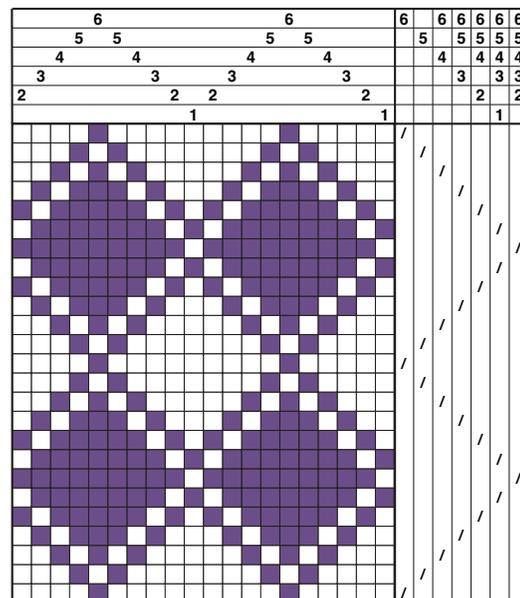


it has a great deal to do with the depth of the hollows produced in the fabric—the longer the floats, the deeper the depressions in the cloth—and a lot to do with the way the cloth can be used. A five-end or five-pick float is quite short at 30 e.p.i. but would be less than useful for functional fabrics at 6 e.p.i. In general, for a draft constructed this way, *the maximum number of ends in a warp or weft float is twice the number of shafts less three ( $2n - 3$ )*.

Look at the tie-up. With a little imagination, you can see that the structure of the cloth is evident in the tie-up. The cloth is based on twofold symmetry: that is, it resembles draft 2.18a (page 52) in that it is meant to be used with a pointed draft and pointed treadling. Place a pair of mirrors at right angles to each other, one across the top of the tie-up and the other at the right-hand edge, and you will see the cloth diagram appear. This is an important concept: for straight and pointed treadlings, taking an educated look at the tie-up in this way can tell you a lot about the cloth.



4.2 Draft for six-shaft waffle weave.

The four-shaft draft we have worked out is the simplest but produces the least dramatic effect of any of the waffle weaves. The draft for a six-shaft waffle weave is shown in 4.2. The longest floats go over or under nine ends or picks. This waffle weave is more dramatic than that on four shafts. The deeper the waffle weave, the more elastic it is. Woven in an elastic fiber such as wool, waffle weaves can be at least as elastic as knitted structures made from the same yarns, and even more elastic on the bias.

These pointed threading drafts are quite versatile. Plain weave may be woven on them at any time. Plain weave at a waffle-weave sett does not collapse when taken from the loom, but the waffle weave does. A plain-weave area woven at the end of a waffle-weave section forms a sort of ruffle when the cloth is taken from the loom. This trait may be used to advantage in designing garments.

Just as plain weave may be combined with waffle weave, several waffle weaves may be combined in one fabric if the draft is chosen carefully. Using a sixteen-shaft waffle-weave threading draft, for example, one may weave a sixteen-shaft waffle (twenty-nine-end or -pick floats, so it will be very dramatic), an eight-shaft waffle weave (thirteen-end or -pick floats), and a four-shaft waffle weave. These combinations are shown in 4.3a, 4.3b, and 4.3c. Instead of showing the usual tie-up and treadling order, 4.4 lists the shafts to be lifted at the side. Such a list is often called a **peg plan** because it shows how the pegs must be inserted into the lags that operate a dobby mechanism. Draft 4.4 shows three waffle structures which may be woven on the same sixteen-shaft threading. Where the floats are the longest, the fabric will be thickest and narrowest.