

# Bamboo Fence Making Workshop by Morgan Rowlands



Figure 1: *Yotsume-gaki* demonstration (Hayley Madden)

On the 7th of December 2022 Portland Japanese Garden and Royal Botanic Gardens Kew, with the JGS, co-presented a wonderful day of workshops at Kew Gardens focussing on Japanese maple pruning and bamboo fence making. The lectures and workshops were hosted by Sadafumi Uchiyama, Chief Curator and Director of Portland Japanese Garden, Hugo Torii, Garden Curator at Portland Japanese Garden and Jake Davies-Robertson, Arboretum Supervisor at Royal Botanic Gardens Kew.

The bamboo workshop began with a presentation from Hugo Torii discussing the construction, culture, history, and design uses of bamboo fences. We then had a workshop in which we learnt the *Ibo-Musubi* knot (Male Knot) followed by Sadafumi Uchiyama and Hugo Torii demonstrating the construction of a bamboo fence.

Throughout the whole day Sadafumi and Hugo shared lots of useful and fascinating information making us all feel more confident in trying to develop our Japanese gardening skills. Myself, and I'm sure the rest of the attendees, left London feeling inspired.

## Learning the *Ibo-Musubi* knot

After the presentation we were taught the knotting process necessary for binding the *tate-ko* (vertical bamboo) to the *do-buchi* (horizontal bamboo). The type of twine that is used for binding the bamboo is called *shuronawa*. *Shuronawa* is spun from the palm *Trachycarpus fortunei* and can be used for all manner of garden jobs besides fence making.

For best results the *shuronawa* should be soaked in water, this makes the twine softer and more workable. Wetting the *shuronawa* will also result in it shrinking when it dries, making the knot tighter. A warning for first time users - the wet *shuronawa* will stain your hands black. However, when in Japan with your hands stained black could get you some free food! Sadafumi explained that the professional bamboo fence makers with stained hands will sometimes be given extra food in restaurants as they are respected for tying bamboo in the cold winters. It was also explained to us that there are many different types of knots that can be used. They can be made to resemble butterflies and other types of insects or animals.



Figure 2: Practicing the *Ibo-musubi* knot in a warm room.



Figure 3: Sadafumi Uchiyama advising on the technique.

The knot we were taught is the *ibo-musubi* knot which is the most common knot for bamboo fence making. The process of learning this knot was rather humbling as it took at least an hour of practice with frequent instruction to get it right. Experienced *take-gaki* makers at the event could do the knot in seconds.

For those who are interested in trying the *ibo-musubi* knot, the Building Bamboo Fences book (Yoshikawa, 2001) has a great step by step visual guide. There are also multiple videos online demonstrating this technique as well.

Sadafumi and Hugo then did a demonstration of bamboo fence building in the *yotsume-gaki* style. This demonstration was very reassuring that a beginner with enough time, preparation and practice could build a decent bamboo fence themselves. Although the *yotsume-gaki* style can be applied in a very beginner friendly manner, it was extremely impressive to see how quickly and efficiently experienced builders can construct them.



**Figure 4:** Checking the *do-buchi* (horizontal pole) is level before using twine to attach it to the *oya-bashira* (end posts).

### Bamboo fences

Bamboo fence building, or *take-gaki*, is a craft and is also an art form. These fences serve very practical purposes of being barriers or screens around the home and garden and they can also be made to be highly ornamental. Many different styles and types of these fences exist based on where they originate and what they are to be used for.

The style of a bamboo fence might represent the spirit of the region it was created in, for example the Ken'nin-ji-gaki fence style is named for its use Ken'nin-ji Temple in Kyoto (Kenkichi & Edwards, 2010). As such there are hundreds of different styles that can be learnt, with varying levels of complexity and difficulty.

*Take-gaki* is said to have been used as far back as the Nara period (710-794 CE), when bamboo fences or hedges were used to create boundaries around areas in aristocratic estates. The popularity of *take-gaki* as it is practiced today can be linked

to the tea ceremony and the style of gardening associated with it (Nagaokameichiku, 2023). As tea gardens grew in popularity due to Sen no Rikyū and his efforts with the tea ceremony, *take-gaki* fences became more popular.

### *Yotsume-gaki* construction process

The *yotsume-gaki*, a basic four square design of fence which is very popular for use in tea gardens, was taught to us during the workshop. The *yotsume-gaki* is quite accessible for beginners as it is quite simple in design and has a very attractive appearance. This basic style can easily be modified with extra vertical and horizontal poles to change the size and shape of the squares, which alters how the fence interacts visually within the garden.

Required tools:

- Tools for fence post setting: post auger, shovel, wheelbarrow, gravel or postcrete.
- Propane torch for burning posts or paint and paint brush for staining posts
- Tape measure
- Level and string
- Japanese bamboo saw, or hacksaw
- *Shuronawa* twine
- Hammer and nails or screws or copper wire
- Drill or wire cutters and pliers (to cut and twist wire around bamboo)
- Wooden or rubber mallet
- Secateurs
- Scissors
- Pencils

### List of Japanese terms

*do-buchi* : Horizontal bamboo  
*tate-ko* : Vertical bamboo  
*hashira, bashira* : Fence posts  
*ma-bashira* : Midposts  
*kaki, gaki* : Fence; hedge  
*oshi-buchi* : Split bamboo pieces placed over the top of the vertical bamboo poles.  
*oya-bashira* : End posts  
*take* : Bamboo  
*ibo-musubi* : Fence knot

When building a *yotsume-gaki* a typical section will measure approximately 12 feet. Begin by marking this out and evenly spacing where the *bashira* (end fence posts) will be. The front edge of the *ma-bashira* (smaller mid posts) must align with the centre line between the *bashira* - slightly behind the fence front.

Before construction, char the *bashira* with a propane torch and then scour to remove excess charring. This creates an attractive finish and works as a deterrent for pests. However, for longevity in wetter soils, chemically treated posts can be used. Warning - if you choose to use treated posts they should not be charred as the chemicals used to preserve the wood could produce toxic fumes when burnt so stain these posts black to achieve a similar appearance.

The *oya-bashira* and *ma-bashira* should be spaced out evenly and sunk 2 feet into the ground. They can be backfilled with gravel or postcrete. Make sure they are straight and level using a spirit level. The *oya-bashira* can then be cut to the desired height of the *yotsume-gaki* while the *ma-bashira* are cut shorter to achieve the same height as the top of the bamboo poles.



# Bamboo Fence Making... continued



**Figure 5:** Knocking the *tate-ko* (vertical pole) into the ground until the top line lines up with the string before knot tying.

Next, you should cut your bamboo poles. You will need long lengths for *do-buchi* (horizontal poles) across the *bashira* and shorter lengths for the *tate-ko* (vertical poles), which should be roughly the same length as the *ma-bashira*. When cutting poles, they should be cut just above the nodes as this makes them more resistant to rotting. Use a hacksaw or bamboo saw for a cleaner cut and to avoid splintering.

Next, the *do-buchi* should be evenly attached to the *oya-bashira* and the *ma-bashira*. The *do-buchi* ends



**Figure 6:** More *tate-ko* (vertical poles) are then attached on alternating sides of the *do-buchi* (horizontal poles).

must be mitred so that they fit well against the curved surface of the *oya-bashira*. They should be attached forward of the centre. Nails are traditionally used for this, but screws can also be used. Before attaching use a string line and level to mark the attachment spots to make sure the *do-buchi* will be level.

If you have very thin bamboo, they can be cut to the nodes on the thinnest side to add additional strength. When building multiple sections of *yotsume-gaki* the *do-buchi* should be attached using the *ibo-musubi* knot to the *ma-bashira*. If the diameter of the bamboo is too big, it should be mitre cut and attached with nails or screws to the *ma-bashira* instead. After completing the previous stages, you can begin tying on the *tate-ko*. The *ibo-musubi* knot is the preferred method but for those who are practicing I've found that a simple knot looped around each side of the *do-buchi* and *tate-ko* tied tightly will suffice. The *tate-ko* should be evenly spaced alternating from the back and front of the *do-buchi*. When alternating the *tate-ko* make sure they end up placed in front of the *ma-bashira*.

## Summarized construction process

1. Measure and mark out the length of the fence (for example 12 foot)
2. Mark out evenly where the post holes should be (the edge of a midpost should align with the centre line between the two end posts).
3. Char the posts with a propane torch (do not char chemically preserved posts).
4. Scrub off charring.
5. Use a post auger to create the post holes.
6. Place the end posts and mid post into the post holes.
7. Back fill the posts with gravel or postcrete making sure the posts are straight and level.
8. Cut the posts to desired heights (the mid post is shorter and defines the top edge of the fence).
9. Use a line and spirit level to mark out on the posts where the horizontal poles attach.
10. Cut bamboo canes using a hacksaw or bamboo saw for horizontal and upright poles.
11. Mitre cut the ends of the horizontal poles.
12. Attach horizontal poles using nails or screws so the poles are forward of the centre line between the end poles and touch the mid post.
13. Place out the vertical poles alternating in front and behind the horizontal poles.
14. Knock the vertical bamboo poles into the ground to be the same height as the mid post(s).
15. Attach the vertical bamboo to the horizontal bamboo poles using the chosen fence knot.
16. You should now have a sturdy and attractive bamboo fence!



**Figure 7:** (a) Detailed view of the knots and (b) the completed six foot long *yotsume-gaki* section. Note: for this demonstration fence the *do-bachi* ends are not mitred and screwed into the *bashira*.

Use a wooden mallet to knock the *tate-ko* into the ground so they are all at the same height as the *ma-bashira*. Finally use *ibo-musubi* knot to attach the *tate-ko* to the *do-buchi*. You should now have a wonderful *yotsume-gaki*! These fences are very easy to deconstruct so you should be able to keep dismantling and practicing until you are happy with the results.

### Bamboo varieties

In Japan the two most common varieties of bamboo used for *take-gaki* are *ma-dake* (*Phyllostachys bambusoides*) and *moso-dake* (*Phyllostachys edulis*). In ideal weather conditions *ma-dake* poles can last for decades. Both have very straight growth that makes them ideal for *take-gaki*. However, without

frequent harvesting both can be very invasive in ideal conditions. This is due to their vigorous roots and rapid growth. Their roots are so strong that in the past people would run into bamboo groves during earthquakes for protection (Abe, 2019). If *moso-dake* or *ma-dake* poles cannot be sourced, tonkin bamboo canes can frequently be purchased but they usually only last 5 years.

If you have bamboo already growing in your garden, you could try harvesting poles yourself for *take-gaki*. The best

time to cut bamboo in Japan is at the end of the rainy season, as the dry season begins around October/November. During wetter months bamboo will have larger stores of starches making them more vulnerable to the fungus and bacteria which cause blackening. Given that weather conditions in the UK during October and November are less predictable, some experimentation might be needed to test the best month for harvesting. I shall try harvesting this year in mid to late summer.

Ideally very straight bamboo poles should be chosen for *take-gaki*. All poles will have a small amount of movement as this is due to the way bamboo grows. Just pick the most suitable straight poles you can and turn them so that the straightest side is visible.

### Support from the JGS

I was able to attend the workshop through a JGS bursary, which supported my travel and accommodation. I really appreciate this support as the workshop enabled me to learn more about the world of Japanese gardens. This is particularly valuable as I am a horticulturist at the National Botanic Garden of Wales and my responsibilities include our Japanese garden, constructed in 2001. It was renovated during 2018/19, through Japanese government funding (Hardman, 2019), which included rebuilding of the *yotsume-gaki*. However, 4 years later a complete replacement of the bamboo is badly needed! After having hands on teaching and practice during the workshop I feel confident to replace the *yotsume-gaki* myself. Once again, a huge thank you for the support I have received from the Society.

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### References

- Abe, N., 2019. *Bamboo and Japanese Culture*. [Online] Available at: <https://www.thoughtco.com/bamboo-in-japanese-culture-2028043> [Accessed 04 02 2023].
- Hardman, G., 2019. Restoration of the Japanese Garden at the National Botanic Garden of Wales. *Shakkei*, 26(2), 18-23.
- Kenkichi, O. & Edwards, W., 2010. *Kenninji gaki*. [Online] Available at: <https://www.nabunken.go.jp/org/bunka/jgd/pages/KenninjiFence.html#:~:text=A%20typical%20bamboo%20fence.,with%20the%20hemp%20palm%20rope>. [Accessed 07 02 2023].
- Nagaokameichiku, 2023. *The History of Takegaki*. [Online] Available at: <https://nagaokameichiku.com/en/> [Accessed 02/02/2023].