

of the fabric during wear, will drop out of the garment and not get a chance to lodge in the bottom seams of the lining. However, when flocks are thus coming excessively out of the fabric or garment (some certainly will always more or less come out), it is a sure sign of an error somewhere, either poor flocks, a wrong way of flocking, or more flocks used than is consistent with the structure of the fabric under operation, etc.

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 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.

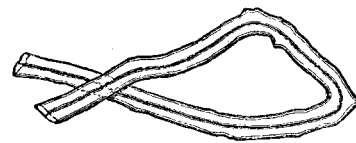


FIG. 2.

### THE TESTING OF TEXTILE FIBRES, YARNS AND FABRICS.

Necessity of Testing Yarns and Fabrics by the Textile Manufacturers, Commission Merchants, etc. Yarn Testing. Textile Fibres of Commerce: Wool, Shoddy, Mungo, Extract, Flocks; Silk, Spun or Waste Silk, Wild Silk, Weighted Silk; Cotton, Flax, Jute and Ramie. Tests by Burning. Chemical Tests for distinguishing Wool, Cotton, Silk and Flax from each other. Testing Artificial Fibres. Testing for Moisture. Silk Conditioning. Testing Yarns and Fabrics as to Fastness of Dye; Fulling, Sun and Rainproof, Perspiration, etc. Testing Yarns as to their Counts, Twist, Evenness, Breaking Strain. Testing Fabrics as to Weight, Weave, Texture, Strength and Elasticity, Color, Finish, Count, Twist and Quality of Yarns used, etc., etc.

(Continued from page 7.)

Flocked goods are always treated with more or less suspicion by the commission merchant and clothier, as well as by the consumer, possibly for the fact that flocks and the process of flocking the goods do not receive the care they should. One of the disadvantages of flocked goods frequently met with, is the tendency of the flocks to drop out of the fabric and gather in the lining of the garment; for which reason such garments as are lined, as coats, for example, have their lining loose at the bottom, so that whatever flocks work out

Silk is the simplest, and in its properties, the highest and most perfect of all spinning materials. It differs from other textile fibres, both as to its nature as well as the machinery used in preparing it for the loom, the machinery used being much simpler and less cumbersome than the processes employed in preparing other fibres. The silk fibre, when in its natural or gum condition, consists of a double fibre, and viewed under the microscope (see Fig. 2) has the appearance of two fibres cemented together. When scoured or degummed, the two individual fibres are separated. As seen from the illustration, the surface of the fibre appears smooth, transparent and structureless, with occasional little nodules in the side of the fibre. It resembles a cylindrical glass rod, in some portions uniform in thickness, while at others of somewhat irregular diameter.

**Spun, Waste, Floss, Chappe, or Filosella Silk**, is obtained (1) from the coarse, loose, outer layers surrounding the true cocoon; (2) defective cocoons, double cocoons and those from diseased worms; (3) the parchment like skin left behind in reeling the sound cocoons; (4) the waste made in reeling the cocoons, as well as such as are made in silk throwing mills. This waste silk fibre, after being properly prepared, *i. e.*, boiled off, in turn is carded, combed, drawn and spun into a yarn partaking of some of the qualities of raw silk, although it is not as bright as the latter, its lustre varying largely according to the amount of

gum retained on the fibres. The more the gum has been boiled out, the greater will be the lustre of the fibres. Again, spun silk is weaker than thrown silk, both in strength and elasticity. The waste made during spinning these spun silk, waste silk, floss or chappe silk yarns, is afterwards used either by itself or in connection with better stock in spinning still lower qualities of silk waste yarns. In this instance the yarn is spun after the woolen yarn system.

**Silk Shoddy** is prepared from silk cuttings and remnants by a similar treatment to that employed with wool shoddy, the short staple product being worked up as an adjunct to waste silk in the cheapest grades of yarns.

**Wild Silk.** Like cultivated silk, wild silks consist of two filaments which however, instead of being struc-



FIG. 3.

tureless are composed of individual fibrils, readily recognized under the microscope by decided, parallel, longitudinal striations, as seen from our illustration, Fig. 3 showing Tussah Silk, the most important variety of wild silk, as it appears if viewed under the microscope. Wild silk has a dark color, which cannot be removed except by means of a powerful bleaching agent; its lustre, softness and elasticity being inferior to those of cultivated silk. They are hard and difficult to reel, unless specially treated, for which reason they are mostly worked up in the same manner as defective cocoons of cultivated silk in connection with spun silk.



FIG. 4.

**Weighted Silk.** The weight taken from the silk during the boiling off process is a considerable item, and to compensate for this loss, the practice of artificially adding weight to some silks received its start, the amount of weighting done having been continually increased above the original weight of the silk, until now from 3 to 4 or more times its weight is thus

added. In order to show the appearance of loaded silk viewed under the microscope, Fig. 4 is given, showing different amounts of weighting: *A* shows weighting from one and one-half to twice the weight of the silk, *B* shows this weighting increased to from three and one-half to four times the weight of the silk. The weighting of silk is confined to raw, *i. e.*, reeled silks, for the prices of waste or spun silks would not make it worth while extending the system in that direction.

**Cotton.** The cotton fibre is the filament which grows around the seeds of the various species of the cotton plant. When viewed under the microscope, the fully matured or ripe cotton fibre has the appearance of a spirally twisted band or ribbon, with finely-granulated markings. A grooved appearance will be also noticed, on account of the cell walls being thicker at the edges than in the centre. Fig. 5 is given to illustrate cotton fibres viewed under the microscope, and of which *A* shows two unripe or dead fibres, by which is understood that such fibres have not attained full maturity. Their detection is very important, since their presence is very detrimental to yarn and fabric. They are recognizable by the very thin transparent filaments, which, though ribbon shaped, are not twisted, and do not exhibit the slightest trace of lumen



FIG. 5.

in the cell. *B* shows us a specimen of a half ripe fibre, and which is a medium between ripe and dead fibres, and in conjunction with the latter, according to amount present in a lot of cotton, depreciate its value to the manufacturer, such fibres being the result of the cotton being removed from the pod before fully matured. *C* shows us two specimens of matured or fully ripe fibres. These are hollow nearly throughout their entire length, with the exception of the end which had not been attached to the seed. This hollowness of the ripe fibre allows the dyestuffs to penetrate, and produce evenly dyed yarns or fabrics, whereas unripe or dead cotton, which practically has no central cavity, is very difficult to dye, and frequently appears as white specks on dyed pieces, particularly in such as are dyed indigo blue or turkey red.

Amongst the varieties of cotton of importance to us are the Sea Island, the Mainland, Egyptian and the Peruvian cotton. (*To be continued.*)