(2) Long wool for the production of worsted goods is deprived of its felting property by the process of combing, which destroys the imbricated structure of the wool, and approximates it to the nature of smooth fibres, such as silk and cotton. In fact, the process by which combed long wool is made into worsted yarn is analogous to that employed for spinning cotton, and consists in doubling the slivers or slubbings over and over again, until the fibres are laid parallel to each other, after which it is roved and then spun.

As will be seen, the great distinction between woollen cloth and worsted goods is, that the wool in the former retains its felting property, whilst the wool in the latter has been deprived of it. Woollen cloth, as it leaves the loom, looks like a mere flannel, but after it has been submitted to the action of the fulling mill, it becomes compact and uniform—the fibres of the wool cohere, interlock, and conceal the threads beneath. Woollen cloth is then quite different in appearance from any article made from worsted, and which goods it must be remembered are never fulled.

Woollen cloths are either piece-dyed—that is, they are dyed after being woven, felted, and cut—or they are wool-dyed—that is, the scoured wool is dyed before being spun—in this respect again differing from the worsted or cotton manufacture, for cotton and combed wool are never dyed before being spun.

In closing this very brief account of the stages of woollen manufacture, I may add that recently improvements have been made in the preparation of both woollen and worsted yarn. For instance, in the former, one machine now feeds the other; and scoured wool passes through every stage short of being spun, without it being necessary for a human hand to touch. The fulling stocks are likewise supplanted in many mills by a fulling machine, which does the work in a shorter time, and requires less soap.

In the preparation of worsted, the disagreeable and tedious process of hand-combing is superseded by a most exquisite machine, in which the movement of the wooden hands, as they draw the wool through the heated steel combs, and then place it upon a revolving wheel, is as nearly copied from a human action as it is possible.

Three forms under which wool appears in manufactured goods still remain to be described, these three are known as *mungo*, *shoddy*, and *extract*; the former is obtained by tearing up old woollen garments in a machine called the "Devil," and a most formidable looking machine it is with its array of iron teeth, the wheel upon which they bristle making about 600 revolutions in the minute. *Shoddy* is the result of a similar process exercised upon old worsted stockings, blankets, &c. No less than forty millions of pounds of mungo and shoddy are made annually in Yorkshire, the value of which is £800,000 sterling, and yet this branch of manufacture only dates back about fifty years.

The third article reproduced from old material is known as *extract*; it consists of the wool obtained from goods having a cotton or linen warp or mixture, the cotton is destroyed by chemical agency leaving the wool intact. Neither shoddy, mungo, nor extract are used for making new fabrics alone, they are mixed with a varying per-centage of new wool.

Several qualities of wool are usually mixed together and form *blends* from which yarns are spun, both *fleece* wool—*i.e.* that shorn from the live sheep, and *skin* wool—*i.e.* that obtained from the skins of such as are slaughtered are used, the per-centage of the latter and of inferior wools being reduced in spinning the better qualities of worsted yarn.

The threads which extend the long way of any woven material are called the *warp*, those which pass across the width of the article are the *weft*. In the process of weaving there is much greater strain upon the warp than upon the weft threads, and, therefore, the former are more twisted in spinning, and indeed are altogether stronger than the latter. A most striking instance of this difference is displayed in the manufacture of blankets—the warp threads used *are spun*, but the weft threads *are not spun*—they are not carried beyond the stage of slubbing, consequently being scarcely twisted at all, the peculiar woolly surface can be given to the blanket by the subsequent processes.

Worsted yarn is largely employed as a weft with a warp of cotton (in some cases of silk) for the production of fancy dress goods; these frequently have a check stripe, or figure of silk introduced upon the surface; recently also mohair yarn (the hair of the Angora goat spun), has been employed as a weft for stuffs.

FELTING.—Wool and hair can be felted, that is made into a dense and compact cloth without the intervention of the processes of spinning, or weaving. So great is this tendency that in a flock bed, the carded wool of which it is made is constantly felting itself into lumps, and from time to time the bed requires to be taken to pieces and the wool has to be carded afresh. With some animals, which possess a fine and soft fur such as Skye terriers and Persian cats, every one must have observed that the hair felts itself into ugly masses.

This felting property of wool and certain kinds of hair is caused by a peculiarity in the structure which may be detected under the microscope, the filaments are notched or jagged at the edges—the teeth invariably pointing upwards, that is from the root to the point. A barley-ear will travel up your coat sleeve by the slight friction between it and your arm, because it possesses the same structure—but it will not move downward—so the fibres of wool moving in one direction only when subjected to gentle friction, mat together and form the kind of cloth called Felt. This felting property of wool is greatly assisted by the peculiar crimp in the fibre which it retains with great pertinacity, and if drawn out straight it immediately contracts again on being released, thus the forward motion of the fibre under friction is partly counteracted or converted into a circular or zig-zag movement, which is precisely that which most completely effects the matting together of the various fibres.

Wool in the yolk, that is with the natural grease adhering to it cannot be felted—the roughness of the fibre being in that case smoothed over by the oil—were it otherwise the wool would felt on the sheep's back and be comparatively useless.

As St. Blaise is the patron saint of wool-combers, for no better reason, so far as I can ascertain, than because the unfortunate martyr before he was be-