

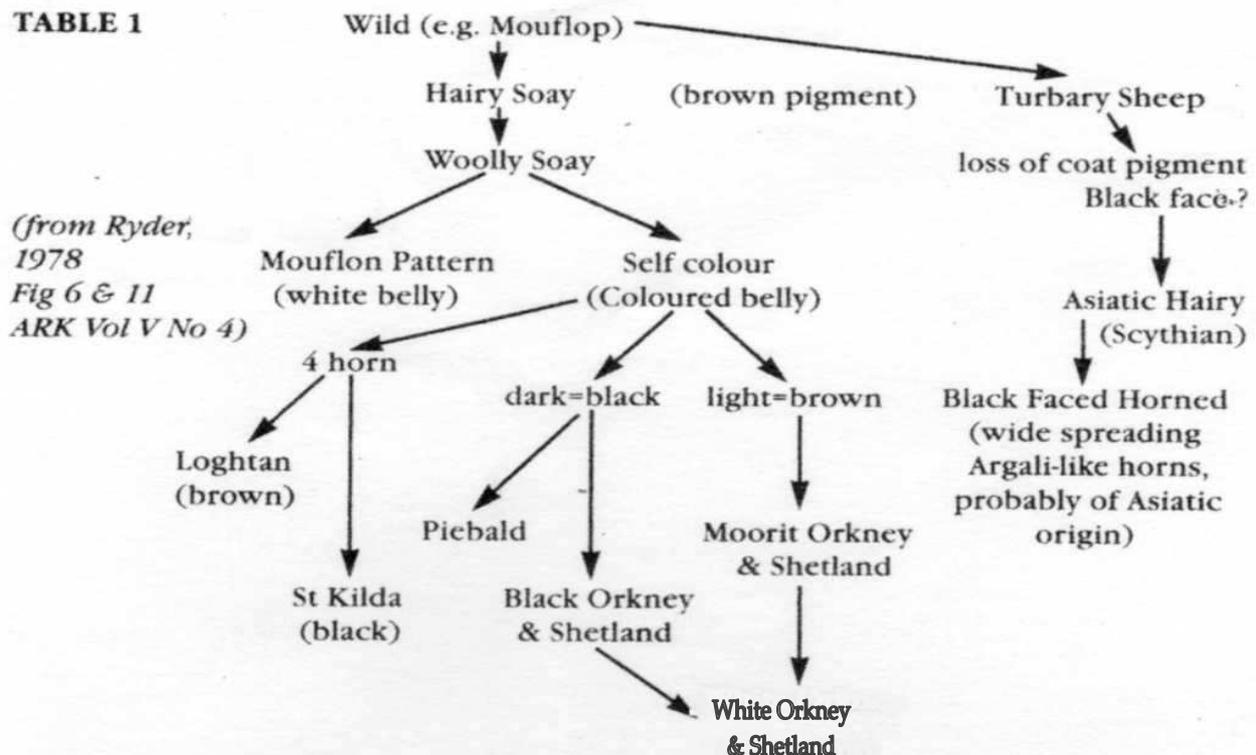
COLOUR OF WOOL AND HORNS

According to M L Ryder and S Adalsteinsson.

"It is a common observation in black and white piebald sheep that the wool of one colour (usually the black) is longer and coarser than the other.

Coat samples were taken at about 7 weeks of age across the boundary between the two colours so as to include black wool as well as white wool from the same area. There were hairy as well as woolly lambs, in the investigation. Black patches

TABLE 1



often had longer and straighter wool than white areas on the same lambs. The hairy lamb had no difference in the wool (length and coarseness) between the black and white areas. The woolly lamb, on the other hand, had coarser black areas, while the white areas having mainly fine fibres.

It was suggested that the presence of pigment encourages the growth of a coarser coat, and that perhaps any colour gene will make the fibre type array coarser since it is mainly variations in the

primary (hair), and less in the secondary (wool) fibres that change the array.

This genotype is therefore typically pleiotropic (double) in its local action by affecting both the colour and the size of the wool fibres. There appears to be an interaction between the 's' gene and the genes controlling fleece structure. The thickness of the skin growing the two colours was measured because of the Icelandic tradition that in moccasins made from piebald cattle skin, the black areas wear better than the white areas. Results show that the longest wool is associated with the thickest skin. It is known that longer wool grows from deeper follicles, and so the greater skin thickness could be an adjustment to accommodate the large follicles."

According to M L Ryder in his article, 'Rare Breeds and the Fleece Evolution of British Sheep', he comments, "My ideas on the affinities of the Soay, Orkney and 4-horned breeds are summarised, (see Table I) From this point we can go back to the evolution of coat structure since with a mixture of coloured and white fibres, the coloured ones are usually coarser. I have found darker coarse fibres and white or lighter fine ones in Roman cloth."

My own observations of some Jacob sheep showing original type features, exhibit a weakening or partial inactivation of the white ss gene. These individuals display totally black horns and hooves, dark skin colouration around mouth and nose, and often dark skin below the white woolled areas in Dark Piebald sheep when closely observed.

Knee and pastern areas also appear to be affected by an increase of dark colouration.

Miss Barbara Noddle of the Department of Anatomy, University College, Cardiff, suggests there are two types of horn carried by Jacob Sheep.

Type A. The Mouflon side of the family. These having black, relatively smooth eased horns. Type B. The Asiatic side of the family These having strong solid horns often ridged and corrugated and sometimes streaked with white. This includes the multiple curling horns.

...continued...

If in real like the proud possessors of these two types of horn came to blows; Type A would lose the casing and the quick' would need dressing.

Type B would lose the whole horn leaving an open bone socket in the skull, here rather more drastic veterinary treatment would be required.

According to A R Werner, in the book, 'An enquiry into the Origin of Piebald or Jacob Sheep', "Horns, generally of a dark colouration suggests an affinity with the Northern Moufflonoid breeds, while the occurrence of streaked-yellow or even wholly yellow horns, medium lengthened tail (and coarse hairy fleece-Noble. 1909) is the Urial admixture of the Blackfaced Horned Mountain."

Lady Wentworth mentions in her book 'Horses in the Making' (1951) "It has been contended that white hoofs are 'soft' and less resistant than dark ones. In support of this the microscope is said to prove that white hoof is cellular like a honeycomb instead of being solid as pumice stone like the black hoof.

Possibly the white hoof theory was started by the undoubted liability of white legs to chap and sore heels. This is due to a purely superficial delicacy of skin which is pinkish white under white-marking and black under whole-coloured hair. The black skin appears more or less immune from surface irritation."

There appears to be a secondary reaction between the ss gene and other genes controlling skin, hoof and fleece structure in many animals including Jacob sheep. Geneticists may consider this as a Positive Correlation.'

It is as if the original form of the Jacob continues, the variation of colour, fleece, and horn types being, linked together and passed through time and projected downwards through the generations of breeding. As the product of its ancestors its appearance is to a large extent already designed for it.

Let us be certain that we make the best sons and daughters of today, be our producers of tomorrow

...continued...

REFERENCES NODDLE, B.

Department of Anatomy, University College, Cardiff. RYDER,
M L. (1978)

Rare Breeds and the fleece evolution of British Sheep. ARK. ol No.4.

WERNER, A R. (1968)

An Enquiry into the Origin of Piebald or Jacob Sheep. Countrywide Livestock Ltd.

WENTWORTH, LADY. (1951)

Horses in the making. Allen & Unwin Ltd. RYDER, M L. and

ADA1STEINSSON, S. (1986)

A Note on Difference in Coat Structure Between the black and white areas of Piebald Lambs.
Sci.Camb.