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# Shuttle Craft Guild

## HANDWEAVERS BULLETIN

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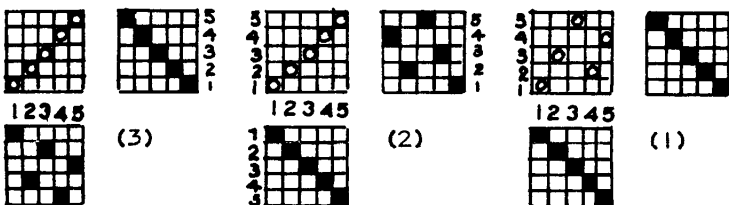
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### SATIN and FALSE SATIN: A NEW FABRIC FASHION

The satin weave, in recent years limited among handweavers to the weaving of damask, is taking on new importance. With increasing attention on backed fabrics and on uniform but unusual surface effects, satin has been rediscovered with new and unconventional interpretations. Both true and false satin are given new treatment today.

True satin requires five harnesses and five treadles. Its draft is a five-harness twill. The single tie-up for weaving the over-four-under-one surface attaches harnesses to treadles in the order: 1, 3, 5, 2, 4, or the alternate order 1, 4, 2, 5, 3. It is woven by operating the treadles in twill or 1, 2, 3, 4, 5, order. As with most weaves, two of the three draft parts may be reversed, so satin is sometimes threaded in one of the orders given for the tie-up and the tie-up made in the straight sequence of the draft. The shedding order is the same for both.



The new satin interpretations use unconventional, off-balance plans with warp and weft usually of different materials. Since the warp forms the backing of the fabric and may be completely covered, weft designing through the use of very beautiful weft threads, or a special thread such as a handspun which one wishes to emphasize, may be advantageously done. Also the materials may be selected and spaced so shadow stripes in warp colors are slightly revealed, as in the Portfolio sample. With the off-balance satin, warp sets as wide as those used for twill and even wider, are altogether practical, but the number of ends per inch for both warp and weft depends upon the thread selected and is finally determined by sampling, according to the type of fabric desired

The announcement in this issue that the Shuttle Craft Guild has returned to the capable hands of Mrs Tidball will be as great a surprise to you as was the one in September 1957 announcing that we had taken over the Guild from her.

Having struggled manfully (or should we say, womanfully) with its problems over the past three years, we have finally admitted that the odds against the successful publication of a Bulletin of this calibre in this part of Canada are too strongly against us.

We will not elucidate these difficulties except to state briefly that here in Nova Scotia we are too far removed from the centres of activity, the exhibitions, the conferences, and the personal contacts with groups of weavers. These are all necessary if we are to be alert to the weavers' problems and their solutions.

More important than the many things we have learned while administering the Shuttle Craft Guild have been the very pleasant contacts we have established through correspondence with weavers in both near and far places. These we shall cherish.

We cannot leave you without regret and without thanking you for your appreciative acceptance of what we have tried to do; for the suggestions and help many of you have so generously given us; and for your understanding of our problems.

Our own future plans are still very much up in the air, but you can always reach either of us at "Windswept", Bedford, Nova Scotia, Canada.

*Joyce Chown* Sincerely,  
*Mary Black*

Greetings to my old friends of the Shuttle Craft Guild, to new friends who have joined the Guild in the past three years, to newer friends who will join in the months ahead. After three years of "retirement" I have returned, Miss Black and Miss Chown having found it neither practical nor financially feasible to continue longer. In the past three years they have brought out thirty beautiful issues of SHUTTLE CRAFT. We shall all miss them, and I know their withdrawal will be a keen loss to their many admirers.

*Harriet Tidball*

and the use to which it is to be put. Clothing and upholstery fabrics employ the satin weave effectively, and as the popularity of the weave is on the increase, new uses for it will doubtless emerge.

Along with the increasing use of the five-shaft true satin weave, there is naturally an inclination toward the four-shaft false satin. This weave is the broken twill, but in 3/1 instead of 2/2 shedding. The warp is threaded to four-harness twill, the tie-up single with the first treadle attached to harness 1, the second to 2, third to 3 and fourth to 4. Weaving is in walking motion with 1, 3, 2, 4, order. Thus the weave has very light sheds and it progresses with great speed. The false satin is illustrated on the second Portfolio sample with Lily Super Sheen at 45 ends per inch as warp and a beautiful, fine 2/40 wool from Shuttle Craft of Rhode Island as weft, at about forty shots per inch. Warp stripes in various colors shimmer through the pebbly weft surface. The reverse side with Super-Sheen stripes dominant, is equally handsome on this splendid fabric.



#### THE NEW SUPER-SHEEN COTTON BY LILY MILLS

The accelerating interest in sheerness and light weight among handwoven as well as power woven textiles has sent many weavers in a search for sewing threads for warp and weft. This demand influenced Lily Mills to add one of their excellent sewing threads to their handweaving line. It appears on the sample card as Article 215, Super-Sheen, a 50/3 mercerized, gassed cotton having 14,000 yards per pound. Although specified on the card as being available on 6,000 yard cones, Lily Mills is now putting it up on one-ounce tubes holding somewhat over 900 yards. This is a practical put-up for sectional warping, the method most weavers turn to for a thread so fine. The eighteen colors are charming, and Lily Mills plans to introduce further colors if weavers are sufficiently interested in the new thread. (The ever-delightful 24/2 size was discontinued by Lily last year because it had lost its popularity. This is strange, with the new demand for fine threads, but Super Sheen may prove even more useful.)

Despite its fineness, Super-Sheen has a body which makes it easy to handle in warping, threading and weaving, and a resilience and strength required for very high-speed weaving. Even a beginner need have no fear of using this thread.

The special texture characteristics from Super Sheen are achieved only when the thread is used for both warp and weft, and in most cases in a simple weave with warp-weft balance, emphasizing color as the main design element. The iridescent shimmer created by crossing one color with another in checks, stripes or plain warps is unusually beautiful. Woven in tabby, the thread is adaptable to a warp-set range from thirty six to

forty five ends per inch. Since Lily Mills has investigated the wider warp sets in their recent leaflet (sample copy available on request to Lily Mills Co, Shelby, North Carolina) we investigated the closer sets more carefully.

A sample of Super-Sheen tabby set at forty five ends per inch is included in the Portfolio. This is a high quality fabric of great beauty, with a deep luster rather than the gloss of the more widely set fabrics. The sley was three per dent in a fifteen-dent reed and left reed marks on the fabric as it was under tension on the loom. With relaxation and washing, the threads rearrange to perfect regularity. An even fabric was easier to weave than with wider sets because of the warp resistance, and weaving was unusually high speed. Shrinkage on washing was about 7%, or one inch in sixteen. The broken twill weave on the balanced tie-up was charming at this warp set, and gave a fabric with high sheen and a softer hand. Either of these textiles would be excellent dress fabrics. Shrinkage, 1.5" per yard.

Mrs Michael, the Portfolio weaver, has made a limited number of extra samples which may be secured at 50¢ for the two if a stamped, self-addressed envelope is enclosed with the order. Order from Mrs Marjorie Michael, 821 Ottawa, Lansing, Mich.



#### TEXTILE ENGINEERING --- TENSION PROBLEMS

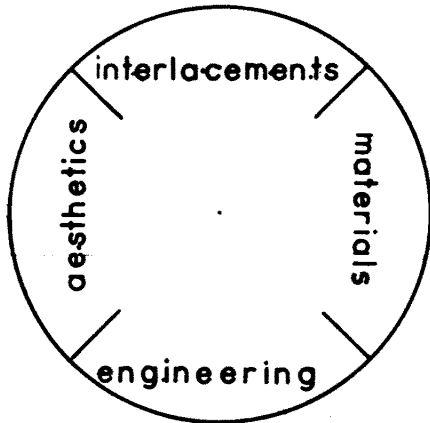
The idea that the weaving of a textile is an engineering problem may be new to many weavers. However, textile engineering is one of the four phases of textile design. To properly associate the importance of textile engineering, a review of the four phases of textile design and production is in order.

1. Materials, because yarns and threads compose a fabric.
2. Interlacement systems, because a fabric is an interlacement of warp and weft.
3. Aesthetics, because beauty is as important to us as function, especially for handwoven textiles which are purposeless unless they are more beautiful, as well as more suitable and of better quality, than comparable machine woven fabrics.
4. Engineering, or the dynamics of a textile, because the materials must be aesthetically interlaced following the construction principles of tensions, stress and balance.

The planning and creating of a high-level textile requires integration of these four elements. A textile which recognizes only one, two or three, leaving the others to chance, is but partially con-

ceived and meets its functional and aesthetic requirements only part way. The partly designed and therefore inadequate textile is an inexcusably naive textile.

Relationship of the phases of textile design and execution can best be diagrammed on a circle with the perimeter separated into four quadrants. Within the circle of the complete textile, the quadrants are not separated but mingle together creating a well balanced whole.



Among handweavers, artist-craftsmen constantly advancing in knowledge and skill, forever moving from a solved problem to a new concept, the least understood area of design and the one given the least attention is that of the engineering of textiles. The subject, as important as knowledge of yarns, of design and of interlacement systems, all related problems, is hardly touched upon in the weaving literature and is seldom mentioned by teachers. Questions arising from tension and shed problems while working at the loom, rarely receive adequate, knowledgeable answers. Instinct and the unconscious knowledge a weaver gains through experience are a slow, inadequate way into the problems, though they are what most weavers depend on.

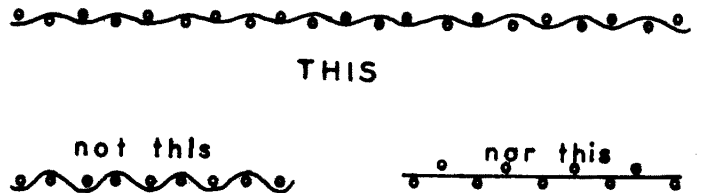
The adjustment of tension is perhaps the most important engineering problem. Tension is all too commonly looked upon as concerning warp only. The remark frequently heard, "I like to weave with a very heavy tension," indicates a lack of appreciation of the part tension plays in forming interlacements and permitting or preventing controlled weft associations.

A textile is a three-dimensional object, even though the depth is shallow compared to ordinary lengths and widths. Within the dimension of depth warp and weft threads pass over and under each other with spacings and relationships according to the interlacement system and the planned design. Since the curving of threads in most interlacements occurs in both warp and weft, it is plain that tension is a problem of both warp and weft. Since warp and weft threads in the final textile lie in opposition to each other, at right-angles or approximate right angles, the finished cloth itself has a tension

created by the opposition of threads. It is tension within a finished cloth that plays a large part in determining whether reed marks will disappear during the finishing process, whether or not the textile will recover from ordinary creasing, will lie flat, will hang perfectly true without developing tendencies to sag, bulge, pull or twist on a slight diagonal.

Most of our textiles, both handwoven and commercial, are conceived on the basis of warp-weft balance, whether or not the weaver or designer is aware of this. It is departure from this balance through inadequate recognition of equal warp and weft tensions and the fact that a cloth is a three-dimensional interlacement of curving threads, as much as poor judgement in the selection of yarns of different characteristics, that causes the unfortunate effects.

Tabby is our most commonly used balanced weave; twill next in importance. The association of warp and weft threads in a perfect tabby is illustrated by the diagram. This shows in cross section the warp and weft threads sharing the curving equally. The same curving relationship occurs in other interlacement systems based on balance such as twills, the small linen weaves, many warp-pattern weaves, damask, and the two-shuttle pattern weaves in which a tabby weft alternates with a pattern weft. In the latter case the fabric woven is tabby and therefore should be balanced, while the pattern weft is merely a decorative thread added to form the design.



The means for achieving a perfectly tensioned balanced fabric with warp and weft sharing the thread curves equally, is through allowing just enough freedom in warp tension, and maintaining this same tension as nearly as possible by changing the warp position frequently, and/or by releasing a slight amount of tension at frequent intervals on either the warp or the cloth beam. Since warp curves a little around each weft thread, the warp tension tightens a little with each weft shot. A further progressive tensioner on the warp is the movement of the fell (the weaving line) toward the beater, with its consequent increase of the angle of the warp. Though the results of these two tension take-ups are somewhat reduced by a long distance between the loom's breast beam and back beam, the depth of the weaving space itself has little control over the distance one may weave without making tension or position readjustments on the warp.

The next factor concerned with tension in the balanced fabric is weft --- a problem to which the average weaver gives little thought (often because of an erroneous preoccupation with trying to artificially weave straight selvages). The weft, in order to share the curving as it should, must be positioned by the reed on an open shed, as a closed or changed shed places tension on it which prevents its correct curving. The weft should lie loosely in the shed on a diagonal or in an arc, with sufficient slack for the reed to move it into its natural position with relation to the warp. To permit adequate slack, weft must hang in a loose loop at the selvage rather than being stretched out to the shuttle, at the instant of beating. The open shed beat moves the weft forward to the fell, placing it parallel to other weft, and with correct relation to the warp. A weft shot assumes its correct relationship to the other wefts spacewise only when the following weft is beaten into position.

Faulty tension is almost always too heavy tension, both warp-wise and weft-wise. Consequent to excessive warp tension may be such distortions as too widely spaced weft, reed marks which do not disappear when the fabric is relaxed and washed, excessive shrinkage with washing, or take-up with release of loom tension, weft streaks, excessively heavy treadles, a rising of the lower shed warp from the shuttle race with consequent tension differences between top and bottom shed often causing ridges in the fabric. Results of placing tension on weft (still considering normal, high-quality, balanced fabrics) either through beating on a closed or changed shed or through holding the weft under tension while beating, are usually serious and baffling. The most common result of weft tension is narrowing across the entire warp width. To determine weft narrowing, weave two inches; then bring the reed to within a half inch of the fell. Notice if the fell is parallel to the reed. If the fell curves toward the reed at the edges, indication is that weft is being laid under tension, and this effect is increased if warp too is heavily tensioned. Ideally the warp should pass from back beam, through heddles and reed, into the cloth, perfectly straight. If the warp makes angles from reed to web, the angles becoming sharper toward the selvages and only the center threads lying undistorted, one may be sure that the weft is under too much tension. This tension results in a poor and uncontrolled textile. A more obvious effect of weft tension, because it troubles weavers sorely, is poor selvages. Good selvages, which should result without special effort from natural, rhythmic, skillful weaving, become problem selvages when weft is tensioned consciously or unconsciously.

Weaving with correct warp tension and learning to place the weft sensitively are skills, and like the development of all skills, they require concentrated practice. For most weavers these skills require the unlearning of bad habits -- one of the hardest things to do in any activity. But

the results obtained when warp and weft tensions are properly handled, and the increased pleasure that comes with correct weaving rhythm on an "alive" and responsive warp, are worth the effort. Skillful handling of warp and weft tensions marks one of the significant differences between the textiles of a good weaver and of an indifferent weaver.



#### A NEW TEXTILE PORTFOLIO FROM JAPAN

Boris Veren (Craft and Hobby Book Service, Big Sur, California) has an extraordinary treat for a few fortunate weavers. He has asked me to announce a Japanese book, NIPPON HAND WEAVES In "Kusakizome" Dyes, so that Shuttle Craft Guild members may have first opportunity. This handbook of Japanese weaves in natural plant dyes was published in a limited edition of two hundred numbered copies. Not many of these remain, but all are on the way across the Pacific to Mr Veren.

It is difficult to describe this beautiful, small book because one's mind travels to superlatives while looking at it. The cover is of handwoven cotton, as the typically Japanese case with ivory closers serving as a jacket. The paper is handmade and the type hand set (with quaint errors). The brief text is arranged to read Japanese fashion in Japanese characters from back to front, but interestingly, an English title page and translation reads in our fashion, from front to back. Perhaps I should say more accurately, right to left and left to right. Mounted on twenty-six handsome pages are twenty-six different samples about four by four inches, each of a silk or a cotton fabric, handspun, vegetable dyed, handwoven. A brief explanation with each sample is in both Japanese characters and English.

The book is a permanent treasure for anyone who cherishes beautiful books, or beautiful objects. This alone justifies it. But in addition, it is full of subtle design and technical hints for the handweaver interested in silk weaving, and it sketches briefly the history of these traditional textiles and the way they were woven. Twenty-five of the fabrics are in plain weave and one in twill; two have ikat yarns to enhance the designs; and all show thread weights sympathetic to the handweaver of silks. Patterns in stripes and plaid enhanced by the rough texture of dupioni silk yarns, are suggestive. It is interesting, in view of the popular direction of silk weaving among U S handweavers in recent years, that all of the yarns are straightforward colors with no salt-and-pepper, light and dark plys, or odd colored bumps.

The price of this extraordinary book is \$25.00 plus mailing cost. (Where but in Japan could so much beauty be created at such a relatively low price?) With only a few copies available, anyone interested should not delay ordering.

*Harrist Tidball, Sept 1960*