Section 2: TERMINOLOGY AND NOTATION

In life we all use terms like up, down, left, right, front and back. Most of us know what these terms mean – they orient us in the 3-dimensional space that we live in. “Up” and “down” are particularly unambiguous because gravity is right here to remind us which is which.

But confusion can arise with the terms “left/right” and “front/back” because these terms are relative to position. For example, if I’m facing you, what’s in front of me may be behind you, and my left is your right. Maybe you’ve heard the mirror question, “If a mirror reverses left and right why doesn’t it reverse top and bottom.” This is an example of left/right confusion.

It’s for this reason mariners use the terms “fore/aft” and “port/starboard” to designate that these directions relate to the orientation of the ship rather than to the orientation of any individual on the ship.

Look at a few pictures of people tablet weaving (Plate 2-1) and observe how the position of the weaver relative to the weaving can vary.

You can see from these pictures how a weaver can beat towards or away from her/himself, or to the left or right, depending on where the weaver is standing/sitting and how the weaving itself is oriented. Using a warp-weighted hanging arrangement it’s also possible to beat up or down.

For clarity in our weaving discussion, we will use a vocabulary that is oriented to the WEAVING not the WEAVER. Here is a helpful diagram that illustrates some basic terms (Plate 2-2).

I will be representing the weaving arrangement in an orientation that puts the weaver at the unwoven end facing towards the tablets, the fell line and the front face of the textile.
Here are some terms that will be used that you should be familiar with:

- textile – the woven structure;
- warp – the yarns that are kept under tension and which run parallel to the selvedges of the weaving;
- end – an individual warp thread;
- weft – the filling yarn that is inserted perpendicular to the warp;
- pick – the weft-wise path of a single weft insertion into the shed;
- fell line – where the previous pick was woven; the weft-wise edge of the textile that is moving as the weaving progresses;
- tablets – the shed-producing mechanism;
- shed – the triangular opening created when the warp threads are separated into groups owing to the position of the tablet that each is threaded into;
- float – the portion of a warp end that is visible on a face of the textile;
- cord – the warp-wise configuration of twined threads from a single tablet;
- vertical – in a warp-wise direction in the weaving;
- horizontal – in a weft-wise direction in the weaving;
- front of textile – the obverse plane face that the pattern was designed to produce (tablet weaving is normally done with the front of the textile facing the weaver);
- back of textile – the reverse plane face from the front;
- epi – ends per inch, also called the sett;
- tpi – tablets per inch; equals the epi divided by the number of ends per tablet;
- ppi – picks per inch.

A six-holed tablet is a flat hexagon (six-sided) shape (Plate 2-3). A hole is punched at each of the 6 corners. Sometimes there is a seventh hole in the center, used for a non-twining core to weave a stronger, thicker textile.

If there is printing on the tablet the printed side is considered to be the front. If the tablets are not printed then one of the sides will be designated to be the front by the tablet’s threading direction.

Turns for six-holed tablets are rotations of 60 degrees, so no matter how individual tablets are turned, the shed is not clear until the sides and corners are aligned in a neat deck.
Often the holes punched in six-holed tablets are not labeled. Four-holed tablets usually have the letters A,B,C,D next to the holes. In following that same convention, we’ll think of the holes being labeled as shown.

Whether you write these letters on your tablets is not important. What is important is the marking of the AB and DE lines on the edges (front and back and very edge), using two different colours. I use red/pink for the AB line and blue for the DE line. These coloured edges are an indication of the position of the tablet and they are used to define the notation system that we will need.

The position of a tablet relative to the fell of the textile is an integral part of designing and weaving. The six possible positions are numbered as shown (Plate 2-4). These numbers are used in the patterns we’ll be making to represent the starting positions of the tablets. No matter where you stand relative to your weaving, you can interpret these position numbers, since they are expressed relative to the fell-line and front surface of the textile.

<table>
<thead>
<tr>
<th>Position</th>
<th>Edge Close to Fell Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>AB</td>
</tr>
<tr>
<td>1</td>
<td>FA</td>
</tr>
<tr>
<td>2</td>
<td>EF</td>
</tr>
<tr>
<td>3</td>
<td>ED</td>
</tr>
<tr>
<td>4</td>
<td>CD</td>
</tr>
<tr>
<td>5</td>
<td>BC</td>
</tr>
</tbody>
</table>

Home Position
Half Way Around

The next thing we need to clarify is the threading direction. Six-holed tablet threading is no different from four-holed in the sense that tablets can be Z-threaded or S-threaded, as defined in Peter Collingwood’s *Techniques of Tablet Weaving* and shown here (Plate 2-5).

To simplify the process of pattern making, I’ve chosen Z-threading as the default when all tablets are threaded the same way.
One of the important things that you will understand as we proceed is that threading a tablet in one direction then flipping it to the other direction IS NOT always the same as threading it in the other direction originally. In general, flipping tablets after they’ve been threaded will create undesirable colour interchanges.

In Plate 2-6 we consider just three ends threaded into a tablet – the other holes could also have threads through them but the drawing gets a little confused that way so lets just focus on these three threads.

We thread the tablet according to the partial colour chart at the top. The tablet on the left is Z-threaded, the one on the right is S-threaded. Note that the same colours are in the same respective holes.

At the bottom, the Z-threaded tablet has been flipped and now is S-threaded. But see how the relative positions of the colours have changed. This tablet will not behave the same way as the one on the right above.

This leads us into our next subject, the specification of colours for the warp ends. You’ve all seen colour charts for four-holed tablet weaving. The principle is just the same for six-holed tablets (Plate 2-7).

Here, each column represents a tablet, and the colours represent the ends that are threaded through the six holes, starting at the top with hole A.

The first example is of a threading-defined design, the second is a turning-defined design. Note that in the first example the colours are not threaded the same in all tablets, whereas in the second example they are. This is a defining distinction between “threading-defined” and “turning-defined”.

Note how the first column of the colour chart relates to the colours of the yarns that will be threaded into the first tablet, the second column represents the second tablet, and so on.

By adopting the notation presented earlier for tablet position we have made it possible to represent the colour chart for a turning-defined design in either of two ways. On the bottom left you see the colour chart represented with the same colour threaded into all A holes, and B holes and so on. The
starting positions reflect that the tablets are rotated relative to each other before weaving begins. On the right you see an alternative method, in which the tablets are not identically threaded, in that hole A has white, then blue, then blue, and so on. Now, since the colour arrangement varies, the starting position doesn’t have to, so all the starting positions are the same.

When making a continuous warp, the system on the left is preferable. It also enables the weaver to use the AB and DE lines marked on the tablets as a guide. For these reasons, it is the preferred way and it will be used as our default.

Now we consider turning the tablets. Earlier I mentioned that six-holed tablets turn through rotations of 60 degrees so six such turns all the same way will bring the tablet back into its starting position. Let’s examine the two possible “ways” a tablet can be rotated (Plate 2-8).

Looking at a tablet in position 0, we can see that it can be rotated 60 degrees and end up in either position 5 or position 1.

According to Peter Collingwood’s definition, the turn that produces a float that twines in the SAME direction as that which the tablet is threaded is a BACKWARD turn. The turn that produces a float that twines in the OPPOSITE direction than the tablet is threaded is a FORWARD turn.

Some hands-on experimenting with threaded tablets will establish that a turn from position 0 to position 1 is a FORWARD turn and the turn from position 0 to position 5 is a BACKWARD turn.

I’ve heard that some weavers use an analogy with a turning bicycle wheel to remind themselves of what a forward or backward turn is, which is fine if you always orient yourself to the weaving at the textile end. If you sit at the side this is unhelpful – the bicycle would be crossing your path. If you sit at the warp end (the standard for this monograph) it is backwards. A more reliable approach is to think of the turns in terms of the twining direction of the floats they produce.

In Plate 2-9 a tablet starts out in position 0 and makes a backward turn to position 5; in the lower half of the page a tablet starting in position 0 makes a forward turn to position 1. We know what ends are visible on the front of
the textile before the turn and after the turn, and we know what direction the twist will be because of the definition of the two turning directions. The gray lines are the picks of weft and the squares between them represent “pixels” on the front surface of the textile. Many such pixels stack up to make a cord, and many such cords (one for each tablet) create the front surface of the textile.

As long as the turning direction is constant, the weave structure is a series of Z-twining or S-twining warp floats over three picks.

Notice what happens when the turning direction reverses from backward to forward. There occurs a warp float over five picks in the navy colour. Hidden under this long float is a float in yellow over three picks and under that is a float in orange over just one pick. In this diagram the turning direction changes from backward to forward and the shape of the long navy float is like an open bracket. When the turning direction changes from forward to backward the long float will be shaped like a closed bracket.

The weave simulation program that is used to create the drawings in this monograph crowd the long floats together so the underlying structure is evident. In actual weavings the long floats cover the shorter ones underneath and create a more evenly-coloured surface.
Plate 2-1: Weaving Positions

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Plate 2-2: General Terms
Plate 2-3: Six-Holed Tablet
Plate 2-4: Tablet Positions
Plate 2-5: Threading
Front of tablet

Back of tablet

Threaded Z

Threaded S

Threaded Z then FLIPPED to S and rotated back to position 0

Plate 2-6: Flipping a Tablet
Plate 2-7: Colour Chart
### Plate 2-8: Turning

<table>
<thead>
<tr>
<th>Backward Turn</th>
<th>Forward Turn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-threaded tablet</td>
<td>Z-twinning</td>
</tr>
<tr>
<td>S-threaded tablet</td>
<td>S-twinning</td>
</tr>
</tbody>
</table>
Plate 2-9: Twining

Backward Turn on Z-threaded produces Z twine

Forward Turn on Z-threaded produces S twine

Turn direction changes here