

from the Angora goat. The epidermal scales are extremely delicate and can only be noticed by giving the greatest care to the experiment. The fibre gets smaller in diameter toward the top end, although not forming a point, and is of bright metallic lustre. Characteristic to it are the fine spots found all over the surface, as shown in the accompanying specimen, Fig. 63. Cashmere is the product of the Cashmere goat. The fur of



FIG. 63.

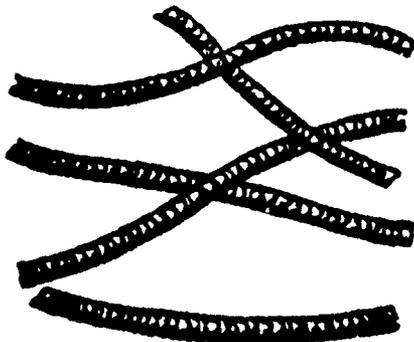


FIG. 64.



FIG. 65.

this animal is of two sorts, viz., a soft woolly under coat of grayish hair, and a covering of long silken hair, that seems to defend the interior coat from the effects of winter. The under coat, *i.e.*, the fine fibres, are readily distinguished by means of the structure of their epidermal scales; besides there is no central or medullary portion found. Fig. 64 gives us a specimen of these fibres. They are used only in the manufacture of the finest textiles on account of their high value.

The outer coat, which is of a coarser nature, is used in the manufacture of cheaper yarns, and shows under the microscope fibres containing the central or medullary portion as clearly shown by the accompanying illustration, Fig. 65. Alpaca possesses less lustre than



FIG. 66.

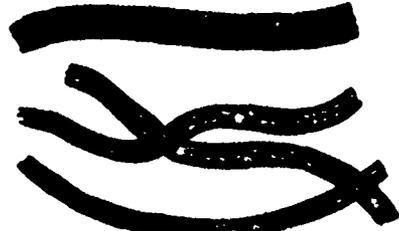


FIG. 67.

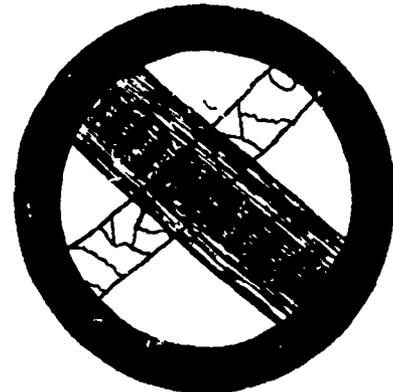


FIG. 68.

mohair, and only shows its fine scales by strong magnifying. In white fibres grayish colored medullary cells are seen. Fig. 66 gives us a specimen of this fibre. Vicugna looks, at a first glance, like alpaca wool; it is a delicate, soft structure. The scales are fine, closely resembling those of wool. The medullary cells are visible. Fig. 67 is a specimen of this fibre. Llama wool is coarser in structure compared to vicugna wool and of less value, being only used in the manufacture of cheap yarns. Camel's hair is frequently used in the manufacture of lower grades of yarn for backing purposes. Fig. 68 shows camel's hair fibres magnified.

Sometimes we find what is claimed to be finer grades of camel's hair in the market; this material, however, refers to fibres of the outer cover of the angora, the fur of the vicugna and alpaca; whereas the fur of the llama joins more toward the camel's hair.

The fibres mentioned cover most materials a manufacturer will come in contact with.

S. W. Wardell, Boston, Mass., has patented a method of rolling yarn. The yarn is first wound on a spindle to form a cop; it is then wound in layers laterally from end to end of the cop. The whole makes a flexible solid mass of yarn in a convenient form for use.