

the rude implement of their ancestors. The threads are coloured yellow, dull red, and black with native dyes, and they have also a range of neutral tints in natural wools, while they buy indigo for blue. Some brilliant red figures in the finer blankets were, a few years ago, made entirely of *bayeta*, and this material, which is still extensively used, is a bright scarlet cloth, finer than that which is freely bought by the Indians of the north, but both known as Stroudings, which is an unexpected compliment to the splendid scarlet dye for which the good old Gloucestershire town has so long been famous. The *bayeta* is bought from frontier traders instead of from Mexico as aforesaid, and it is unravelled by the Indians for the threads to be used as weft, just as the bright-coloured cloths were at one time unthreaded in Abyssinia to be woven into the borders of native fabrics, or, for a much older precedent, as the earliest of bombazines in Europe were made up afresh from the threads of thicker silks brought from the East.

Given these materials, and imagining the most primitive form of loom that has ever been known in use in Egypt, or Greece, or Hindostan, generally at work in the open air and frequently with two convenient trees for uprights, it is easy to see in the mind's eye the Navajo weaver at work. All the appliances are of the simplest description, the combs for straightening the warp are cut out of wood, the beams are nothing more than suitable poles, there are flat sticks for breaking up the woof, and the batten is another narrow board. There is no shuttle properly speaking, but the weft is wound on a slender stick, or, if the pattern is an intricate one, made into little balls and threaded through with the fingers. "When the web is so nearly finished that the batten can be no longer inserted in the warp, slender rods are placed in the shed, while the weft is passed with increasing difficulty on the end of a delicate splinter, and the reed fork alone presses the warp home. Later it becomes necessary to remove even the rod and the shed, then the alternate threads are separated by a slender stick, worked in tediously between them, and two threads of woof are inserted one above and the other below the stick. The very last thread is sometimes put in with a darning needle, and the weaving of the last three inches requires more labour than any foot of the previous work." As the web never exceeds in size the upright frame of the loom there are no lengths of material manufactured, and the labour really deserves the name. It is labour. One of the few male weavers, since they are mostly women, and he considered to be an expert, took a month of close application to make a blanket 6 feet 9 inches long, by 5 feet 6 inches wide. Yet, when all is said, the product, both in texture and harmony of colouring, deserves much praise, and may afford yet another proof of the wonderful capacity of comparatively unintelligent handiwork.

Letters from our Readers.

The Editor does not necessarily endorse the opinions of his correspondents.

"OUR INDUSTRIAL FUTURE"
(To the Editor of *The Textile Mercury*).

Sir,—I was very much interested in your article on "Our Industrial Future," which appeared in the issue of Nov. 29, although not agreeing with all your statements.

You wrote:—"Other nations are increasing their productions of cotton goods at a greater rate than we are." I venture to differ from you;

and should like to submit to your readers for consideration another way of fixing these ratio productions than that generally accepted as correct. To my mind these are based on a very peculiar method. According to most people's views, if one mill is already existing and another similar one is built, the increase is 100 per cent. Under these conditions, supposing we have 100 mills and build 50 other similar ones, our increase is only 50 per cent. The real and proper way, I submit, to reckon out the ratio of increase is by taking *population* into account. If we, with a population equal to that of another country, add 50 mills, and the country in question one, then I argue that our increase is 50 times as much. Especially in the cotton trade should this mode of comparing ratios of increase be adopted, seeing that we have got far beyond our own consuming capacity, and any addition to our production must needs go to other markets, where we are handicapped by freights, duties, etc.

Take Germany, for instance, where there are 5,500,000 spindles at work. The increase in 1889 was about 250,000. The increase in Great Britain in the same year was nearly 1,000,000 spindles. In other words, with a less population than that of Germany, we have increased our production four times as much. If population is not taken into account the German increase would be 5% and ours only about 2%. I will, however, leave your readers to judge which method of comparing ratios is the most correct, and draw attention to the information given in the *Manchester City News* of November 1st last, comparing the number of spindles, power-looms, and persons employed in 1874 and 1889, which concludes as follows:—"These are figures which merit careful study and consideration from those who are inclined to indulge in foolish talk over the decadence of manufacturing industries in the United Kingdom."—Yours etc.,
Bury. OSCAR S. HALL.

QUERIES.

A few weeks since you stated in *The Textile Mercury* that the New Zealand Legislature had offered a premium of £10,000 for a machine that would dress and deal with the fine flax (*Phormium Tenax*) in a more economical way than any existing machinery. Do you know if this is absolutely correct, or is it only rumour?—G. F. P., Halifax.

ANSWERS TO CORRESPONDENTS.

G. F. P. (Halifax).—We stated that a Committee of the Legislature had recommended the Government to offer the premium—not that it had been offered. The New Zealand Government, however, has not yet adopted the suggestion to offer a reward.

Designing.

NEW DESIGNS.

FANCY SILK SPOT DESIGN FOR VESTINGS, ETC.

We submit two designs* for silk fabrics, believing they will be acceptable to manufacturers who do not care to indulge in erratic flights of imagination, or in the fluctuations of fashion. If proper materials for warp and weft are used, these designs will be found simple, beautiful, effective, and more than all else, productive of a very cheap cloth. There can be very little difficulty in adapting the figures to any reed. No. 1 herewith may be made of 20's two-fold organzine or Japan silk (which is very economical) in a 60 reed, 2 in a dent, or 60 ends per inch; for weft a flossy tram silk, very loose in the twine, with 48 picks per inch of 10's two-fold. As will be seen, the draft is 32 ends on 8 shafts, and the pegging plan 32 to the round. It is perhaps needless to remark that these particulars can be altered at any time, and without risk of endangering the tissue, which is firmly bound by a plain ground. The figures owe their neatness and effect to the weft flushes, and by the use of a diversity of shades and tints a goodly number of surprising, though

*The other design appeared last week; reference should be made thereto.

pleasing effects, can be obtained. We give a few very likely colour combinations for wefts and warp; but it would be well to produce a range in self-colours or very light shades. Warp and weft all white, light, mid, and dark cream, mid buff, mid and dark fawn, drab, mid light and dark linen, dove, dark yellow drab, light and mid lilac, light and mid pink; for contrasts, warp, mid coral; weft, white; warp, light pink; weft, cardinal, mid coral, light claret, dark sky, and dark marone; warp, royal blue; weft, white, dark buff, dark cream, light stone, mid straw, and old gold. It will be seen that there is no stint to the number and variety of changes obtainable in these classes of designs.

TWILLED LINEN DRESS CHECKS AND STRIPES.

The following patterns for spring, especially in all linen, will be found very suitable, and ranges in various shadings ought to be got ready forthwith. A six-end twill, three up and three down, six to the round, straight over draft, 72 ends to the inch, or 36 reed, two in a dent; warp all linen, 50 lea, or two-fold cotton 40's; weft 72 picks per inch, of 50 lea tow and 40's two-fold cotton.

No. 1 Pattern.—Warp: 36 white, 6 blue and white twist, 40's two-fold; 12 white, 3 white and red twist, 40's two-fold; 12 white, 6 blue and white twist, 40's two-fold. Weft pattern the same in every respect as warp.

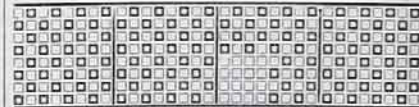
No. 2 Pattern.—Warp: 36 white, 6 brown and orange, 40's two-fold. Weft pattern: the same, only blue and white wound together without any twist whatever, the blue and white being 40's single each colour, so that when put together on one weft bobbin they will equal 20's.

No. 3 Pattern.—Stripe: 24 white, 3 light blue and dark brown, 40's two-fold, 24 white, 12 red and white, 40's two-fold, 3 black, 12 red and white, 40's two-fold; total 78 ends.

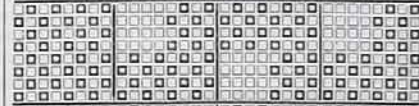
No. 4.—Stripe: 24 white, 3 red and white twist, 40's two-fold; 24 white, 12 dark blue and white twist, 40's two-fold; 3 dark blue, 12 dark blue and white, twist 40's two-fold; to 78 ends.

No. 5.—Warp: 72 ends of orange buff, 6 dark blue. Weft: 72 picks of white and 6 of red.

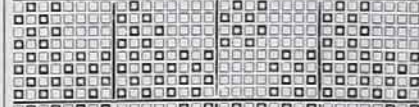
No. 6.—Warp: 36 buff, 3 peacock blue, 36 buff, 3 of dark rose. Weft: 36 buff, 3 dark rose, 36 buff, 3 of peacock blue.



No. 1. FANCY SILK SPOT.



DRAFT No. 1.



PEGGING PLAN No. 1.

NOVELTIES IN WOOLLENS AND WORSTEDS.

It is surely not needful to impress upon manufacturers the importance of introducing into their pattern ranges novelties either in weave, colour, or effects produced in any other way; and yet we cannot but think that manufacturers are sometimes to blame in not making the best of opportunities in this direction. Many manufacturers, for example, will not go to the expense of producing novelties when there would really be little or no expense at all. Again, others say that they cannot sell novelties; but then, is it not a fact that novelties help to sell the ordinary cloths? Recognising these facts, we would if possible impress upon manufacturers by the accompanying designs, etc., that little expense need be incurred in producing novelties of a very creditable character.

In *Designs 205, 206, and 207* the principle is maintained which has been commented on in past numbers of this journal, viz., using weave, etc., to distribute colours.

It is a well-known fact that all the better-class heavy worsteds are as a rule backed with warp. Two factors influence the manufacturer in this case: firstly, tailors will not purchase, if they know it, a backed or double cloth, and backing with warp is made to give the appearance of a single cloth by means of coloured threads in the backing-warp; and secondly, in warp-backed goods as compared with weft-backed goods there is the saving of expense from the absence of one or more extra shuttles. Though there is often additional expense in the necessity of using two beams.

Now the designer of this class of goods has practically at command an extra warp, which he can use as such with little detriment either to the back of the piece or to the structure of the cloth. In coatings and trouserings this extra warp may be used either to produce a twill, a spot, or any other effect suitable for the class of material.

In *Design 206* half of the effect shown in sketch *A* is developed. The backing-warp here, if such it may be termed, interweaves with the weft on the same principle that the face warp interweaves with the weft, so that both may be brought off one beam in this case. This effect is of course too large to weave on a dobbie, but we should recommend the trial of such effects as these on the jacquard, though no doubt if drafting be resorted to, good effects may be obtained on ordinary looms. In this design the face warp should be black and the backing dark red olive black. Checking threads and picks may be introduced if desired, but such colouring must be very subdued.

Design 207 is a simpler example of the same type. The effect produced by the backing is shown in *Design 202 A*, but it should be observed that in this case a stripe effect is intended, since after the backing has formed *Design 207 A* on the face of the fabric it then passes to the back, being tied where two face threads coming up on either side hide it entirely. The width of stripe must be decided according to circumstances, and the face weave of the cloth may of course be varied, though this should always be done in accordance with the use made of the backing warp. This design, like the preceding one, is constructed with the idea of using only one beam.

Design 208 is an example of a slightly different type. In this case a 2 and 2 twill backed with warp has first been indicated on the design paper, the back being tied on the eight-end sateen principle, but a modification is introduced in the first eight and last eight threads of the design, this modification simply consisting of flushing the backing threads over the face picks of the 2 and 2 twill, thus in this case forming a spot in twill order. The following colouring will be found suitable:—

- | | | | |
|-------------------------|--------------|---------------------------|--|
| Warp. | | Weft. | |
| 1 thread brown mixture, | } Repeat for | All black, or dark shade. | |
| 1 " lavender, | | | |
| 16 " black, | } 8 threads. | | |
| 1 " brown mixture, | | | |
| 1 " light drab brown, | | | |
| | | } 8 threads. | |

Care must be taken to distribute the spots, if such they may be termed, in such a manner that no lines across the piece are observable.

Sketches *B* and *C* give an idea of the effect of these designs in the cloth.

We need scarcely remark in conclusion that many forms, such as twills, intersecting lines, etc., will furnish excellent jacquard work, developed on the principles here indicated, which, as we have previously remarked, practically amounts to the distribution of colour by means of weave.



A

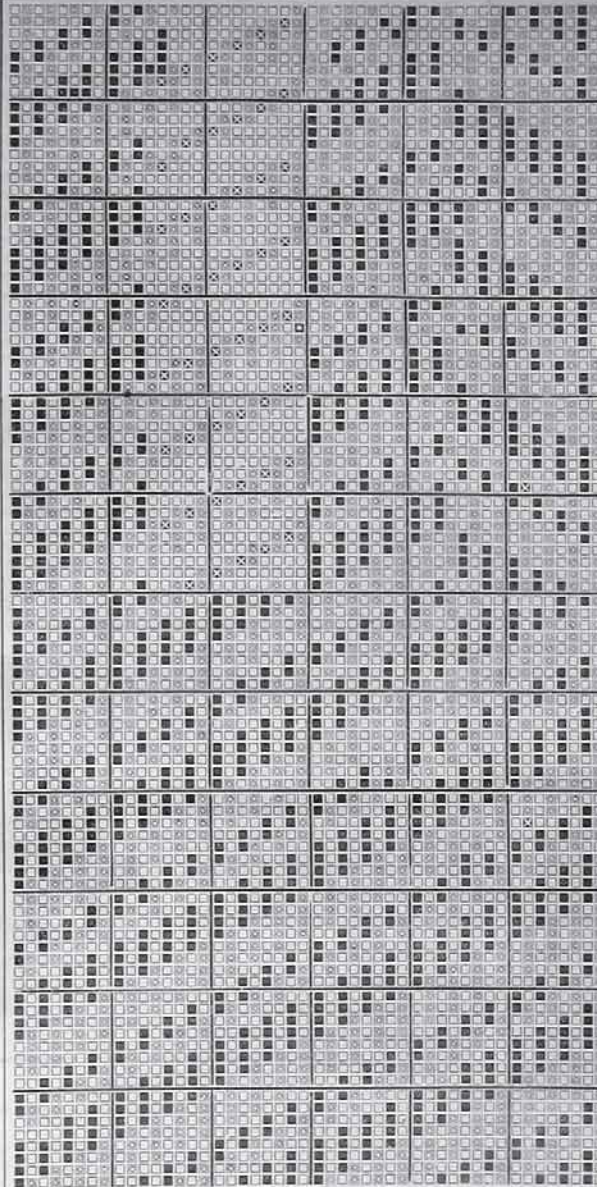


B

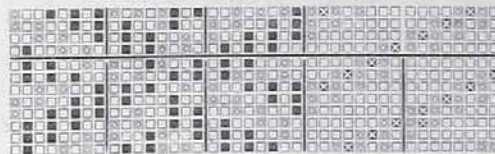


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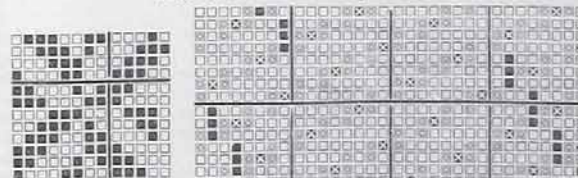
SKETCHES.



DESIGN 206—Marks in this case equal warp.



DESIGN 207—Marks here equal warp.



DESIGN 207. A.

DESIGN 208—Marks here equal warp.