

# **The Japanese Arrow**

By Godai Katsunaga

## **Intorduction**

The Ya, or arrow of Japan and was between 34 and 38 inches in length, made of fire hardened bamboo shafts and had a steel arrow head., During this period and earlier arrows used in combat were often marked to identify who owned them, this allowed samurai to get the proper credit for killing an opponent.

## **Period Construction**

The bamboo used for the arrow shafts is *Pseudosasa japonica* or commonly called Japanese arrow bamboo. This bamboo grows in slender culms that are packed tightly together, forming a dense hedge, with large, dark green foliage. It is a tough and versatile bamboo that will thrive in shade and in sun while growing to about 15 foot tall and was common throughout Japan.

Farmers and other workers harvested the bamboo in the early winter when the plants saps were down. To get the required diameter need to make arrows the plants that were between two and three years in age were preferred. After harvesting, the best bamboo was hand selected and ideally stored for about a year for drying, allowing most of the moisture in the plant material to evaporate.

Preparation of each shaft included having the nodes shaved off and then softening the shaft by placing it in hot sand prior to straightening it by hand. After the shafts were straightened, they were exposed to high heat to remove any remaining moisture and harden the natural sugars, creating a stronger bond of the natural fibers; this was known as fire hardening.

Fletching was done with hawk, eagle, crane or pheasant tail feathers and could be either three or four flights depending on the arrow head that would be mounted. The fletching was glued on the bamboo shafts with a fish based glue and tied front and back with silk threads which were then lacquered for protection from the weather.

From “The Tale of the Heike” we get the following description “on his back, he placed a quiver containing 24 arrows, the white feathers of each marked with broad black bands, as well as pair of target-shooting arrows fledged with hawk feathers”.

The arrow nocks were made of bone, horn or a self-nock. The self nock would be above a node in the bamboo to prevent splitting of the shaft. Bindings of silk thread covered with lacquer provided strength to the nock area.

Japanese arrow heads (*yajiri*) were often elaborate and came in hundreds of different styles. Simple designs were used for combat while very elaborate designs were used in ceremonial functions. The arrow heads were hardened steal and often made by sword makers. The arrow head is attached to a 4 to 6 inch shaft that is heated and inserted into the bamboo arrow shaft. The shaft was reinforced with silk thread covered with lacquer.

Some of the most common types of yajiri are:

- Hiniki: A whistling bulb carved from wood.
- Hira-ne: A flat shape with sharp edges, sometimes with an extended shaft.
- Karimata: A two pronged fork.
- Muto: A target point.
- Sankaku: Triangular or diamond armor piercing.
- Tsubeki-ne: Chisel shape.
- Yanagi-ba: A willow leaf shape.
- Watakushi: Barbed.



A Photo of a Japanese Arrowhead display showing the various types of arrowheads available to the Japanese archer from Northern California Japanese Sword Club website.

### **Construction methods used for the Japanese arrows**

The displayed arrows were constructed using the following steps. The methods used only hand powered tools and period techniques with the substitution of materials noted.

1. The bamboo shafts were imported from Japan. The bamboo shafts came with nodes removed, straightened and fire hardened. Each bamboo shaft used was selected for thickness, straightness and length. Adjustments to the straightness were made by heating and hand straightening while wearing leather gloves, the goal was to produce the best possible arrow shaft.
2. Arrowheads were matched to the bamboo diameter of the shaft. The final cut of the bamboo was done to maintain proper arrow length in respect to the other arrows.



3. Horn nocks were used on each arrow. The nocks were imported from Japan. Each arrow shaft was hand drilled to accept the horn nock and nocks were sized to match the diameter of the bamboo shaft.
4. Imitation eagle feathers and turkey feathers are used for the fletching on each shaft. Each feather was hand cut to match the required size and desired shape.



5. The feathers were glued on to the shaft with a modern adhesive for ease of use and

faster drying times.



6. Antique Japanese arrowheads are used on five of the arrows and reproduction arrowheads were used on three; each antique yajiri arrowhead is approximately 300 years old. All the arrowheads represent what was available in the mid 1500s. Prior to fitting of the arrowhead, each bamboo shaft was drilled by hand. The arrowhead tangs were heated and forced into the bamboo shaft. No glue or adhesive is used to hold the arrowhead in the bamboo.



Photo of the antique yajiri used in the construction of arrows.  
From left to right Sankaku, Yanagi-ba, Tsubeki-ne, Yanagi-ba, and a Hira-ne.

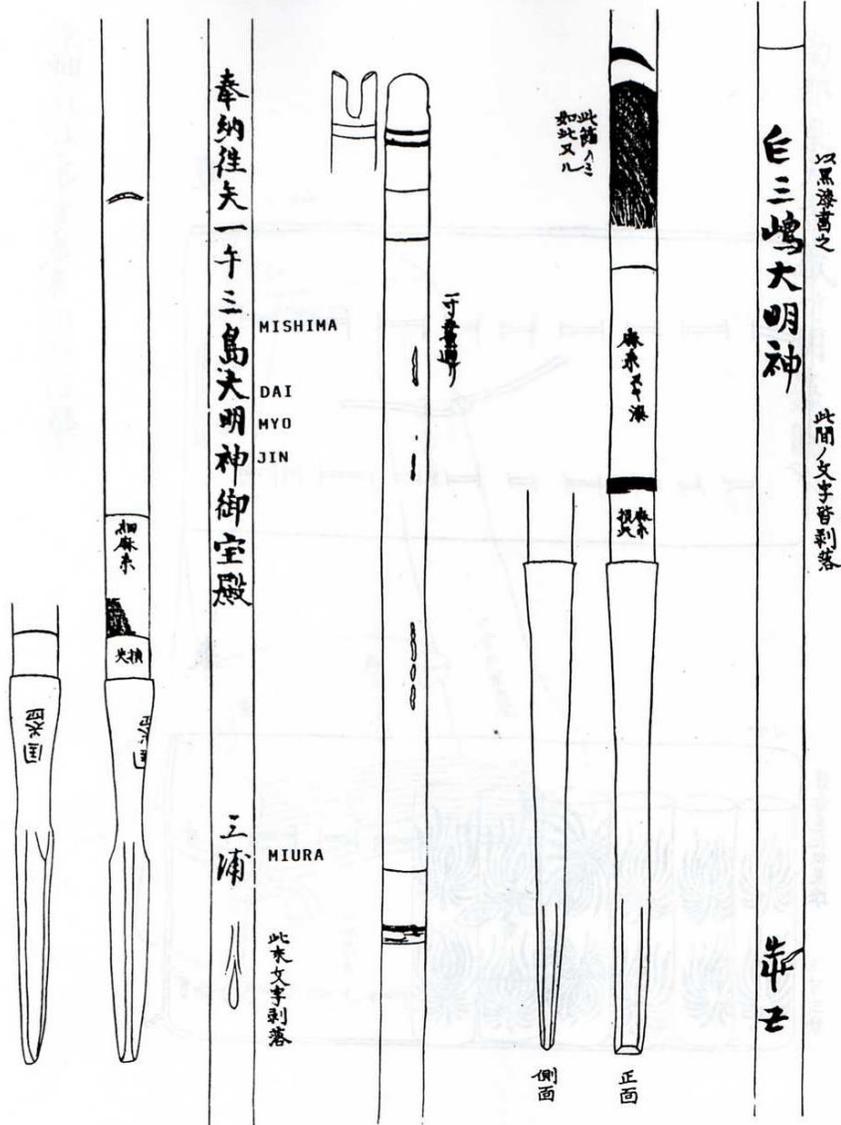
7. Silk thread bindings were used to tie on the feathers and reinforce the arrowhead and nock areas. The silk bindings were hand wrapped and then lacquered with a fast drying fingernail polish for ease of use and safety reasons as Urushiol lacquer is an oily organic allergen/poison.



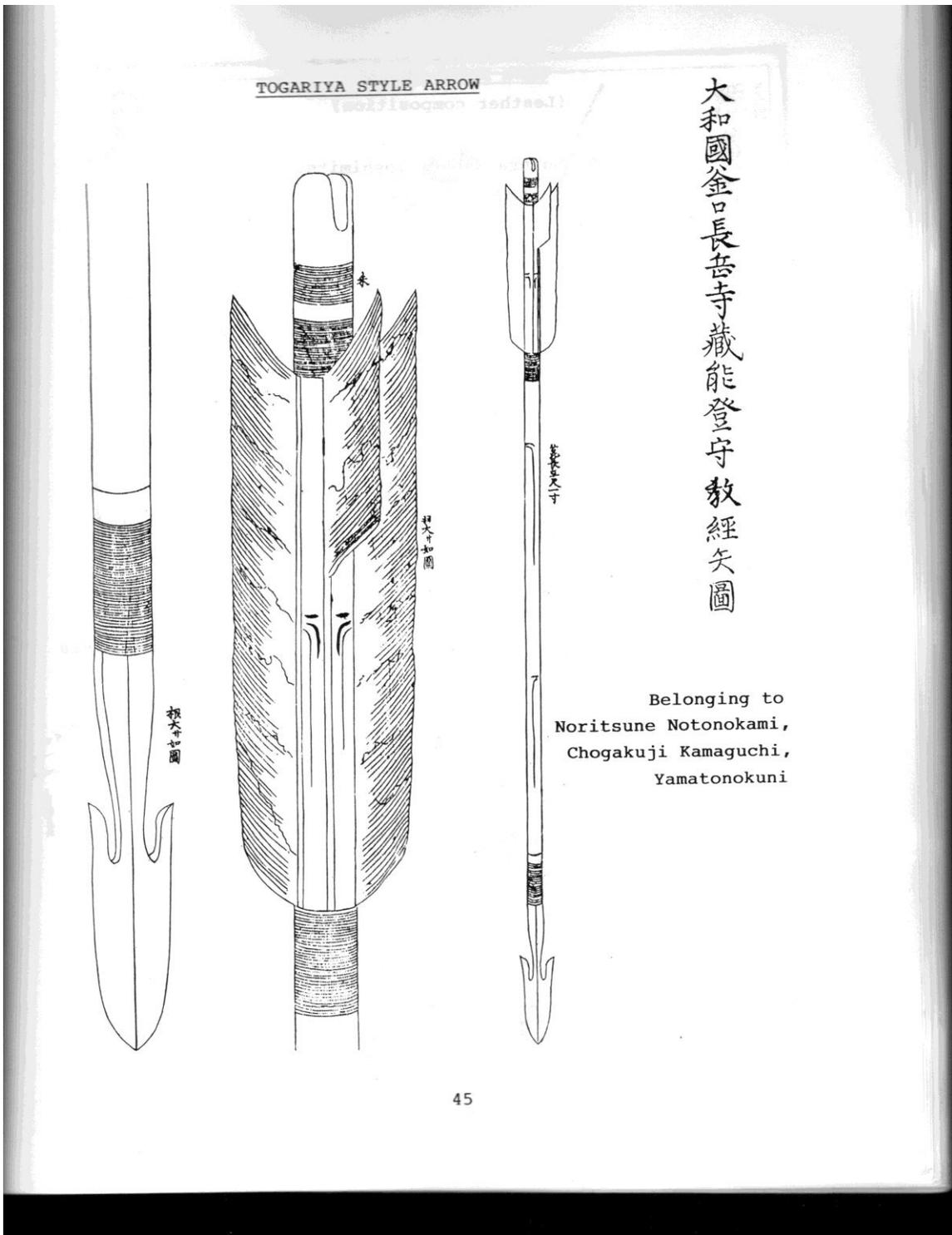
8. Kanji markings were hand painted on each arrow shaft to indicate ownership.
9. Kanji markings for victory were hand painted on each shaft to bring good luck to the arrows in battle.

ARROWS

At Mishima Yashiro, Iyo (Ehime)



Example of markings on arrows from: Bows arrows and quivers of ancient Japan translated by W. M. Hawley.



Example of silk ties and feather shape on arrows from: Bows arrows and quivers of ancient Japan translated by W. M. Hawley.



Photo of Japanese Arrows, showing the fletching and the arrowheads: Traditional Archery from Six Continents, The Grayson Collection by Charles E. Grayson, Mary French and Michael J. Obrien.

## **References**

- Art of the Samurai - Japanese arms and armor 1156-1868  
Morihiro Ogawa The Metropolitan Museum of Art, NY 2009
- Bow, arrows and quivers of Ancient Japan  
W.M. Hawley Hawley Publications, 1994
- Traditional Archery from Six Continents, The Charles E Grayson Collection  
Charles E. Grayson, Mary French and Michael J. Obrien.  
University of Missouri, 2007
- Armed Martial Arts of Japan - Swordsmanship and Archery  
G. Cameron Hurst III Yale University Press
- Samurai 1550-1600  
Anthony J. Bryant Osprey Publishing, 1994
- The Samurai  
Anthony J. Bryant Osprey Publishing, 1989
- Samurai Armies 1550-1615  
S. R. Turnbull Osprey Publishing, 1979
- Samurai - An Illustrated History  
Mitsuo Kure Tuttle, 2002
- The Tale of the Heike  
Translated by Helen Craig McCullough Stanford University Press, 1998
- Making Bamboo Arrows  
Kay and Jaap Koppedrayer Blue Vase Press, 2011
- Secrets of the Samurai  
Oscar Ratti and Adele Westbrook Tuttle, 1973
- Samurai - The Weapons and Spirit of the Japanese Warrior  
Clive Sinclair Lyons Press, 2004