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STUDIES OF THE COAT

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IN THE

NEW ZEALAND ROMNEY N-TYPE SHEEP.

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PART I KEMP IN THE NEW ZEALAND ROMNEY N-TYPE FLEECE.

PART II PRE-NATAL DEVELOPMENT OF THE N-TYPE BIRTHCOAT.

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PART I

KEMP IN THE NEW ZEALAND ROMNEY N-TYPE FLEECE.

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INTRODUCTION.

Kemps may be defined as hairy fibres which are shed after a short period of growth. Birthcoat kemps are succeeded by fibres in the same follicle, and there may be varying amounts of this second generation that are also shed. Thus, successions of kemp often continue throughout the life of the sheep making the fleece uneven in a way usually undesirable. Previous studies (Dry 1940) have shown that selection against high abundance of halo-hairs is effective in eliminating kemp. Although kemps are associated with coarse fleeces with high abundance of halo-hairs, they are not always present. A hairy birthcoat follicle after growing and shedding a kemp may produce fibres of persistent growth; hence this study should have significance for breeders of Mountain Sheep which characteristically have hairy birthcoats. It is understood that a thick, hairy birthcoat of halo-hairs with a minimum of kemp in the adult fleece is desirable in the Scotch Black-face lamb.

The various characteristic fibre types of the sheep's fleece have been studied and classified by Dry (1933). According to the collection of these types present in one sample of wool, certain characteristic arrays can be recognized (Dry 1934). These arrays can be arranged in a series :- those with sickle-fibres are non-Plateau with few halo-hairs

and include Saddle, Ravine, Valley and Plain arrays; those without sickle-fibres are Plateau, coarse arrays with many large hairy halo-hairs. The former type of array, non-Plateau, is found on finer woolled sheep such as Wensleydales, fine Romneys etc. while the latter type of array, Plateau, is found on N-type Romneys and Mountain breeds such as Scottish Blackface.

The time needed to determine whether the fleece will be kempy is the time required for a kemp to shed and be followed by succeeding fibres, i.e. about six months. It would be of advantage to breeders if this determination could be made soon after the birth of the lamb. For early recognition and also for a basis of selection, correlation of productive capacity with other characters has been a favourite subject with livestock breeders e.g. milking capacity. If correlations are real they can thus be very advantageous.

Now, by making use of previous knowledge of fibre types of Plateau array, it has been possible to find a correlation between the presence or absence of kemp in the adult fleece and the characterisation of fibre types in the birthcoat.

In the case of non-Plateau arrays, Dry (1940) has derived a theory, based on a correlation, for early recognition in the lamb's coat of presence of kemp in the adult fleece. Sickle-fibres which have proved to be the determinate fibres in the classification of arrays, are the determinate

fibres in this non-Plateau shedding generalisation. Plateau arrays rarely possess sickle-fibres, but if present at all they are in very few numbers and are often aberrant forms. The non-Plateau generalisation is therefore not applicable for N-type lambs with Plateau arrays.

It was necessary, therefore, to find some means for the early recognition of kemp in the N-type fleece where it is so often in such considerable abundance. Throughout this study, criteria are examined in order to establish a method for this recognition based on the characteristics of the fleece and its component fibre types.