

# The History of Sheep Breeds in Britain

By M. L. RYDER

THE object of the present paper is to give an introductory review of the sources of evidence that can be used in seeking the origin of British breeds of sheep. Older ideas are discussed in the light of recent evidence from new sources, and attempts are made throughout to synthesize evidence from documentary sources with that from new archaeological and biological techniques.

The first part of the paper summarizes the evidence of sheep in Britain from the earliest times until the Middle Ages, but this phase is dealt with briefly because there is little evidence of breed type until after the medieval period. The first source of evidence on sheep ancestry comes from skeletal remains of the Neolithic period onwards, and the use of bones in this way has recently been extended into the Middle Ages. Representations of sheep, such as sculptures, are useful in the Near Eastern civilizations, but are scarce in northern Europe. From the Bronze Age onwards wool textiles have been preserved, and from about 500 B.C. sheepskin, leather, and eventually parchment (made from sheepskin) are preserved, too. Wool fibres remaining embedded in such material add to the knowledge gained from textiles. A parchment may have written records and painted miniatures of sheep on its surface, but the true history of the sheep lies within the parchment itself! Information gained from parchments and textiles has enabled the author to put forward elsewhere a hypothesis on the evolution of the fleece, and it constitutes the main new evidence in the first part of the paper, but few European parchments are available before the Middle Ages.

European records begin in Roman times, but although husbandry is often adequately dealt with, descriptions of sheep are almost non-existent until the eighteenth century. So in the second part of the paper the approach is reversed and an attempt is made to trace back the ancestry of modern breeds to the sketchy records of the Middle Ages. In this, the distribution of different types of sheep at the end of the eighteenth century is used as the basis, together with evidence from other sources such as illustrations of sheep, and the blood types of modern breeds. It is postulated that there have been three main introductions of sheep into Britain. The first to arrive were probably of brown Soay type, and this type seems eventually to have given rise to the

modern white-faced, horned breeds. The next influx was probably white-faced and horned only in the rams; this seems to have been the ancestor of the white-faced short-wools and the long-wools. The third type to arrive had a black face, and was horned; this has influenced the modern black-faced down breeds, and its descendants remain little changed as the hill breeds of northern Britain.

#### FROM THE EARLIEST TIMES TO THE MIDDLE AGES

Sheep were not domesticated in Europe; they were taken there by Neolithic men who migrated from the Near East.<sup>1</sup> When Neolithic pastoralists first advanced into Europe there was too much forest for many sheep to be kept, and pigs and cattle predominated.<sup>2</sup> While early civilizations were flourishing around the Mediterranean, primitive farmers were gradually spreading through Europe, and sheep eventually reached Britain about 3000 B.C. when Neolithic settlers crossed the English Channel.

Archaeological remains of domestic sheep were first found in the Swiss Neolithic lake dwellings, and were described by Rüttimeyer in 1861. The remains were from small sheep with goat-like horns, a character which suggested that they had arisen from the Urial type of wild sheep. The Urial, which itself has goat-like horns, is the wild sheep of south-west Asia, and it is thought to have been the first wild type to be domesticated.<sup>3</sup> This Swiss Neolithic goat-horned sheep was named *Ovis aries palustris* or the turbarry sheep. Sheep remains are scarce from the Neolithic period in Britain, but bones have been found in such sites as Windmill Hill, near Avebury, Wiltshire, and in Neolithic levels of Maiden Castle in Dorset. The bones from most Neolithic sites have been from small sheep assumed to be of the turbarry (Urial-like, *palustris*) type. The European climate is not conducive to the preservation of wool, and apparently the only Neolithic textiles that have been preserved had been made from plant fibres.<sup>4</sup>

In 1882 more skeletal remains were found by Studer in the Swiss lake dwellings. These had larger horns which led people to believe that they contained blood of the Mouflon type of wild sheep. This sheep was named *Ovis aries studeri*,<sup>5</sup> and was thought to belong to a later period, about the beginning of the Bronze Age. Although *palustris* and *studeri* are still quoted as being distinct types, there is no conclusive evidence that they are. Hilzheimer held

<sup>1</sup> M. L. Ryder, 'The domestication of sheep', *Wood Knowledge*, IV, 1959 (10), p. 19; 'Sheep of the Ancient Civilisations', *ibid.* (12), p. 10.

<sup>2</sup> Graham Clark, *Antiquity*, XXI, 1947, pp. 123-36.

<sup>3</sup> M. L. Ryder, *op. cit.* (9), p. 5.

<sup>4</sup> Graham Clark, *op. cit.*

<sup>5</sup> J. U. Duerst, *Vjschr. Naturf. Ges.*, Zürich, XLIX, 1904, p. 17.

that the two sheep were of the same period, and from the same breed, *studer* being the ram, and *palustris* the ewe.<sup>1</sup> Adametz pointed out that the slender-horned character of *palustris* is common to all ewes of breeds in which both ewes and rams are horned.<sup>2</sup> In addition to the large-horned and small-horned skulls discovered in the Swiss lake dwellings, he described others that were hornless. This in itself suggests Mouflon blood, because Mouflon ewes, alone among the wild sheep, are hornless. But it does seem that on most European sites the large-horned *studer* did not appear until the Bronze Age, for instance at Skara Brae, which was, however, a Neolithic survival into the Bronze Age.<sup>3</sup> Ewart regarded the larger-horned, Bronze Age sheep as belonging to a "mixed turbarry" race, and he pointed out that although these large horns can still be found in the primitive Soay sheep, this and other primitive breeds such as the Shetland sometimes have goat-like horns suggesting "simple turbarry" blood.<sup>4</sup> The brown Soay breed that still remains, notably in St Kilda,<sup>5</sup> is usually given as an example of what Bronze Age sheep were like. The fleece of the Soay is relatively short and is moulted annually, but although it may have kemp fibres (relatively short, bristly fibres) it lacks the long hairs of some modern mountain breeds. It can be regarded as a primitive woolly type as opposed to a primitive hairy type.<sup>6</sup>

Sheep became more numerous in the Bronze Age (about 2000 B.C.) with the gradual decrease of woodland. Few habitation sites have been found from this period, probably because the pastoralists were nomadic, particularly in the hills such as those of the Pennines and the Lake District. This pastoral nomadism stimulated sheep breeding in Europe as much as it had done in the East. Although the accent may have been on milk and meat for food, the wool produced gave rise to the manufacture of elaborately designed wool fabrics. One of the oldest specimens is a piece of cloth from a burial in a dug-out oak coffin found in an Early Bronze Age barrow at Rylstone, Yorkshire, and now in the British Museum.

The Urn People of the Middle Bronze Age (about 1400 B.C.) seem to have been the most proficient at the manufacture of textiles, but it is from the contemporary people of Denmark that we gain the most detail of Bronze Age wool textiles. There, too, the dead were buried in oak coffins, and some burials were in peaty and such water-logged soil that the body, complete with

<sup>1</sup> M. Hilzheimer, *Antiquity*, x, 1936, p. 195.

<sup>2</sup> L. Adametz, *Z. Zücht.*, B38, 1937, p. 113.

<sup>3</sup> D. M. S. Watson, in V. G. Childe, *Skara Brae*, London, 1931.

<sup>4</sup> J. Cossar Ewart, *Trans. Highland and Agric. Soc. Scot.*, 5th series, xxv, 1913, p. 160.

<sup>5</sup> J. M. Boyd and K. Williamson, *St Kilda Summer*, London, 1960.

<sup>6</sup> M. L. Ryder, in *Nature*, CLXXXII, 1958, p. 781.

everyday clothing, has been preserved. This clothing has been described by Margrethe Hald,<sup>1</sup> who sent me some of the wool.

The first workers who examined wool fibres from these Bronze Age textiles thought that they must have been mixed with deer hair.<sup>2</sup> But it is now realized that the fibres described as deer hair were really the kemps that form the outer coat of the fleeces of wild sheep, and are common in the fleeces of primitive domestic sheep. Fleeces had improved by the Roman Iron Age; fewer hairs have been found in cloth from this period. In addition, whereas the Bronze Age wool was mainly brown, there were more white fibres in the Iron Age wool. This is comparable with Iron Age wool in the East: a piece of sheepskin I examined from a Scythian burial mound of about 400 B.C. in the Altai Mountains of central Asia had wool with no pigment at all.<sup>3</sup> The fleece had an outer coat of long hairs and an under coat of fine wool, but lacked kemp fibres.

In the late Bronze Age, about 750 B.C., the Deverel-Rimbury People reached Britain. These people originated in the Swiss lake dwellings, and they set up lake dwellings in the Thames. It may have been these people who brought to Britain the larger-horned *stuederi* sheep, or what Ewart regarded as a mixed turbarry race possessing blood from the wild Mouflon. Two types of sheep were found in the Late Bronze Age site of Jarlshof in Shetland (if we can be sure that they were not the ewes and rams of a single type).<sup>4</sup> One of these was slender like the Shetland (turbarry-*palustris*), whereas the other was larger and had larger horns (*stuederi*). The finding of hornless skulls at a higher occupational level supports the suggestion of the presence of Mouflon blood.

Ewart seems to have been the only author to develop the theory that the wild Argali sheep of central Asia has made contributions to European domestic sheep.<sup>5</sup> He pointed out that the Argali is the only wild sheep in which the horns form a second spiral, and he considered that domestic sheep showing such a horn shape, e.g. the Scottish Blackface and Merino breeds, could have arisen only from a sheep with similar horns. Ewart thought that the influx of this type of sheep into Britain could be detected in the finds of limb bones from large sheep and skulls with Argali-type horn cores on Bronze Age sites in the Thames Valley. As will be seen, there has been much speculation on

<sup>1</sup> Margrethe Hald, *Bronze Age Fashion*.

<sup>2</sup> J. G. D. Clark, *Mesolithic Settlement in Northern Europe*, Cambridge, 1936.

<sup>3</sup> M. L. Ryder, in *Australian J. Sci.*, xxiv, 1961, pp. 246-8.

<sup>4</sup> M. I. Platt, in J. R. C. Hamilton, *Excavations at Jarlshof, Shetland*. H.M.S.O., Edinburgh, 1956.

<sup>5</sup> M. L. Ryder, 'The domestication of sheep', *loc. cit.*

the question when the black-faced horned breeds reached Britain, and these finds suggest introduction (at least temporarily) of Argali influence at that time.

The sheep remains found on most Iron Age and Roman sites have been described as being of *studer* or Soay type. It alone was represented at All Cannings Cross near Devizes, Wiltshire,<sup>1</sup> but some sites had what was described as the *palustris* type (these may have been ewes), e.g. the Iron Age levels of Maiden Castle in Dorset. Further clearance of the forests allowed sheep to become as numerous as cattle; on most Romano-British sites the cattle and sheep remains formed roughly equal proportions, each being about 35 per cent of the total, and at Glastonbury lake village as many as 88 per cent of the bones were from sheep and only 5 per cent from cattle.

It is known that the Romans had a well-organized wool textile industry in Britain, and there is the classical reference of Dionysius Periegetes, about A.D. 300, to British wool so fine that it was comparable to a spider's web. Among several Roman specimens of textiles from Scotland examined microscopically by the author was a white true fine-wool that justified this description: it had a mean diameter of 17 microns. But Pitt-Rivers found no skeletal evidence of sheep improvement in Britain. All the sheep remains he found were from animals of similar size to the Soay, except for one bone that was larger, and which he suggested may have come from an imported ram. Dr Applebaum refers to a larger breed noted at Barr Hill, Scotland,<sup>2</sup> although Soay sheep, too, were found on this site.<sup>3</sup>

The Romans carried out selective breeding on the continent,<sup>4</sup> but improvement of the fleece is unlikely to have increased the size of the carcase. Evidence from the parchment of the Dead Sea Scrolls, and from leather and wool cloth found in caves near the Dead Sea, shows the existence of a medium-woolled sheep in which about 80 per cent of the wool fibres were fine. This gave the impression of fine wool to the naked eye, but it cannot be regarded as a true fine-wool because microscopic examination shows that 15–20 per cent of the fibres are of medium diameter. It may, however, have been the renowned Mediterranean fine-wool of the ancients. A strain of this sheep could have been the ancestor of the fine-woolled Merino that emerged in Spain. It could also have been the sheep that Mr Trow-Smith considers the Romans must have brought to Britain. Such a fleece type, as will be seen,

<sup>1</sup> R. Trow-Smith, *A History of British Livestock Husbandry to 1700*, London, 1957.

<sup>2</sup> S. Applebaum, in *AHR* IV, 1958, p. 66.

<sup>3</sup> T. H. Bryce, in G. Macdonald and A. Park, *The Roman Forts on Barr Hill, Dunbartonshire*. Glasgow, 1906.

<sup>4</sup> M. L. Ryder 'Sheep of the Ancient Civilisations', *loc. cit.*

could also have given rise to the down and long-wool types, and Mr Trow-Smith considers it possible that the Romans actually introduced the long-wool. It seems likely that until the coming of the Romans the main, if not only, type of sheep in Britain was the Soay. And it seems significant that the Soay itself persists in St Kilda, off north-west Scotland, and that the tan- and white-faced horned breeds, which seem to be related to the Soay, are still today associated with Scotland and the western parts of Britain, the regions in which Celtic peoples persisted.

Sheep were perhaps more important during the Saxon period than has hitherto been realized. There are stray references, such as the famous letter of Charlemagne, which suggest a continuance or revival of the Roman export trade in wool goods. In this letter, to Offa, king of Mercia, in A.D. 796 he says that his subjects would like cloaks of the same pattern "as used to come to us in the old times." The ubiquity of sheep is clearly shown by the many Saxon place names (Shepley, Shepton Mallet, Shipley, and Skipton) that embody a reference to sheep. Mr Trow-Smith mentions a Celtic reference to white sheep in that period in terms suggesting that they were an exception. They may well have been so in Celtic areas if the Soay sheep persisted there. In fact, a sixteenth-century specimen of wool from Co. Derry had fine and medium fibres, some being pigmented, like the Soay. But some archaeological specimens of wool from Saxon England (comprising one fine specimen, three that were fine to medium, and three hairy ones) were mostly unpigmented. Further examination of one of the fine to medium specimens (from Fonaby, Lincs.) showed it to be brown, and to have a mean diameter almost as fine as the fine Roman specimen already mentioned (18 microns), but it had some medium fibres like the Dead Sea specimens.

The Domesday survey showed that soon after the Norman Conquest there were more sheep than all other livestock put together. The sheep's main function at that time was to provide milk; wool, manure, and meat were merely by-products, in that order of importance. A hundred years after the Domesday survey the sheep had increased in importance, but it is not known which of its products were of most value. There was, however, a difference in price between fine-woolled sheep at 10d. each, and coarse-woolled sheep at 6d., but Mr Trow-Smith says that the fine-woolled sheep seem to have been scarce.

Soon, however, the sheep held a unique position as a supplier of wool, first for export, and later for the medieval cloth industry that made Britain prosperous. We know that medieval sheep-farming practice was relatively highly developed, yet despite the evidence for fine-wool, there are apparently no records of selection and breeding. There are records of the numbers of rams,

wethers, ewes, and lambs kept by the great monastic houses, as well as the value of their sheep and wool. But there is little to indicate the type and appearance of sheep in the Middle Ages when different breed types were probably evolving; there may have been no breeds then as we know them today.

#### RECENT HISTORY BACK TO THE EIGHTEENTH CENTURY

As this article is primarily concerned with breeds, the approach will be changed at this point, and an attempt will be made to trace back the ancestry of modern breeds to the sketchy references of medieval times. But there have been so many changes in the character of breeds, particularly in the last two hundred years, that care must be taken not to assume that a breed in the past with the same name as a modern breed had necessarily the same appearance.

Not until the end of the eighteenth century did agricultural writers begin to give definite descriptions of different breeds. This was unfortunately just after many breeds had been changed; the carcass was improved, but the wool usually deteriorated. Sir John Sinclair (1791) divided sheep into short-wools (the wool of which is used to make woollens) and long-wools (wools used to make worsteds).<sup>1</sup> This classification seems to disregard the hairy-fleeced mountain sheep whose wool today is mostly used in carpets. Youatt (1837), however, grouped the Scottish Blackface (mountain breed) with the middle-wools, which he said were originally short-wools.<sup>2</sup>

Sinclair said that sheep producing short wool were small and thrived over a wide range of pasture, being formerly found on unenclosed commons. These sheep, as will be seen, were variable, but they probably comprised several distinct types. Sinclair said that before about 1750 farmers concentrated on short, fine wool, but when better feed (e.g. turnips) became available they introduced larger animals (the long-wools) to produce more meat.

Perhaps the best source of information about the end of the eighteenth century is Youatt (1837), who wrote at a time when the native breeds of many counties were fast disappearing. He went so far as to say that the old English short-wools had developed into middle-wools (as a result of better breeding and feeding) and that when he wrote, all short wool came from the continent (presumably from Merino sheep). He said that the short-wools had been very widespread and variable, some having horns, and some not. But when he wrote, these had mostly disappeared, and a larger and better sheep had been established by crossing with long-wools.

Around 1800 there seem to have been about twenty recognizable breeds as opposed to roughly thirty today, and the first stage in a projection into the

<sup>1</sup> Sir John Sinclair, *Address to the Society for the Improvement of British Wool*, 1791.

<sup>2</sup> W. Youatt, *Sheep, Their Breeds, Management and Diseases*, London, 1837.

past is to attempt to link modern breeds with those of 1800 (Fig. I). Farmers are often reluctant to say exactly how they evolved new breeds, but there are some useful sources of recent history.<sup>1</sup>

TABLE I  
CLASSIFICATION OF MODERN BRITISH BREEDS

<i>White-faced, horned mountain</i>			<i>Black-faced, horned mountain</i>		
Shetland*	0.69		Scottish Blackface**	0.72	} heather hills
Herdwick*	0.71		Rough Fell**	0.81	
Cheviot*	0.54	} "Green Hill" breeds	Swaledale**	0.85	
Welsh Mountain*	0.54		Dalesbred**	0.63	
Radnor*	0.47		Lonk**	0.45	
			Derbyshire Gritstone	0.57	
<i>White-faced short-wools</i>			<i>Black-faced short-wools</i>		
Kerry Hill	0.42		Clun Forest	0.41	} Down breeds
Wiltshire Horn**	0.14		Shropshire	0.25	
Dorset Horn**	0.49		Oxford	0.26	
Exmoor Horn**	0.65		Suffolk	0.42	
Devon Closewool			Hampshire	0.54	
			Dorset	0.49	
Ryeland	0.23	(woolly faces)	Southdown (almost lost black face)	0.44	
<i>Demi-lustre long-wools of medium length</i>		} white-faced polled	<i>Primitive sheep</i>		
Romney Marsh	0.53		Norfolk	1.00	
Border Leicester	0.12		Soay	0.96	
<i>Lustre long-wools</i>			Wild Mouflon	0.70	
Wensleydale	0.59				
Teeswater	0.54				
Leicester	0.06				
Lincoln	—				
Dartmoor	0.13				
Devon	0.13				
South Devon	0.20				

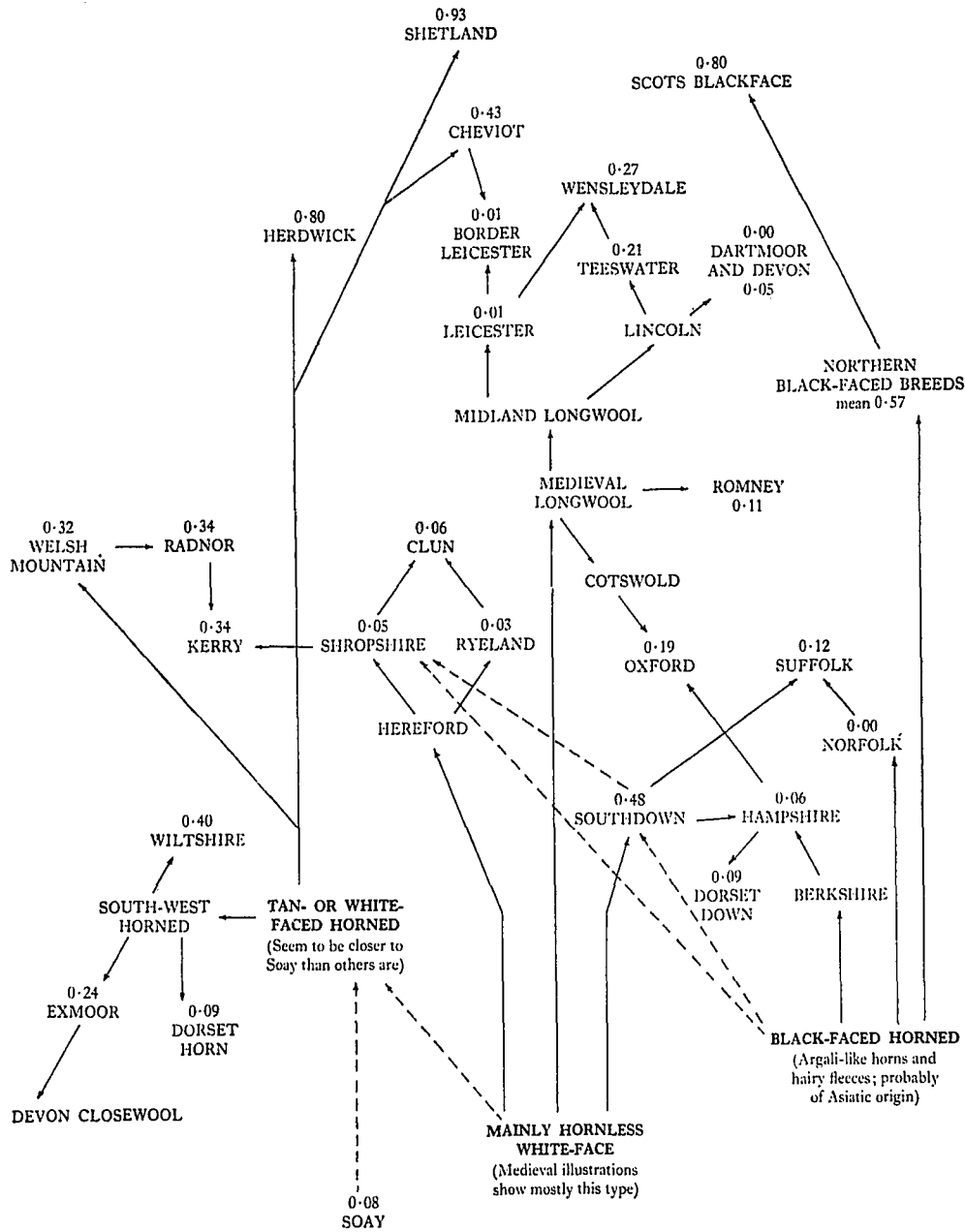
\* Only rams horned; \*\* both ewes and rams horned.

The figures indicate the gene frequency of high blood potassium (HK) (from Evans *et al.*).

The gene frequencies for high blood potassium shown in this table, and those for haemoglobin A shown in Fig. I, provide supporting evidence for the affinities of different breeds. But too much reliance should not be placed on these alone because they are likely to change by selection in different environments. Haemoglobin A gene frequencies are likely to change less, however, and these are discussed in the text.

<sup>1</sup> J. A. Scott-Watson and May Elliot Hobbs, *Great Farmers*, London, 1937; R. Trow-Smith, *op. cit.*





The figures indicate gene frequencies of haemoglobin A.

FIG. I  
PROBABLE LINES OF EVOLUTION OF BRITISH BREEDS OF SHEEP

It is fairly clear that the black-faced horned mountain breeds of the northern hills (Table I) all arose from a common black-faced, horned, and hairy ancestor. The Scottish Blackface, Rough Fell, Swaledale, and Dalesbred breeds have high frequencies of haemoglobin A genes<sup>1</sup> (0·80, 0·64, 0·82, and 0·86 respectively), which supports a close relationship. The Lonk and Derbyshire Gritstone have relatively lower gene frequencies (0·30 and 0·23 respectively), suggesting recent introduction of white-faced, horned blood (see below) or even long-wool blood (see above). In the early nineteenth century the black-faced horned type was often grouped with similar native sheep of other counties, and named a "heath" sheep. Mr Trow-Smith separates this stock from the "heath" type and names it the Linton family.

The white-faced (or sometimes tan-faced) horned breeds (Table I) and the Wiltshire, Dorset, and Exmoor Horns were all in existence about 1800, although Youatt's illustrations show that they were not exactly like the modern breeds. Mr Trow-Smith puts the Shetland on its own, and groups the remainder of these together as "heath" sheep. The Shetland has only about thirteen vertebrae in its tail and forms a link between the short-tailed Soay and the rest of the white-faced horned group, modern breeds having twenty vertebrae in the tail. This group of breeds tends to have lower haemoglobin A gene frequencies than the black-faced horned group. The high value of the Herdwick (0·80) might be interpreted as indicating recent introduction of black-faced blood, but Evans considers that this might be due to selection in a similar environment, and points out that most northern hill breeds have high gene frequencies for haemoglobin A.<sup>2</sup>

The Radnor, Kerry Hill, and Clun Forest breeds are, on the other hand, of fairly recent origin. The Radnor and the Kerry are almost certainly offshoots from the Welsh Mountain, both probably having had additions of Shropshire blood. The Clun, along with the modern Shropshire, probably arose from the Old Shropshire, described by Youatt as being horned, with black or mottled legs and faces. The modern Shropshire probably contains Ryeland as well as Southdown blood. The low frequency of genes for haemoglobin A in the Shropshire supports Ryeland influence. The white- and woolly-faced Ryeland is a very old breed, often known in the past as the

<sup>1</sup> J. V. Evans, H. Harris, and F. L. Warren, *Proc. Roy. Soc. B.*, CXLVIII, 1958, pp. 249-62. These gene frequencies for haemoglobin A (Fig. I) and high blood potassium (Table I) provide supporting evidence for the affinities of different breeds. But too much reliance should not be placed on them alone as it has been shown that a big change of environment (British breeds moved to Australia) can cause a change in these gene frequencies.—J. V. Evans and M. H. Blunt, *Aust. J. Biol. Sci.*, XIV, 1961, pp. 100-8.

<sup>2</sup> J. V. Evans, *op. cit.*

Hereford. These breeds of the Welsh Border are very variable, and Mr Trow-Smith describes the variants in detail.

The hornless "down" breeds are nearly all of recent origin; the modern down sheep *par excellence*, the Southdown, is the oldest, and its blood has been used in the establishment of all the other down breeds. Although it now has a white (woolly) face, its face was dusky (and still is so in Australia and New Zealand) before it was improved by John Ellman of Glynde, Sussex (and others), at the end of the eighteenth century. The Suffolk arose from a cross between the Southdown and the Old Norfolk, another black-faced, horned sheep, the fleece of which was perhaps shorter and less hairy than those of the northern black-faced breeds, and Mr Trow-Smith considers that this was a distinct stock. The Old Hampshire breed was white-faced like the Wiltshire, and the first step towards the modern Hampshire was a cross of this with the old black-faced Berkshire breed. Then followed the introduction of Southdown blood, and this was actually taking place when Youatt wrote. This cross has, however, been attributed entirely to Humphrey of Newbury. Trends such as the improvement of the Southdown, and even the improvement of the Leicester (by Bakewell), have often been attributed to only one man, whereas, in fact, as Mr Trow-Smith has shown, others were involved. The Dorset Down seems to have arisen as an offshoot from the Hampshire, and the Hampshire has also contributed to the Oxford Down. This breed was started by crossing the long-wooled Cotswold with the Hampshire, after which Southdown blood was added. The Devon Closewool apparently arose from a cross between the Exmoor Horn and the Devon Longwool.

The breeds that remain to be considered are the long-wools. Perhaps the most primitive of these is the Romney, and Youatt said that there had been long-wooled sheep on Romney Marsh from time immemorial. Another ancient long-wool was the Cotswold, which has now almost died out. Then there was the Leicester, which Bakewell had improved about the middle of the eighteenth century, and which around 1800 was known as the New Leicester or Dishley, after Dishley Grange, Bakewell's home. The Lincoln Longwool was in existence in the eighteenth century, and there was already a long-wool in Yorkshire, the Teeswater, which had probably originated from the Lincoln. The Teeswater, with the addition of Leicester blood, has given rise to the modern Wensleydale, which explains the similarity of haemoglobin A gene frequencies between the Teeswater and Wensleydale (Table I). The modern Border Leicester has evolved from the Leicester (note the similar gene frequencies) with the introduction of some Cheviot blood, which is evident in its appearance. There was also a long-wool in Devon,

probably originating from Lincoln and Leicester stock, and certainly improved by the New Leicester, which has given rise to the modern Dartmoor, Devon Longwool, and South Devon breeds. The low gene frequencies for haemoglobin A in these breeds indicates a link with the Leicester. Youatt said that the New Leicester had been taken into many counties, and that it had been used extensively for crossing, so many modern breeds probably contain long-wool blood.

*(To be continued)*

---

## Notes and Comments

### THE BRITISH AGRICULTURAL HISTORY SOCIETY

The December conference of the Society was held jointly with the Association of Agriculture at the London School of Economics on Saturday, 7 December. A paper was given by the President, Mr R. V. Lennard, on 'Agrarian History: Some Vistas and Pitfalls (with special reference to medieval England)'. The discussion was led by Dr W. G. Hoskins and Dr Joan Thirsk.

It is regretted that in Volume XI, page 125, the date of the Annual General Meeting and Conference for 1964 at Reading was wrongly given. It will in fact be from lunch-time on Friday, 10 April, to 5 p.m. on Sunday, 12 April. This meeting will be held jointly with the Economic History Society.

### THE AGRICULTURAL HISTORY REVIEW

This issue has been prepared under the joint supervision of Professor Finberg and Dr Joan Thirsk, the latter having been appointed Assistant Editor at the last meeting of the executive committee.

The editors invite suggestions from readers on the contents of the REVIEW. The opinion has been expressed that it should publish more articles on breeds of livestock, varieties of crops, agricultural implements, and the other material things of farming. Another criticism is that it does not contain enough of interest to the agricultural economist, in the form of articles analysing long-term developments in the farming industry. Naturally, if the articles are not written and submitted, we cannot print them, and editorial decisions are further limited by the need to provide our readers with a balanced diet. The comments of members, however, will be welcome.

May the editors also enter a mild complaint against authors who submit articles in an unfinished state, sometimes containing phrases which indicate quite clearly that they are merely excerpts from theses which the writers have not bothered to re-read, let alone revise; and against those who submit articles prematurely, only to ask for their return a few months later because they have found new material that will alter their conclusions?