

The Identification of Fibers

The Hair Fibers

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Mohair

While many times as much wool is used in this country as all other hair fibers combined, yet there are a number of the minor fibers used in sufficient quantity to be of commercial importance while others are of interest for other reasons. Among these one of the most important is mohair, Figure 14. It is produced

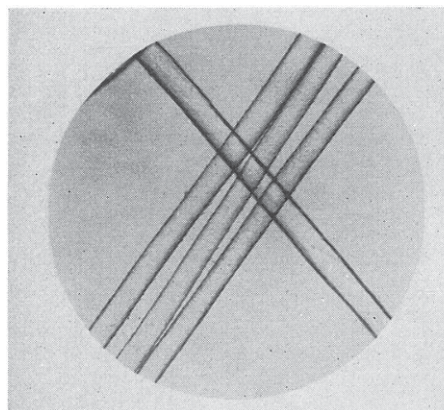


Fig. 14. Mohair (Magn. 125×)

by the Angora goat which, as its name implies, originated in Turkey, but is now raised also in South Africa and the United States. The chief distinctions between mohair and wool, as shown by the microscope, are that the mohair fibers are straighter and smoother than wool fibers of like diameter, and that the scales lie flatter on the fiber than on wool, so that, in some samples, the scale boundaries are scarcely distinguishable unless developed by some means. In some samples, on the other hand, the scales more nearly resemble those of wool. In size and shape also the scales vary greatly in different samples. Of course the prominence of the scales is considerably affected by the focusing of the microscope and the aperture used in making the photograph. In Figure 15 is shown another picture of mohair fibers from the same sample as is shown in Figure 14, but with focus and aperture chosen to bring out the scales. In most of the photographs of this series the focus and aperture were selected with a view to emphasizing the structure of the fibers. In some samples of mohair occasional fibers are observed which show an opaque medulla, as in wool kemps.

Other Hair Fibers

Camel

Another hair of considerable importance is that of the camel, Figure 16. There are three more or less distinct types of hair in most samples of camel hair. One type is very fine, usually with fairly well marked scales. Another type is coarse and often shows a

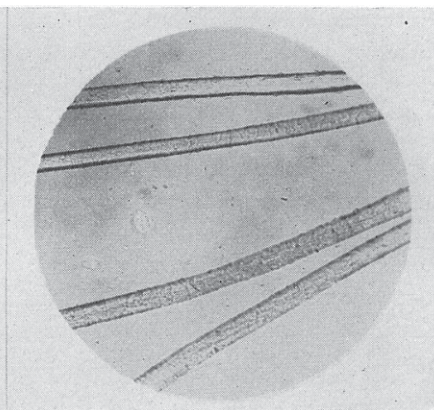


Fig. 15. Mohair (Magn. 125×)

medulla which may occupy the greater part of the diameter of the fiber. Scales on such a fiber are usually scarcely visible. Intermediate between these types of fiber is a type of medium diameter, which does not show an opaque medulla, and which usually shows little indication of scales. This type of fiber often shows frequent narrow, longitudinal markings. Camel hair is usually brown.

Alpaca and Llama

Somewhat resembling camel hair is that from the alpaca and llama which live in the Andes Mountains. These animals are closely related and their hair is so similar that it is scarcely possible to distinguish one from the other. Llama hair is shown in Figure 17. The fibers are smooth and usually fairly fine. They are especially characterized by the narrow, opaque medulla observed much more frequently than in other hairs of like fineness. In many cases this appears merely as opaque spots. Usually the scales are scarcely to be distinguished, as seen from the microphotograph on the opposite page.

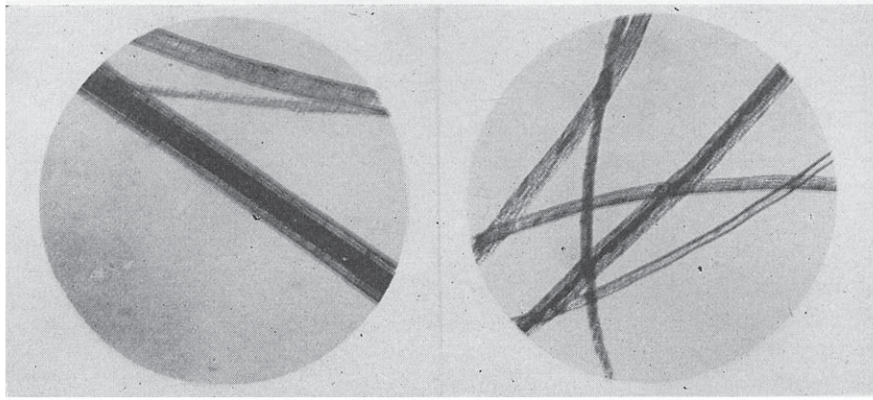


Fig. 16. Camel Hair (Magn. 125X)

Fig. 17. Llama (Magn. 125X)

Vicuna

The vicuna is related to the alpaca and llama, and produces a fiber very similar to theirs but finer. The opaque medulla and extremely fine fiber are very characteristic. The scales are scarcely distinguishable. Coarse fibers are found but these may be removed in manufacture. This fiber is shown in Figure 18.

White Rabbit

A fiber sometimes used in soft yarns, either alone or mixed with another fiber, is that of the white rabbit, Figure 22. The peculiar internal structure is very characteristic and easily distinguishes this fiber from other hairs normally used in the textile industry. Sev-

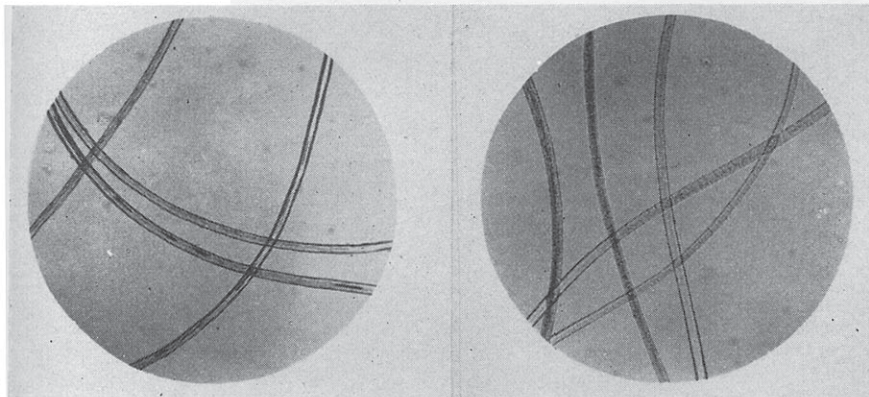


Fig. 18. Vicuna (Magn. 125X)

Fig. 19. Cashmere (Magn. 125X)

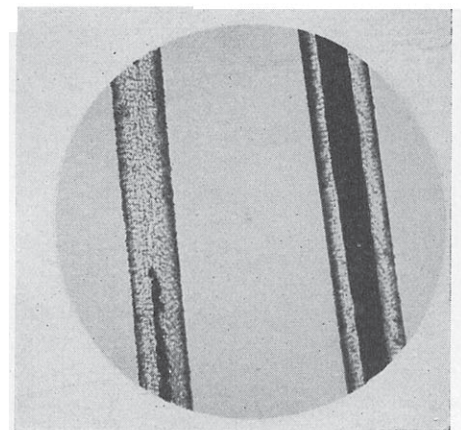


Fig. 20. Goat Hair (Magn. 125X)

Cashmere

Another extremely fine hair is cashmere, Figure 19. This fiber is produced by the cashmere goat which lives in Thibet and Kashmir, in central Asia. The fiber may be distinguished from vicuna by its distinctly visible scales and the fact that it does not usually show the opaque medulla so characteristic of vicuna. Like vicuna it contains occasional fibers which are coarse, unless they have been combed out.

Common Goat

Common goat hair is not of much importance but has some uses. It varies greatly in appearance. Some samples are composed entirely of coarse fibers, as in Figure 20. Other samples contain both very fine and very coarse fibers, as in Figure 21.

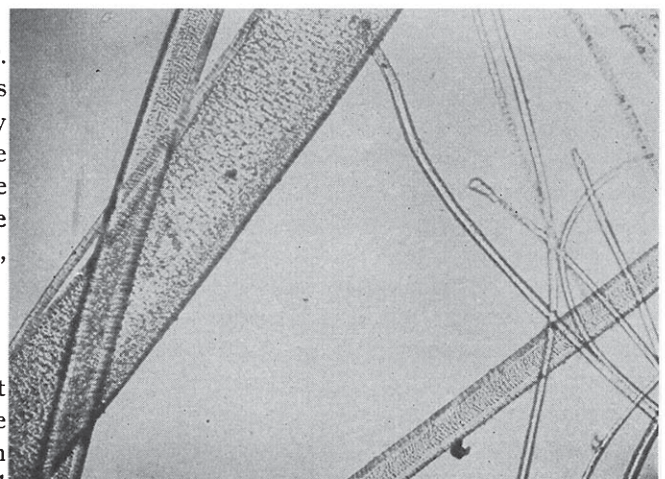


Fig. 21. Goat Hair (Magn. 100X)

Fig. 22.
Rabbit Hair
(Magn. 125X)

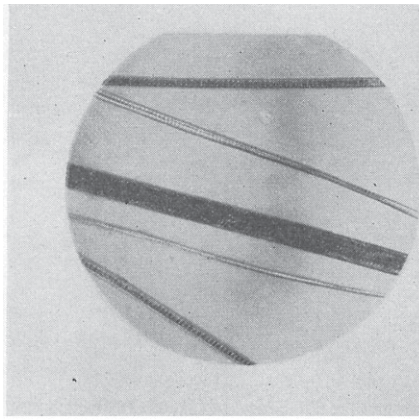
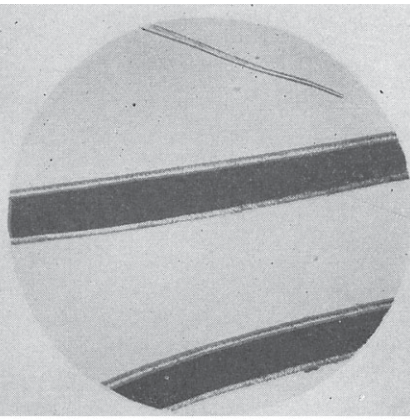


Fig. 23.
Cow Hair
(Magn. 125X)



eral fibers somewhat similar to rabbit hair are used in making felts.

Probably these fibers should properly be called fur rather than hair.

Cow Hair and Horse Hair

Other fibers that are occasionally seen are cow hair,

retain their pointed tips, as shown in the illustrations, and more or less hair root.

Human Hair

Of some interest is human hair, Figure 25. Occasional granular bodies are visible in the medulla of two of the hairs shown. Blond hair was chosen as the

Fig. 24.
Horse Hair
(Magn. 125X)

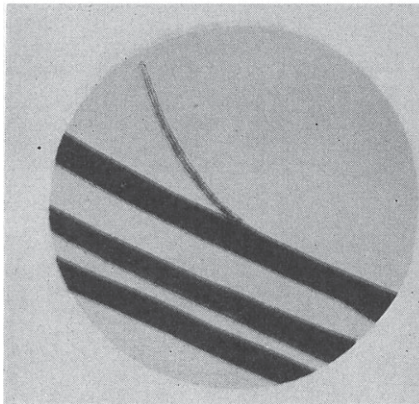


Fig. 25.
Human Hair
(Magn. 125X)

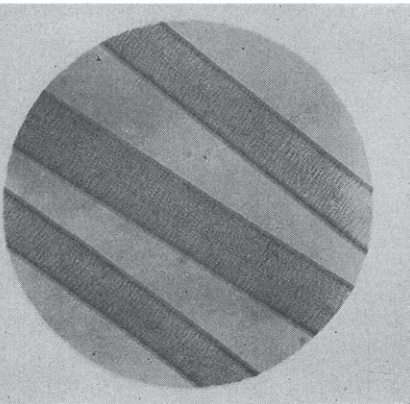


Figure 23, and horse hair, Figure 24. In microscopic appearance these two hairs are much alike. Especially noticeable is the broad, opaque medulla. Since these hairs are usually pulled from the hide they normally

subject of this picture in order that light might pass through it and show its structure. Most human hair of commerce is much coarser than that illustrated and often shows a broad, continuous medulla.

