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Tomoko Torimaru
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1. Introduction
Tablet weaving is one of the oldest techniques of expressing patterns, including script, with a warp thread. It is practiced in an extremely limited area and was considered a rare weaving technology. However, in the past it was developed to a level of highly skilled production among the people of Burma (now Myanmar). The scripts reveal the patronage of specific Buddhist believers and sometimes the provenance of the textile.

The script on the belt that secures the covering on the sacred book of the palm leaf manuscript of Myanmar includes dates that establish that this type of weaving was practiced from 1892 through 1928. The belt uses a tablet weaving type called “Sar Htoke Kyo.” It was reported that this weaving technology became extinct, but fortunately, the technique has been preserved by Saunders Weaving Institute near Mandalay.

In this paper, I discuss tablet weaving techniques handed down among the Burmese people and investigate their culture, historical significance, and new movements. (All photos are taken by Tomoko Torimaru, and all illustrations are created by Tomoko Torimaru.)

2. Tablet Weaving in Myanmar
I began my field research on tablet weaving in Myanmar in 2014, and, as of 2016, I have performed field research there three times. (Figure1) I was inspired to begin the research when I saw a band intended to hold the “palm leaf manuscript.” Later, I learned that the weaving type of the band was called “Sar Htoke Kyo.” (Figure2)

Figure1: Map of author’s research place
Figure2: “Sar Htoke Kyo,” a special belt for the sacred book of the palm leaf manuscript of Myanmar
When I began my research in Mandalay, Myanmar, I saw monks “begging” every morning. They walk from house to house asking for alms. Then I found that the monks’ waist belts and the bowl holders for “begging” are made by tablet weaving. (Figure 3) (Figure 4) Those belts and holders are sold at a shop selling Buddhist articles, and the owner of the shop told me the name of the village where they are produced.

![Figure 3: Bowl holders for monks](image1)

![Figure 4: A monk is wearing the tablet weaving belt](image2)

2.1. Tablet weaving belts and bowl holders for monks

Tablet weaving belts and bowl holders for monks are being produced at Shwe Yin Mar village, Sagaing Division, Myanmar, which is about two hours from the old capital of Mandalay by car. The village, which is inhabited by people from the Bamar ethnic group, consists of about 500 families with a population of approximately 2000. Most are farmers, mainly growing cotton, peanuts, sesame, and beans.

Tablet weaving is women’s work. During the busy season for farming, people give priority to agriculture, but most women of a village will weave belts for monks in a slack season on the farm. (Figure 5) Children enjoy helping their mothers with the work by applying macrame to the bottom of the bowl holder. (Figure 6) Men also participate in sewing the bowl holder to finish the work. Men buy the materials and sell the finished waist belts and bowl holders to shops in Monywa, Mandalay, and other big towns. (Figure 7)

![Figure 5: A large number of tablet weavings](image3)

![Figure 6: Children are doing “macrame.”](image4)

![Figure 7: Making a bowl holder](image5)
In Shwe Yin Mar village, the technique of the tablet weaving produces four different types of weaving: warp-twine weave, double-faced weave, double-plan weave, and warp-twine weave with three threads. All of them use chemical fiber yarn, woven by square cow skin or plastic (4 holed) tablets. (Figure8)

*Illustration note:* I use the following marks to describe techniques of the tablet weaving in this paper. (Figure9)

- \(\uparrow\): Warp thread goes through to the right from the left.
- \(\downarrow\): Warp thread goes through to the left from the right.
- \(f\): Turn the tablets forward (away from your body).
- \(b\): Turn the tablets backward (toward your body).

2.1.1. Warp-twine weaving technique (Figure10)

**Warping:** Prepare four warp threads which will go through each of the four holes in each of the 18 tablets. Warping is continuous (one tablet/one round). The length of the warp is twice the distance between post A and post B, which are driven into the floor, approximately 12.5m apart. One round of the interval between the posts measures the total length of the warp (approximately 25m). A warp of this length will produce fifteen bands of 1.2m length and 4.5cm width.

Bundle the four warp threads together and knot them to post A. Pull the warp threads through the holes in the 18 tablets and lead them toward post B.
Figure 10: Detail of the belt (warp-twine weave)

Turn behind post B, then start back toward post A. About halfway between post B and post A, release the last tablet from the stack and leave it hanging on the warp. Repeat this process 18 times. Untie the top of the warp threads that connect to post A. The top and end of the warps connect together. (Figure 11)

Figure 11: Continuous warping (one tablet/one round) The length of the warp is twice the distance between A and B.

Weaving: Arrange the warp of the odd tablets to ↖ and the warp of the even tablets to ↗, then start to weave. (Figure 12) All tablets turn ↘ 90° continuous but sometimes change direction (↘ to ↖, ↖ to ↘) to untie the twisting of warp thread on the far side of the tablet; all tablets keep turning ↗ 90° continuous. Place a small box under the thread when weaving, this box can control the width and density of the belt (like a “Reed”). It can also give stronger tension to the warp. (Figure 13)

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Figure 12: Pattern graph

2.1.2. Double-faced weaving technique (Figure 14)

Warping: Prepare four warp threads, which will go through each of the four holes in each of the 26 tablets. Warping is continuous (two tablets/one round). The length of the warp is the distance between post A and post B, which are driven into a wooden board, approximately 3.7m apart. A warp of this length will produce three bands of 1.15m length and 3cm width. (Figure 15)

Figure 14: Detail of the belt (double-faced weave)

Figure 15: Continuous warping (two tablets/one round) The length of the warp is the distance between A and B.
Weaving: Arrange the warp of the odd tablets to ↖ and the warp of the even tablets to ↗, then start to weave. (Figure16) (Figure17) Tablet No. 1, 2, 25, and 26, turn f 90° continuous (warp-twine weave). Tablets from No. 3 to 24, turn f 90°, f 90°, b 90°, b 90°, then repeat (double-faced weave).

Figure16: View of the weaving  Figure17: Pattern graph

2.1.3. Double-plain weave (Figure18)

A plain weave made by tablet weaving is possible in theory, but no actual examples had yet been reported. This was the first time I saw it. Without seeing the work site it is difficult to distinguish it from fabrics woven by other methods because it has no twist. Most tablet weaving is characterized by a twisted warp thread.

Warping: Warping is continuous (two tablets/one round). Two posts are driven into the wood board, approximately 1.8m apart. A warp of this length will produce one band 1.8m long and width 5.5cm wide. (Figure15)

Weaving: Arrange the warp of the odd tablets to ↖ and the warp of the even tablets to ↗, then start to weave. (Figure19) All tablets turn f 180°, b 180°, f 180°, b 180°, and repeat.

Figure18: Detail of the belt (double-plain weave)  Figure19: Pattern graph

2.1.4. Warp-twine weave with three threads (Figure20)

Warping: Prepare four warp threads, which will go through each of the four holes in each of the 26 tablets. Warping is continuous (two tablets/one round). Two posts are driven into the ground, approximately 7m apart. A warp of this length will produce five bands of 1.2m length and 3.5cm width. (Figure15) When warping for 14 tablets (7 round) has been finished, cut two warps and tie together, then, continue to do warping for 12 tablets with 3 warps (6 round).
Weaving: Adjust tablets according to the pattern graph, then start to weave. (Figure 21) All tablets turn f $90^\circ$ continuous.

2.1.5. Research results in Shwe Yin Mar village

As I described above, I had never seen cases in my field research so far of a village in which the belts use all four types of weaving. I was also impressed by the large number of tablet weaving belts the village has produced. It is clear that diversity in Myanmar tablet weaving techniques is very rare. In particular, the existence of the weave structure of 2.1.3. and 2.1.4. is notable in the study of tablet weaving technique. (Figure 22) These examples demonstrate the long history of Myanmar’s tablet weaving traditions and the foundation of the high level technology that created “Sar Htoke Kyo.”

2.2. “Sar Htoke Kyo” (a special belt for the sacred book of the palm leaf manuscript)

Myanmar is composed of about 70 percent Burmese; the remainder belong to various minority ethnic groups. Ninety percent are Buddhists. Myanmar Buddhism was introduced from Sri Lanka in 1057 (Tamura and Matsuda 2013, 374). Their sacred book was made by creating pages from young leaves of the talipot palm, Corypha umbraculifera, and carving the letters of the sutras on the leaf surface.

There are two different kinds of binding, one called Sar Se Kyo and the other called Sar Htoke Kyo. The term Sar Se Kyo refers to the cord that connects the pages of the sacred book of the palm leaf manuscript. The manuscript is bound by punching two holes in the palm leaf pages, stacking them in the order of the scriptures, putting wooden boards on the bundles, and attaching them by passing a band through the holes in the board and in the palm leaf pages. This binding band is called Sar Se Kyo, and it is a very simple type of weaving. (Figure 23) The sacred book is then wrapped in silk brocade or ornamental bamboo blind woven with multicolor silk thread. Finally it is bundled in a special cotton beltld (Sar Htoke Kyo) and dedicated to the temple.
During my field research, I saw the sacred book of the palm leaf manuscript with Sar Htoke Kyo at the Cultural Museum & Library in Mandalay, Maha-wei-yan-bon-tha (Bagaya) Monastery in Amarapura, the Library of Shwedagon Pagoda, and the National Museum in Yangon. Many of these places are designated as cultural heritage sites so that detailed observation is difficult. In addition photography is often prohibited.

![Figure23: The sacred book of the palm leaf manuscript bundled by Sar Se Kyo. (at Cultural Museum & Library in Mandalay)](image)

2.2.1. Types of Sar Htoke Kyo

Sar Htoke Kyo is usually a thin flat band having a woven width of 1.5 to 3 cm and a length of 3 to 6 m. Most of Sar Htoke Kyo is woven with simple patterns such as stripes and diamonds by the technique of warp-twine weave using square tablets. (Figure24) However, there are special Sar Htoke Kyo woven into Buddhism-related pictorial patterns and decorative letters by the technique of double-faced weave, and these are highly valued by collectors from all over the world. (Figure25)

![Figure24: Sar Htoke Kyo (warp-twin weave, author’s collection)](image)  ![Figure25: Sar Htoke Kyo (double-faced weave, author’s collection)](image)

2.2.2. Analysis of Sar Htoke Kyo

As a case study, I and my informant Mr. Sou analyzed a Sar Htoke Kyo in which pictures and letters are woven by a double-faced weave with a total of 160 warp threads of cotton with red and white, a weaving width of 2 cm, and a length of 4.64 m.

At the beginning, the weaving repeats the diamond pattern symbolizing the condition and effectiveness of Buddha’s wisdom and the lion pattern symbolizing Buddhism. Next, words to pray for the donor, such as the following, were decorated and made into characters, mixing the old Shan and the Burmese languages.

*Hello, how are you?*

*Living in a village near Bagan. The village name is La Pen Jon.*

*Mr. Go Sang, who lives in this village, married with Ms. Ma On Pyo, who is the same age as me.*
Three beautiful daughters were born; they have similar height and appearance. Their names are Mappasye, Mapppate, and Mapponboe. An important son, Manwaya, was also born. Happy parents and children talking about various things:

We paid money to have Scripture of Scripture copied, hoping to escape the world of samsara and reach nirvana.

Thanks to you, I am born to be a good person.

In the end, please lead us to enlightenment and arrival in heaven soon.

Created in 1909

In the last part of this Sar Htoke Kyo, is a diamond pattern and lion pattern, patterns of umbrellas (which are supposed to protect the bearers from evil spirits), patterns of gods that support them, and patterns of treasure towers. (Figure26) (Figure27)

2.2.3. Considerations on the tradition of weaving decorative letters

It is not clear when this kind of special double-faced woven Sar Htoke Kyo began to be produced. However, there are 50 double-faced woven Sar Htoke Kyo in the Brighton Museum in London that were woven between 1892 and 1928 (Isaacs 2003, 103). The limited period of time when decorative letters were woven into the bands overlaps the British colonial era. It is well known that the Arts and Crafts movement, which started in England in the latter half of the nineteenth century (1860) and spread throughout the world, generated an epidemic of fascination with beautiful calligraphy and letter forms. At that time, Myanmar was a British colony (1886–1948), and there is a possibility that the technique of tablet weaving was influenced by that movement.

Eventually the scripture in modern Myanmar shifted from the sacred book of the palm leaf manuscript to a paper book. As a result, the band that wraps the sacred book of the palm leaf manuscript (Sar Htoke Kyo) became unnecessary, and the technique of tablet weaving began to disappear. It has been reported that this weaving technology became extinct, but fortunately the technique has been preserved by Saunders Weaving Institute near Mandalay.
2.2.4. Tablet weaving at Saunders Weaving Institute

The Institute is a national vocational education school specializing in textiles, established in 1914 in the British colonial era by L. H. Saunders with the aim of nurturing textile engineers. A teacher there (Ms. Daw Thein Htay) researched the technique of the double-faced weave to weave letters by tablet weaving and taught other teachers (Ms. Ron Nei Zing and new teachers) and research students to preserve Myanmar’s traditional weaving techniques. Since Ms. Daw has never met the special master who is making the double-faced weave of Sar Htoke Kyo by tablet weaving, it cannot be said that the technology is completely preserved. However, I think that it is very close to the original technique.

2.2.5. Weaving Demonstration at Saunders Weaving Institute

At the Saunders Weaving Institute, students practice by weaving their name and the letters “I am studying weaving at school” in Burmese.

**Warping:** Warping is continuous (two tablets/one round). The two posts for the length (post A and post B) are driven into the wood board, approximately 4.65m apart. (Figure28)

**Weaving:** Arrange the warp of the odd tablets to $\uparrow$ and the warp of the even tablets to $\downarrow$, then start to weave. At first, weave the tip of the band in a tube shape. Only use 20 tablets on the right, turn f 90° continuous (warp-twine weave), weft always through the shed in the same direction. Then use 20 tablets on the left, continue to weave same as the right side. The tip of the band becomes a tube shape. Next, use all tablets, and weave letters by double-faced weave in flat shape. The tube part and the flat part are connected, and the tube part becomes a ring shape, (Figure29) which has the same function as the belt hole. Turn all tablets f 90°, f 90°, b 90°, b 90° and repeat (double-faced weave). In order to weave the letters, some tablets are rotated further and colors are chosen. (Figure30) (Figure31) Weave the ends of the band in a tube shape of 20 to 30 cm.

![Figure28: View of the warping](image1)
![Figure29: View of the weaving](image2)
![Figure30: Student work](image3)
![Figure31: Student work (detail)](image4)

2.2.6. Research results at Saunders Weaving Institute
I am deeply concerned that currently only a few teachers and students perform this tablet weaving technique successfully. In view of today’s situation where economic values change rapidly, academic countermeasures against technology transfer and for technical preservation are needed. Detailed investigation of Sar Htoke Kyo scattered in temples throughout Myanmar is of prime importance. Tablet weaving technology not previously reported may yet be discovered. I hope that more researchers will undertake strong research as soon as possible.

3. Conclusion
Tablet weaving in Myanmar has developed and survived because of Buddhism. Many waist belts and bowl holders are still produced for the monks. However, the lifestyle of monks is changing gradually. For example, at Mahagandayon Monastery in Amarapura, one of the largest teaching monasteries in Myanmar with more than a thousand monks, many believers bring food and visit there. Not having to walk to town with the bowl, those monks do not need the bowl holder. In modern Myanmar where printed scriptures increasingly replace the sacred book of the palm leaf manuscript, Sar Htoke Kyo has become unnecessary and tended to disappear. Although faith in Buddhism by the Myanmar people does not change, changes in society and technology threaten the survival of tablet weaving.

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Bibliography