

## Hairiness in Wool in Relation to Blood Potassium Types in Marwari Sheep

The presence of 2 distinct groups of high (HK) and low (LK) potassium types in sheep<sup>1</sup> and subsequent findings about the high adaptability of LK type to desertic conditions<sup>2,3</sup>, led us to investigate the differences between these 2 types for wool characteristics. Large differences found between these types with regard to the number of medullated fibres in their wool are reported here.

The experiment was done in 2 trials in which 40 Marwari wethers of 3–4 years of age were used. In the first trial the wool samples from 6 body regions (neck, mid side, britch, wither, shoulder and back) of 10 wethers (5 LK and 5 HK) were examined for medullation during 2 shearing seasons (March and September 1966). In the second trial (March 1967) wool samples from only the britch region of 30 wethers (15 LK and 15 HK) were tested for medullation, as suggested by TURNER et al.<sup>4</sup>. True wool fibres have no medullation whereas hairy fibres are partly or wholly medullated. For examining the occurrence of medullation in a representative sample of fibres from selected body regions, staples from these regions were clipped off and then cut transversely at the tip, middle and the base. The cut samples were mounted on glass slides for projection on a white surface through a microscope using  $\times 500$  magnification. From the number of medullated and non-medullated fibres present in each sample, the percentages of the 2 types were calculated. As many as 100 fibres were tested for each sample.

Results of the first trial have shown that samples from neck, mid side, britch, shoulder, wither and back regions from LK animals had 14.0, 2.6, 20.1, 19.7, 3.9 and 10.5% less the number of medullated fibres during March 1966 and 16.6, 20.5, 26.0, 25.7, 17.9 and 14.9% less for the corresponding areas during September 1966 in comparison to similar samples from HK animals. On the average, LK animals showed 16% fewer medullated fibres than HK for the 2 shearing seasons. Statistical analysis of data, in which the mean percentage of the 6 regions on each animal was transformed into arcsin percentage, showed

that the differences between the 2 potassium types for medullation were highly significant ( $P < 0.01$ ). In the second trial, the LK animals showed 22.3% fewer medullated fibres than HK. The difference between LK and HK was found to be highly significant ( $P < 0.01$ ), and this, therefore, confirmed the results of the first trial.

Blood potassium types in sheep are controlled by a single Mendelian gene, HK being recessive<sup>5</sup>. Since LK animals are both heterozygous and homozygous whereas HK are only homozygous recessive, homozygous LK should have fewer medullated fibres in the wool than the combined stock of heterozygous and homozygous used in this study. Therefore, the breeding of LK sheep and subsequent culling of HK segregating from LK  $\times$  LK mating in each generation should result in raising flocks yielding true wool fibres. These results, therefore, may have immediate application for the rapid improvement of wool in most developing countries where sheep are largely of hairy type.

*Zusammenfassung.* Schafe mit geringem Kaliumgehalt im Blut haben an mehreren Körperstellen weniger markhaltige Haare als Tiere mit höherem K-Gehalt.

G. C. TANEJA

*Division of Animal Studies, Central Arid Zone Research Institute, Jodhpur (India), 15 January 1968.*

<sup>1</sup> G. C. TANEJA and P. K. GHOSH, *Ind. J. exp. Biol.* 3, 166 (1965).

<sup>2</sup> G. C. TANEJA, *Experientia* 23, 645 (1967).

<sup>3</sup> G. C. TANEJA, B. M. FULADI and R. K. ABICHANDANI, *Ind. J. exp. Biol.* 4, 125 (1967).

<sup>4</sup> HELEN NEWTON TURNER, R. H. HAYMAN, J. H. RICHES, N. F. ROBERT and L. T. WILSON, C.S.I.R.O. Divisional Rep. No. 4 (1953).

<sup>5</sup> G. C. TANEJA, *Experientia* 23, 273 (1967).

## Evoked Responses and Neuronal Activity in the Lateral Geniculate<sup>1</sup>

Many studies of central sensory processes have been based on recordings of the gross evoked response. Since sensory information is carried by neuronal elements and since the relations between the gross response and the neuronal response are poorly understood, some doubts have been expressed with regard to the value of the gross response as an indicator of meaningful sensory input. Recent studies of the visual evoked response have indicated the existence of some relations between the gross and neuronal responses<sup>2–5</sup>, but our knowledge of the nature of these relations remains incomplete. The purpose of the investigations described in this report has been to determine the time and phase relations between the gross and neuronal responses, in the lateral geniculate body.

*Materials and methods.* Multiple microelectrodes made of platinum-iridium wire, sharpened electrolytically to diameters of from 1–5  $\mu$  and insulated with glass<sup>6</sup>, were stereotactically implanted in the brain of cats, under barbiturate anesthesia. In some animals, the experiments were conducted under barbiturate anesthesia. Other

animals were allowed to recover, were maintained for periods of 2–8 weeks, and the neuronal activity was studied in wakefulness, in the unanesthetized, unrestrained state.

The technique for the simultaneous implantation of several microelectrodes was described elsewhere<sup>7</sup>. Only

<sup>1</sup> Aided by grants Nos. NB 07145 and FO5 TW 1017 from the National Institutes of Health.

<sup>2</sup> S. S. FOX and J. H. O'BRIEN, *Science* 147, 888 (1965).

<sup>3</sup> M. LAUFER and M. VERZEANO, *Vision Res.* Oxford 7, 215 (1967).

<sup>4</sup> E. R. JOHN and P. P. MORGAN, in press.

<sup>5</sup> M. VERZEANO, P. GROVES and J. THOMAS, *Biophys. J.* 8, A-152 (1968).

<sup>6</sup> M. L. WOLBARSH, E. F. MACNICHOL JR. and H. G. WAGNER, *Science* 132, 1309 (1960).

<sup>7</sup> J. THOMAS, P. GROVES and M. VERZEANO, *Experientia* 24, 360 (1968).