Vicuna

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Origin

Vicuna wool is obtained from the smallest camel-like goat, the vicuna (Auchenis Vicunia) living on the plateaus of the Andes in Peru, Ecuador, and Bolivia.

The vicuna belongs to the camel family among which the camel, llama, alpaca and guanaco are numbered. In form and movement the animal resembles very much the East-African gazelle. The goat weighs from 75 to 100 pounds. The head is disproportionately large. Its coat is of a light reddish brown color varying to a deer-brown color on the lower parts. On its chest the animal has long, white, beard hairs (see Figure 1) which give it the characteristic appearance.

As the animal lives in the wild state, it must be hunted in order to get its excellent wool. Usually the animal is killed at the hunt and is then shorn. Through this careless and ruthless hunting the animal is dying out. In order to save it from entire extinction, the Peruvian government has imposed a severe penalty on the killing and shearing of the vicuna. The few thousand pounds which may be secured yearly, are smuggled out of the country.

The Peruvian Vicuna

Physical Properties

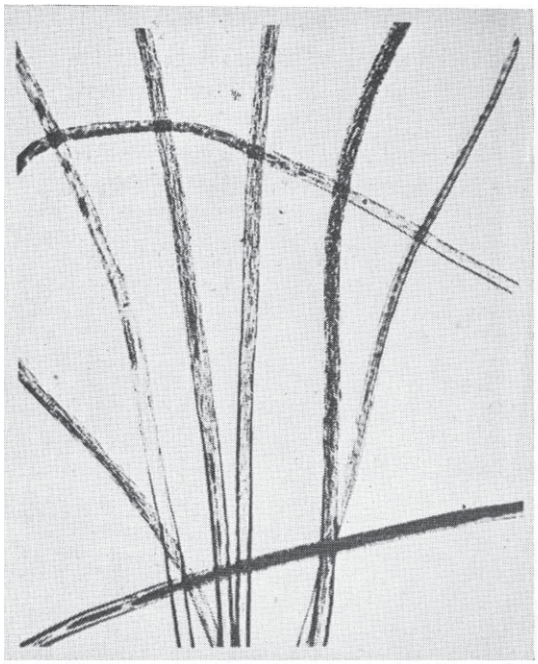
The hair-coat consists of fine, silky, soft, shining, curled wool hairs, and coarse beard hairs. The wool hairs are about 2 inches long, while the beard hairs attain a length of about 8 inches.

Microscopical Tests

Vicuna Wool Hair:

The hair consists mainly of the cortical layer and the epidermis. Contrary to the cashmere wool hair, however, one finds numerous hairs with medulla. The medulla is not continuous, but is interrupted (medullae islands). As shown in Figures 2 and 3, I found the scales poorly visible in contrast with those studied by Matthews. The number of scales per 100 microns approximates 7-9.

The cortical layer is strongly longitudinal and is covered in part by brownish-red dyestuff pigments.



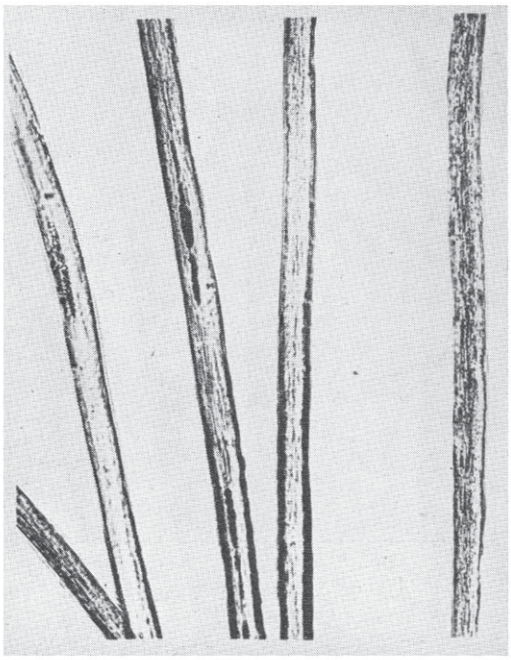


Figure 3
Vicuna 240x

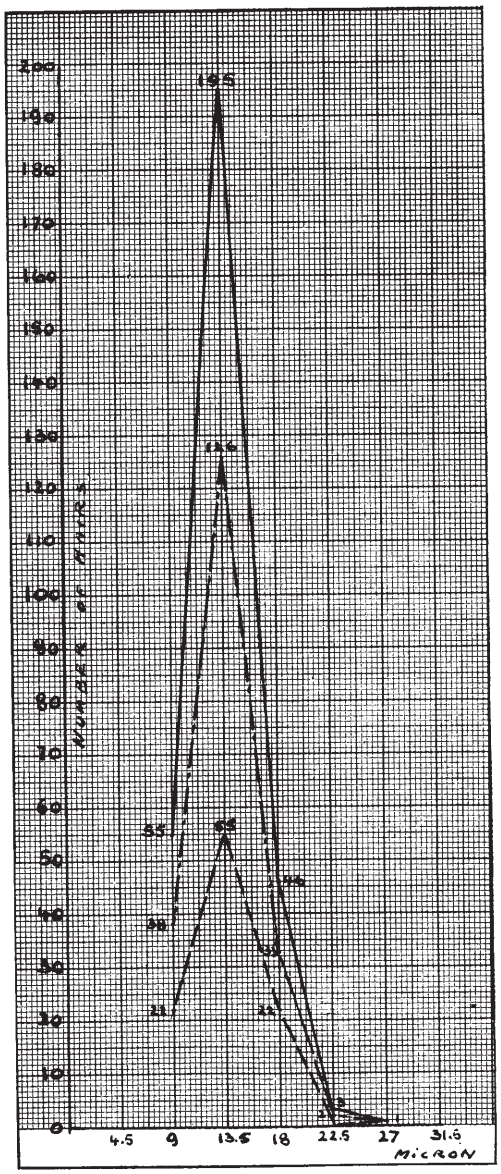


Figure 4
Diameter Variation Curves
of Vicuna Wool Hairs

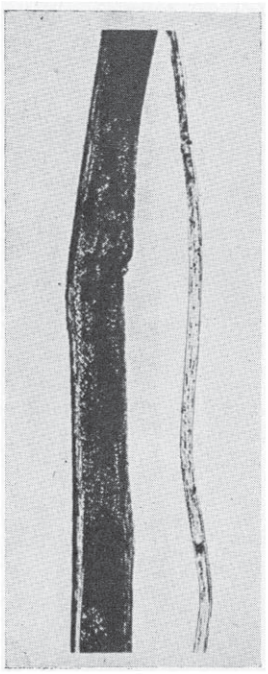


Figure 5
Vicuna Beardhair 120x

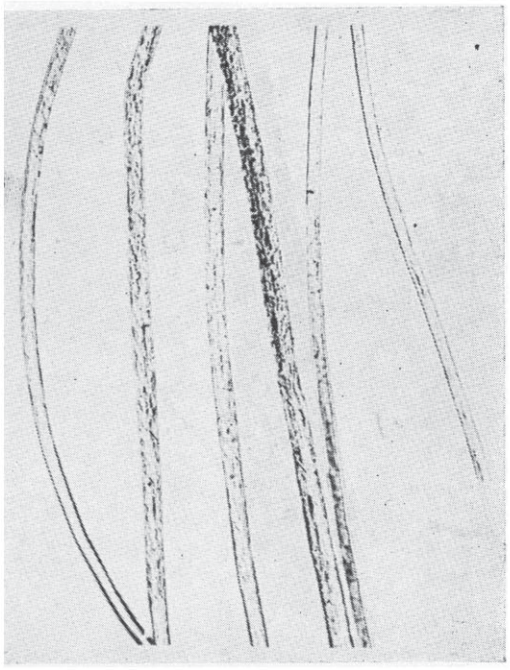


Figure 6
Camel Hair 120x

Fineness:

The diameter, or better still, the width of the hair is, as in cashmere, extremely regular. This is clearly seen by the values given in the diagram Fig. 4.

Fineness Measurements

Number of Hairs	Average Diameter
100	13.63μ
200	13.55μ
300	13.50μ
600	13.55μ

Beard Hairs:

The beard hair consists of three layers, the epidermis, the cortical layer and the medulla. The latter comprises the main portion of the hair. The beard hairs, according to Matthews, have an average width of 75 microns.

Figure 5 shows a single beard hair and a wool hair.

Differentiation between Related Hairs:

The differentiation between vicuna and fine camel wool is most difficult. An absolute differentiation, without the microscope and exact measurements, is not possible. Figures 6 and 7 show camel wool hairs, magnified 120 and 240 times.

In the cortical layers the pictures are completely alike, and also, at first sight, there is

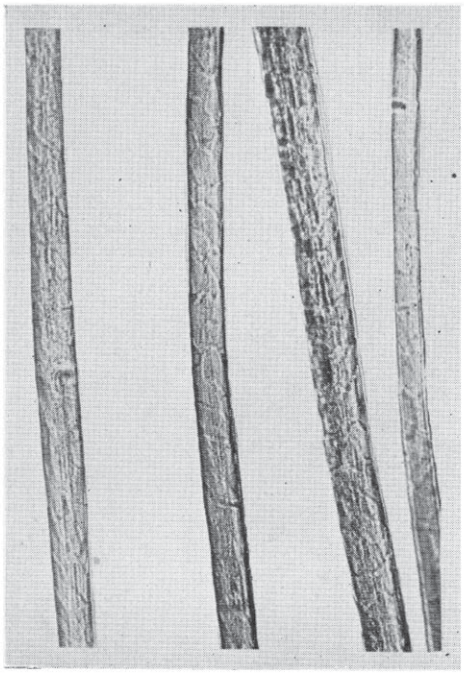


Figure 7
Camel Hair 240x

no noticeable difference visible in the fineness.

Only the measuring of at least 100 hairs brings to light the difference.

Figure 8 shows the diagram of 200 camel

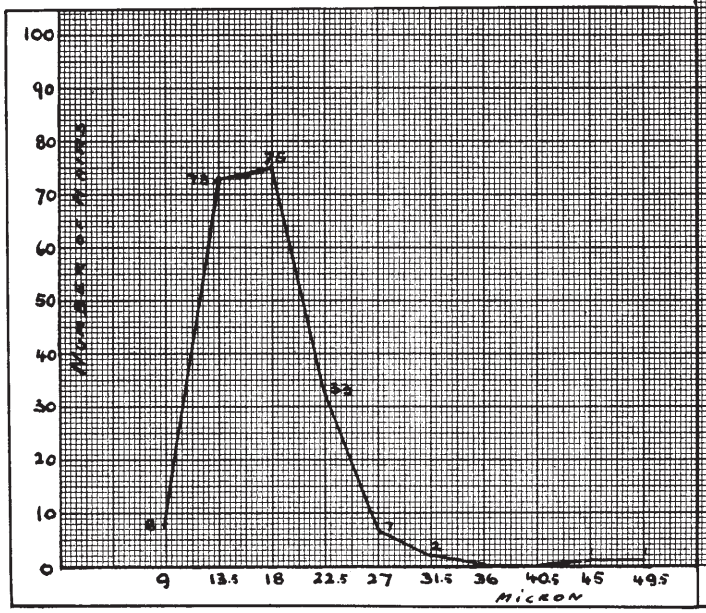


Figure 8. Diameter Variation Curve of Camel Wool Hairs. 200 Hairs Av. Diam. 17.48μ

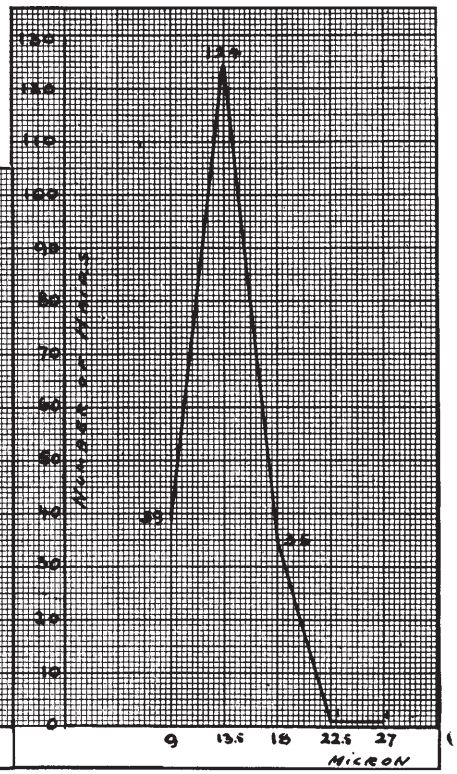


Figure 9. Curve of 200 Vicuna Wool Hairs. Av. Diam. 13.5μ.

hairs and next to it the diagram of 200 vicuna hairs, Figure 9, as they were found in two cloths. If we divide the values of the hairs into 3 classes,

9 to 16μ = fine hair
16 to 25μ = medium fine hair
25 & upμ = coarse hair

the following proportions by percentage will result:

	Vicuna	*Camel*	*Llama*
Fine hair	85%	40%	5%
Medium fine	14%	54%	52%
Coarse	1%	6%	43%

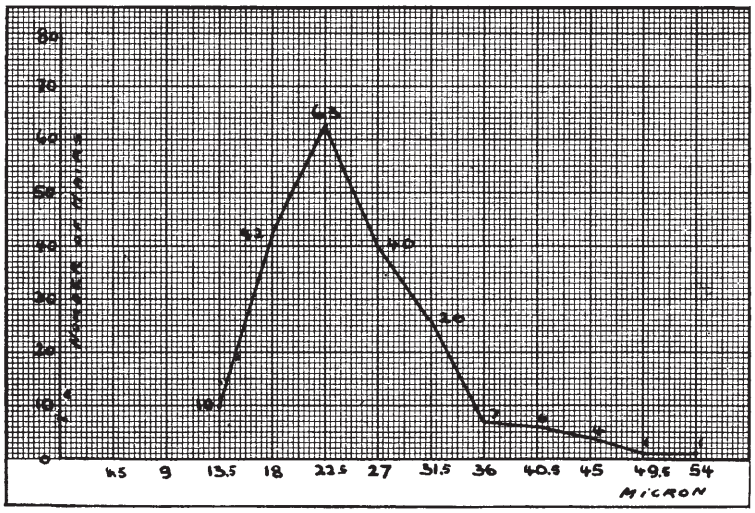


Figure 10
Diameter Variations Curve of 200 Llama Hairs. Av. Diam. 24.93μ

The vicuna shows an average fineness of 13.5 microns and consists of more than 80% fine hairs, while the camel wool consists of only 40% fine hairs, and the average fineness is 17.5μ. This difference in fineness is, therefore, the only certain proof of the difference between vicuna and camel wool.

The difference between vicuna and alpaca, or llama, is simpler as the latter hair is much coarser.

Figure 10 shows a diagram of llama hairs. The average amounts to 24.9 microns, that is, over 10 microns coarser than vicuna. The proportion by percentage can be seen from the above table.

Figure 11 shows 3 llama hairs magnified 240 times. The structure is the same as the vicuna, and the scales are even less visible.

Workability

For centuries the Indians have shorn the vicuna and made valuable blankets of the wool, which were liked especially for their durability and their silk-like appearance.

Even now the finest woolen cloths, especially velours, are woven of this wool; it is also used in the making of soft hats. The materials are mostly sold in their natural color.

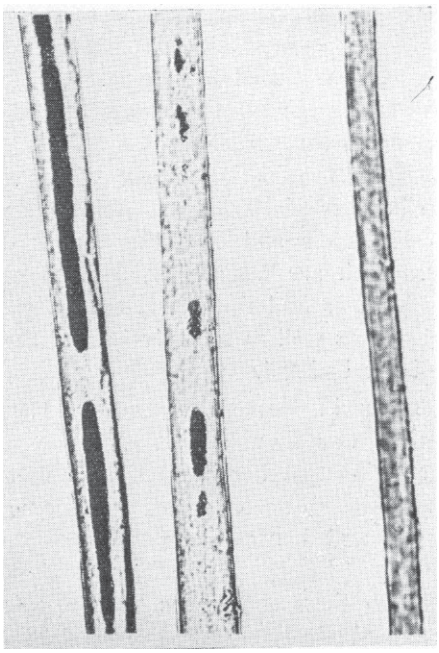


Figure 11
Llama Hairs 240x

The vicuna gives the very finest wool hair, the fineness of its wool exceeds that of the cashmere goat about 1½ microns.

Material made of pure vicuna may rightfully be termed the finest woolen fabric of the world.