly strong but lightweight tube. I took it with me to the Virginia Fly Fishing and Wine Festival to show the rod to a couple of people, but it was the basket-weave tube that got all the attention.

*(Continued on page 57)*

For my second basket-weave tube, I wanted to make a couple of improvements. First, the cap. For my wooden rod tubes, I always use four half-inch wide, eighth-inch thick magnets

**Figure 1: Four half-inch magnets secure the cap on a wooden rod tube. It's a very successful solution.**

(Figure 1). It's easy to implement and very secure. The basket-weave tube, however, has a rounded cap (Figure 2). This necessitated using a smaller magnet. In hindsight, I should have doubled the number of magnets. At the show, I dropped the tube and the cap popped off and rolled under a table. My next tube needs a better solution. Obviously, I could use a leather strap and buckle like so many craftsmen use, but that's just never been appealing to me. We all have our quirks.

Also, the transition between the basket weave and the cap lacks elegance. The only thing I could come up with was to wrap a strip of the weaving cane around the end a few times and glue it down (Figure 3). I've thought about what to do to improve the next tube. A friend suggested a copper ring with a nice patina. Sounds nice but I could not find any copper pipes or

**Figure 2: Four 3/8" magnets hold the cap on my first basket-weave tube.**

fittings of the correct size. Perhaps in the future I'll try making a ring by soldering a strip of copper. Whatever I come up with next must be simple and aesthetically pleasing.

In the midst of winter, with my wife working

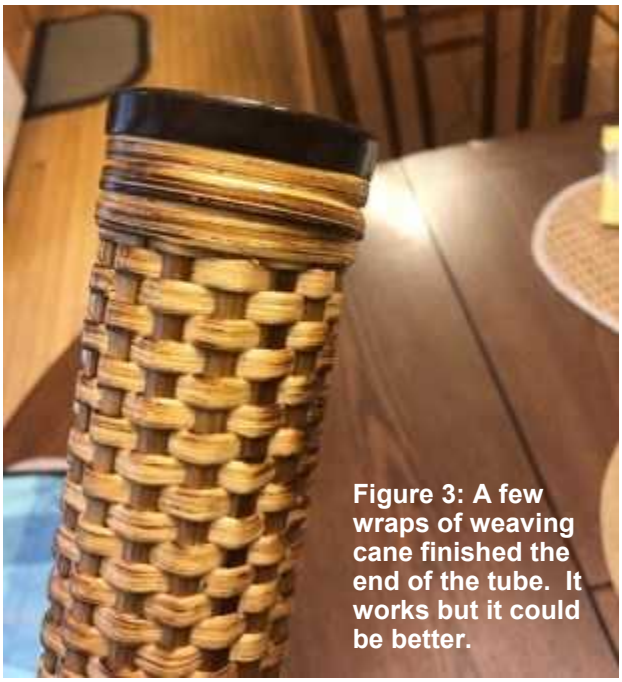


**Figure 3: A few wraps of weaving cane finished the end of the tube. It works but it could be better.**

*(Continued on page 58)*

half a world away, I find myself looking for projects to do. I started on three new rods using the Dickerson 8014 taper. You know the drill; split, straighten, flatten nodes, bevel, plane (although this time final taper was achieved with my new Bertram mill…what a machine!), glue, scrape, heat set, straighten, sand, etc. As the sections were in the oven for the two-hour heat set, I decided it was time start on my next basket-weave tube. I'm keeping one of the rods, so this tube will be for me. The first considerations are the materials:

1. 15 bamboo strips for the ribs (I found out the first time around that you must use an odd number.)
2. Material for the weave. On Amazon.com I found a basket weaving cane. You can read the description here.
3. Wood for the caps and flange. I used walnut on the first tube, but for this one I'm using maple.

For the ribs I picked out 15 strips that I had rejected in previous rod builds. Some were over-flamed, some were cracked, one had a leaf node

**Figure 4: Bamboo strips for the ribs were not suitable for rod making for various reasons.**

(Figure 4). They had all been beveled which was nice because they all averaged about a quarter inch wide. The Dickerson 8014 is 8 feet long, so each section is about 48.5". Since the flange and the bottom cap will each take up about an inch inside the tube, I decided that the ribs needed to be 51" long. After cutting to length, I ran the strips through the drum sander to bring them down to a thickness of 3/32 of an


**Figure 5: Running the strips through the drum sander.**

inch (Figure 5). This could be done in a standard planer or of course by hand planning as well.

Since the strips were already beveled, once down to the correct thickness, there remained a bevel on the pith side. This is good because I decided to position the ribs with the pith side out. The weave easily bends over the rib with that bevel. I should have beveled both sides or at least I should have sanded the sharp side down a bit. The sharp side ended up shaving a little cane from the weave when pulling it tight.

Now to get started. I wanted about a 2-inch diameter tube, so I found a cardboard mailing tube to use as a form. I held the ribs around the cardboard and began to wind the weave through

**Figure 6: Getting started.**

them (Figure 6). Before this however, you must soak the weave material. It is very porous so

*(Continued on page 59)*

soaking for only about a minute works fine. I found that soaking longer makes it tend to shred. when pulling it tight.

It takes several wraps around the tube before the ribs begin to hold their position. The weave material comes in lengths that vary from about three to five feet, and it will take at least a dozen strips to complete a tube this long. When it comes to starting a new strip, I simply insert the new strip under the last rib right on top of the previous strip. It does raise a slight bump, but I find that it's hardly noticeable.

**Figure 7: Adding a new strip of weaving cane.**

From here it's just a matter of keeping the cardboard tube inside the ribs and weaving the cane, pulling tight as you go. It takes a long time. The following pictures show the progress. I started weaving at 3:00 PM and finished at 2:00 AM. What can I say…once I started, I became obsessive and couldn't stop!

After weaving, there were a lot of errant fibers

*(Continued on page 60)*

or "hairs" all over the tube. I used an alcohol lamp to carefully singe most of them off (Figure 8). With my first basket-weave tube, I used a torch for this purpose and at the same time used it to darken the tube to go along with my PHY

**Figure 8: Singeing the errant fibers with an alcohol lamp.**

midge that I had darkly flamed. This time I wanted a lighter color and so was careful not to darken the weave.

Next came time to make the caps, and the first step was to make a flange for the top cap to fit into. The caps and the flange were made on the wood lathe (Figures 9-11).

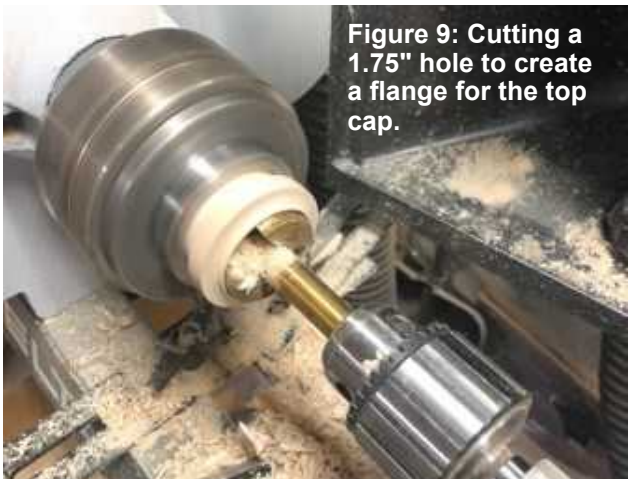


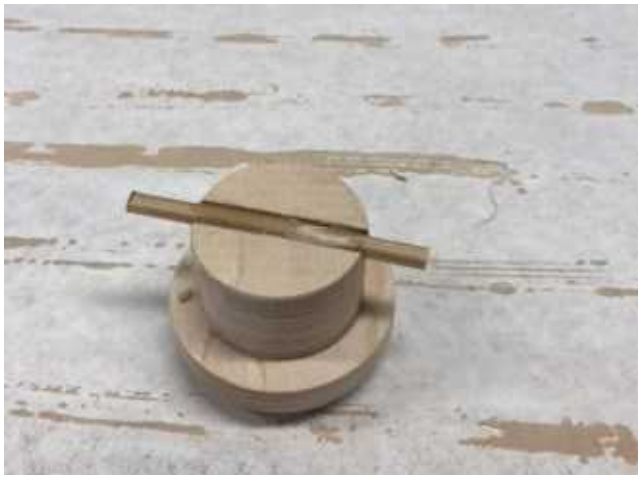
**Figure 9: Cutting a 1.75" hole to create a flange for the top cap.**

**Figure 10: The flange is a good fit.**

**Figure 11: The cap and flange.**

*(Continued on page 61)*

To secure the cap I decided to try a different approach. I installed a bamboo crossbar in the cap then used the Dremel tool to cut L-shaped grooves inside the flange. I thought I would bolster it with magnets, but so far it works very well without them. I can add magnets later if I need to. The following pictures show my process.

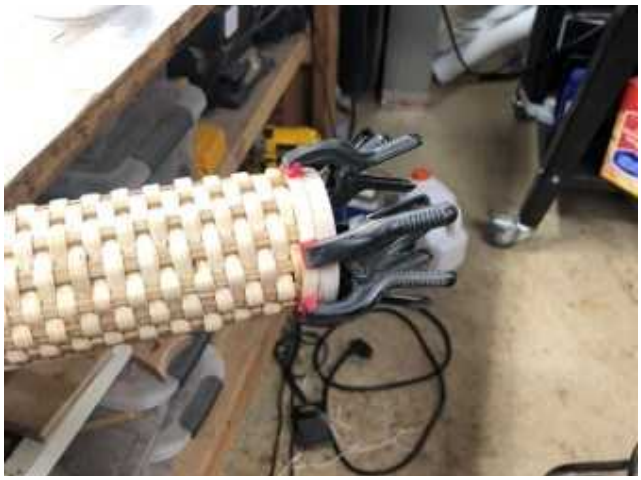


*(Continued on page 62)*

And now to create a transition between the tube and the caps. What I decided on is a simple, single strip of weaving cane. To accomplish this, I first needed to continue the weave on both ends right up to the very end if the ribs. Next, I glued both the flange and the bottom cap into the tube using Titebond and bound very tightly with nylon twine.

*(Continued on page 63)*

A single ring of weaving cane was glued next to the flange and the bottom cap, and thus the construction was complete. A couple coats of varnish will finish the tube very nicely. Now it's back to those rods!



A few final thoughts: The tube feels kind of soft or squishy before the varnish is applied. After a couple of coats and a few days to cure, it stiffens up nicely and really does create a haven for a prize rod. Also, I like that the tube is ventilated. I don't have to worry if a little moisture is left on the rod when I put it away. Finally, these basket weave rod tubes are, for me, in the experimental stages. I hope the reader will be inspired to give it a try. I can't wait to see what others will come up with.

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