

The drawing-in draft shows three different sets of harness used, *viz.*:

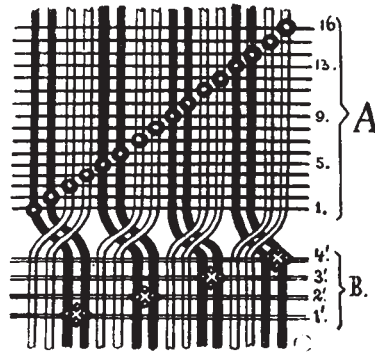


Fig. 33

A the ground-harness set for weaving gauze;  
B the harness for regular weaving, and  
C the two douping sets.

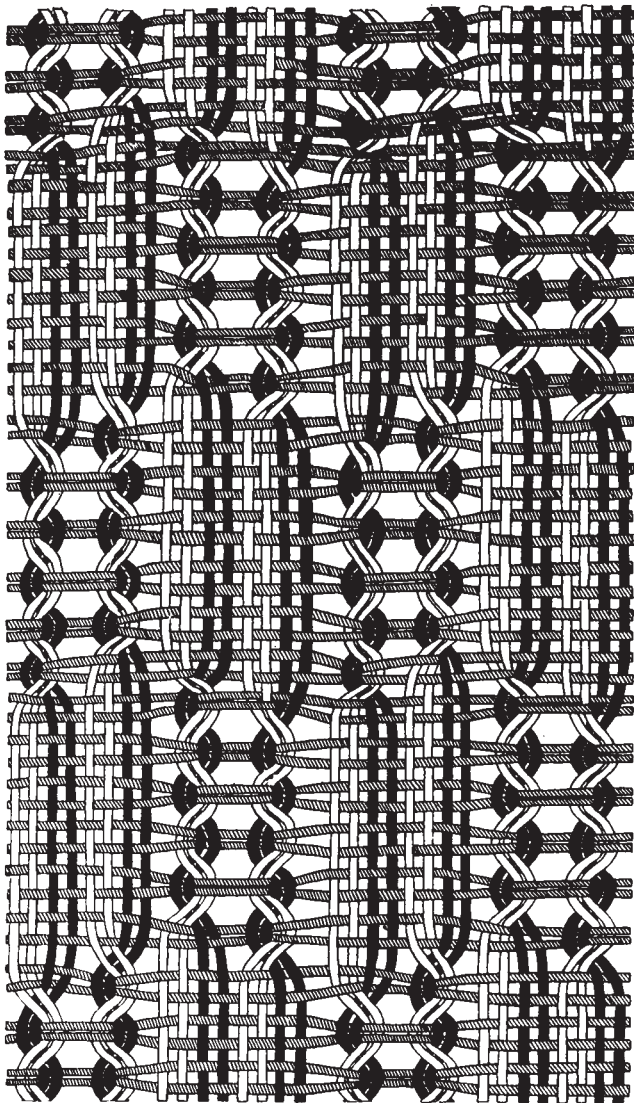


Fig. 34

Fig. 32 represents the harness-chain necessary for weaving fabric illustrated in Fig. 30.

Fancy gauze can also be produced by using two whip-threads against two ground-threads, thus using four ground-harnesses to one doup.

In such an example all four threads must be drawn in one dent.

Diagram Fig. 33 illustrates a drawing-in draft arranged in this manner, and Fig. 34 shows a portion of a fabric produced in this manner.

The interlacing of the plain for the regularly woven part of the fabric, can in this example be extended to any figured weave up to 16-harness repeat.

Four sets of doups are used, permitting each doup in the repeat of the arrangement to twist at any pick.

By drawing two, three or more repeats of each doup, previous to using the next, and arranging the exchange from regular to gauze weaving after a motive having four changes, novel effects for fancy gauze fabrics may readily be obtained (with a correspondingly large figure).

(To be continued)

## FABRIC ANALYSIS

### ASCERTAINING RAW MATERIALS USED IN THE CONSTRUCTION OF FABRICS.

(Continued from page 35.)

ARTIFICIAL WOOLS, according to their source, are divided into four classes, *viz.*: Shoddy, Mungo, Extract and Flocks. Of these

*Shoddy* is the best, being the wool fibre recovered from worn, but all wool materials (known as "softs") which had never been fulled, or if so, only slightly. They vary in length from  $\frac{2}{8}$  to  $1\frac{1}{2}$  inches. Shoddy fibres are sometimes found to be spoiled by scales being worn off, or the ends of the fibres broken.



Fig. 34

In most instances, dyed shoddy can be detected from similarly dyed new wool, in the yarn or fabric, for the reason that the color of the former will betray the inferior article compared to new wool, since the rags or waste, previous to the re-dyeing, except when coming from white softs, had been dyed different colors and which will consequently influence the final shade of color obtained from re-dyeing. Fig. 34 shows Shoddy from a coarse grade of wool, Fig. 35 that from merino origin.

*Mungo* is obtained by reducing to fibre pure woolen rags, from cloth originally heavily fulled, and when



Fig. 35

the natural consequence of the strong resistance to disintegration offered by felted fabrics, results in that short fibres, about  $\frac{1}{2}$  to  $\frac{3}{4}$  of an inch in length, are obtained. Fig. 36 shows *Mungo* fibres.

*Extract* is artificial wool, produced from mixed rags from which vegetable fibres were extracted by means of carbonizing. An examination of a sample of extract, by means of the microscope, will show traces of the process of carbonizing by means of carbonized vegetable refuse found.

*Flocks* are woolen rags ground in the flock cutter into minute portions of fibres, which then, during fulling the cloth, are made to adhere to, *i. e.*, are felted onto the back of the fabric, working their way more or less into the body of the latter.

A good plan to test a fabric as to its contents of flocks, is thus: Take a large white sheet of paper and rub the sample, holding it between thumb and forefinger of each hand, change position of fingers frequently so each portion of the sample thus receives thorough rubbing, and when a considerable portion of the flocks, provided the fabric thus tested was flocked, will be liberated and drop onto the paper. Dissecting



Fig. 36

sample, *i. e.*, separating warp and filling, will liberate an additional amount of these flocks more particularly such as had worked their way into the structure. Take each thread, whether warp or filling end, as picked out by you, and liberate all flocks possible from

the thread by pulling it between the thumb and forefinger of one or the other hand, using one or the other of the finger nails for scraping off flocks as may adhere to the particular thread.

**MERCERIZED COTTON** is distinguished from cotton not mercerized by means of its lustre, and in turn can be readily distinguished from silk under the microscope by its difference in structure.

**ARTIFICIAL SILKS** are more lustrous than true and wild silk, also stiffer. They do not possess the same smooth feel, being also inferior in strength and elasticity as compared to natural silk, neither do they possess the scroop, characteristic of real silk. They can in most cases be detected from true silk, since the microscope readily shows their difference in structure.

**WEIGHTED SILK.** Fig. 37 shows that the microscope will be of service to detect either high or low loading. In the former instance the thread appears to be entirely surrounded by the loading material, the rind being thicker than the fibre itself. In connection with less loading, it can be seen that the color is taken

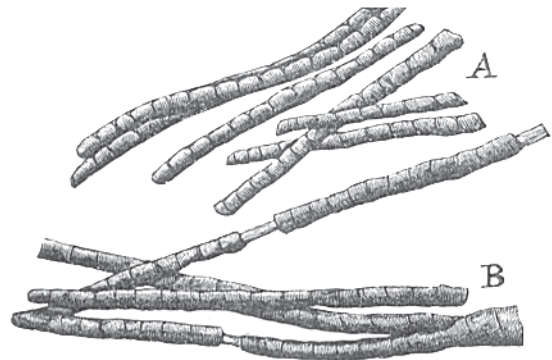


Fig. 37

up by the fibre. In our illustration, *A* refers to a loading with 160 to 180 per cent and *B* to a loading with 360 to 400 per cent.

Apart from the microscopical examination, however, the physical methods of recognizing the fibres are uncertain, and fail in many important particulars, especially with the mixtures. The chemical tests are much more delicate, and yet more decisive. The simplest test is that of burning.

(To be continued.)

#### CULTIVATION OF COTTON IN THE SUDAN.

The Council of the British Cotton-Growing Association has sent a deputation to Egypt to inquire into the possibilities of extending the cultivation of cotton in the Anglo-Egyptian Sudan. The association was founded in 1902 under royal charter, and represents the cotton spinning and manufacturing trade of Lancashire, and has an annual grant of \$48,665 from the British Government. The deputation consists of the chairman and another member of the council, and also a large user of Egyptian cotton, and will stay first in Cairo with the object of obtaining information on various matters connected with cotton growing in Egypt. Afterwards they will proceed to Khartoum.