FABRIC ANALYSIS.

ASCERTAINING RAW MATERIALS USED IN THE CONSTRUCTION OF FABRICS.

(Continued from December issue.)

Comparing Hair and Wool. Examining the actual hair (since wool is only a variety of it) under a powerful microscope, we find the same lies straight and even, and presents a comparatively smooth surface compared to the serrated surface of the wool fibre. To explain subject, Figs. 18 and 19 are given, and of which Fig. 18 shows a wool fibre treated with caustic soda, and Fig. 19 a hair (human) treated in the same way, so as to show the serrations distinctly.

Other animal fibres used in the textile industry are:

- Cashmere Wool and Hair. The same are the covering of the Cashmere Goat, viz: a soft, woolly, white or grayish undercoat, and a covering of long hairs. The woolly undercoat is the more valuable fibre, and is wool fibre in its structure, as will be seen from Fig. 20. These fibres vary in length from 1½ to 3½ inches and possess no medullary substance. The outer hairs are of a length of from 3½ to 4½ inches, and possess the central or medullary substance, as shown in Fig. 20 A.

Mohair is the name given to the hairy covering of the Angora goat. It is of a pure white color (more rarely gray) rather fine, more or less curly, of high lustre, and on an average of from 5 to 6 inches long.
although in some cases as long as 12 inches. Their outer scales are extremely delicate, giving the fibres a spotted appearance all over their surface, as is shown in Fig. 21. Besides the mohair, there grows upon the

![Fig. 21](image)

Angora goat a short, stiff hair (kemp), a relic of the common goat. Its presence depends upon the kind of breed, being nearly nil in the pure animal. This kemp fibre in mohair always reduces its value, in proportion to the amount that is present.

![Alpaca or Paco](image)

Alpaca and similar wools are obtained from a group of animals comprising the Alpaca, the Llama, the Vicugna and the Guanaco, and of which the one mentioned first is the most important.

![Fig. 22](image)

The Alpaca, a domesticated animal, furnishes a fine fibre, see Fig. 22, about 6 to 8 inches long, except when the animal is only sheared once in two years, and when the fibre is then considerably longer. Its color is white, gray, brown or black. It is a lustrous fibre, although this lustre is inferior to that of mohair.

![Llama or Llama](image)

The outer scales of the fibre are extremely fine, and the central or medullary substance is present either throughout its entire length or in small elongated masses.

The Llama furnishes a coarse, long unelastic, white and brown wool, mingled with true hair.

The Vicugna furnishes two different kinds of fibres, viz.: a fine woolly under hair, covered with scales and free from medulla, see Fig. 23, and a coarse upper or beard hair, having the medullary substance strongly developed.
The Guanaco yields fibres of varying quality; however it is of even less importance than the Vicugna.

Camel Hair is of two kinds, *viz.*: very fine, curly, reddish or yellow brown hairs, about 4 inches in length and known in commerce as camel wool, and coarse straight, dark brown to blackish body hairs, about 2 to 2½ inches long. Both kinds of hair show, under the microscope, see Fig. 24, faint scales. The medullary substance always appears in the coarse hair, whereas in the fine hair it is either wanting or appears in insulated masses. The fibres from the Alpaca, Llama and Vicugna are frequently referred to in the market collectively as Camels hair.

Goat Hair. The Common Goat, when raised in the open air, has a woolly fur which is shed in the spring and which hair is adapted for spinning, with wool, into coarse yarns.

Cow and Calf Hair are coarse, stiff fibres, of a white, reddish brown or black color, possessing a slight lustre, and in turn are spun, mixed with low grades of wool, into coarse yarns. Fig. 25, a specimen of the fibre, shows the central or medullary portion of the fibre. The fibre indicated by P shows a pointed end of one of these hairs.

Horse Hair. Of this, two kinds are met with in commerce, *viz.*: tail hair, or the long hair, measuring at least 23 inches, though it occasionally attains a length of 32 to 34 inches, and mane hair, or the short hair, and which rarely exceeds 19 inches in length. White and black are the colors most esteemed, while red, gray, etc., hair is less valuable.

(To be continued.)