found in certain ancient deposits in the S. of England; and the question arises whether the two breeds may not have been nearly related. Although there are no means of ascertaining whether the extinct pigmy British sheep was clothed with hair or with wool, it is practically certain that some of the early European sheep retained hair like that of their wild ancestor; and there is accordingly no prima facie reason why the breed in question should not have been hairy. On the other hand, since the so- called peat-sheep of the prehistoric Swiss lake-dwellers appears to be represented by the existing Graubünden (Grisons) breed, which is woolly and coloured something like a Southdown, it may be argued that the former was probably also woolly, and hence that the survival of a hairy breed in a neighbouring part of Europe would be unlikely. The latter part of the argument is not very convincing, and it is legitimate to surmise that in the small extinct sheep of the S. of England we may have a possible relative of the pigmy hairy sheep of W. Africa.

Fat-rumped sheep, *Ovis steatopyga,* are common to Africa and Asia, and are piebald with rudimentary horns, and a short hairy coat, being bred entirely for their milk and flesh. In fat-tailed sheep, on the other hand, which have much the same distribution, the coat is woolly and generally piebald. Four-horned sheep are common in Iceland and the Hebrides; the small half-wild breed of Soa often showing this reduplication. There is another four­horned breed, distinguished by its black (in place of brown) horns, whose home is probably S. Africa. In the unicorn sheep of Nepal or Tibet the two horns of the rams are completely welded together. In the Himalayan and Indian hunia sheep, the rams of which are specially trained for fighting, and have highly convex foreheads, the tail is short at birth. Most remarkable of aIl is the so-called Wallachian sheep, or Zackelschaf *(Οvis strepsiceros),* represented by several more or less distinct breeds in E. Europe, in which the long upright horns are spirally twisted like those of the mazkhor wild goat.

For the various breeds of wild sheep see R. Lydekker, *Wild Oxen, Sheep and Goats* (London, 1898), and later papers in the *Proceedings of the Zoological Society of London.* Also Rowland Ward, *Records of Big Game* (5th ed., London, 1906). (R. L.\*)

*Modern British Breeds of Sheep.—*The sheep native to the British Isles may be classified as the lowland and the mountain breeds, and subdivided into longwools and shortwools—the latter including the Down breeds, sometimes termed black-faced. The *longwool* breeds are the Leicester, Border Leicester, Cotswold, Lincoln, Kent, Devon Longwool, South Devon, Wensleydale and Roscommon. The *shortwoοl* breeds are the Oxford Down, Southdown, Shropshire, Hampshire Down, Suffolk, Ryeland, Dorset and Somerset Horn, Kerry Hill, Radnor and Clun Forest. The *mountain* breeds include the Cheviot, Scotch Black-face, Lonk, Rough Swaledale, Derbyshire Gritstone, Penistone, Limestone, Herdwick, Dartmoor, Exmoor and Welsh Mountain. These breeds are all English, except the Border Leicester, Cheviot and Scotch Black-face, which belong to Scotland; the Welsh Mountain, which belongs to Wales; and the Roscommon, which is Irish. The majority of the true mountain breeds are horned, the males only in the cases of Cheviot, Herdwick, Penistone and Welsh, though most Cheviot and many Herdwick rains are hornless. Of Derbyshire Gritstone neither sex has horns. In the other homed breeds, the Dorset and Somerset, Limestone, Exmoor, Old Norfolk, and Western or Old Wiltshire, both sexes have horns. The remaining breeds are hornless. The white-faced breeds include the Leicester, Border Leicester, Lincoln, Kentish, Cheviot, Ryeland, Devon Longwool, South Devon, Dorset and Somerset Horn, Limestone, Penistone, Exmoor and Roscommon.

The *Leicester,* though now not numerous, is of high interest. It was the breed which Robert Bakewell took in hand in the 18th century, and greatly improved by the exercise of his skill and judgment. Bakewell lived at Dishley Grange, Leicestershire, and in France the Leicester sheep are still called Díshleys. In past times Leicester blood was extensively employed in the improvement or establishment of other longwool breeds of sheep. The Leicester, as seen now, has a white wedge-shaped face, the forehead covered with wool; thin mobile ears; neck full

towards the trunk, short and level with the back; width over the shoulders and through the heart; a full broad breast; fine clean legs standing well apart; deep round barrel and great depth of carcass; firm flesh, springy pelt, and pink skin, covered with fine, curly, lustrous wool. The breed is maintained pure upon the rich pastures of Leicestershire, E. and N. Yorkshire, Cheshire, Cumberland and Durham, but its chief value is for crossing, when it is found to promote maturity and to improve the fattening propensity.

The *Border Leicester* originated after the death in 1795 of Bakewell, when the Leicester breed, as it then existed, diverged into two branches. The one is represented by the breed still known in England as the Leicester. The other, bred on the Scottish Borders, with an early admixture of Cheviot blood, acquired the name of Border Leicester. The distinguishing characteristics of the latter are: that it is an upstanding animal of gay appearance with light offal; and has a long though strong neck carrying a long, lean, clean head covered with white, hard, but not wiry hair, free from wool, long highset ears and a black muzzle; back broad and muscular, belly well covered with wool; legs clean, and a fleece of long white wavy wool, arranged in characteristic locks or pirls.

The *Blue-faced Wensleydales* take their name from the York­shire dale of which Thirsk is the centre. They are longwool sheep, derived from the old Teeswater breed by crossing with Leicester rams. They have a tuft of wool on the forehead. The skin of the body is sometimes blue, whilst the wool has a bright lustre, is curled in small distinct pirls, and is of uniform staple. The rams are in much favour in Scotland and the N. of England for crossing with ewes of the various black-faced horned mountain breeds to produce mutton of superior quality and to use the cross-ewes to breed to a pure longwool or sometimes a Down ram.

The *Cotswold* is an old-established breed of the Gloucestershire hills, extending thence into Oxfordshire. It was but slightly crossed for improvement by the Dishley Leicesters and has retained its characteristic type for generations. They are big, handsome sheep, with finely-arched necks and graceful carriage. With their broad, straight backs, curved ribs, and capacious quarters, they carry a great weight of carcass upon strong, wide-standing legs. The fine white fleece of long wavy wool gives the Cotswold an attractive appearance, which is enhanced by its topknot or forelock. The mutton of the Cotswolds is not of high quality except at an early age, but the sheep are useful for crossing purposes to impart size, and because they are exceptionally hardy.

The *Lincolns* are descended from the old native breed of Lincolnshire, improved by the use of Leicester blood. They are hardy and prolific, but do not quite equal the Cotswolds in size. They have larger, bolder heads than the Leicesters. Breeders of Lincoln rams like best a darkish face, with a few black spots on the ears; and white legs. The wool has a broad staple, and is denser and longer, and the fleece heavier, than in any other British breed. For this reason it has been the breed most in favour with breeders in all parts of the world for mating with Merino ewes and their crosses. The progeny is a good general- purpose sheep, giving a large fleece of wool but only a medium quality of mutton. With a greater proportion of Lincoln blood in the mixed flocks of the world there is a growing tendency to produce finer mutton by using Down rams, but at the sacrifice of part of the yield of wool. In 1906 Henry Dudding, of Riby Grove, Lincolnshire, obtained at auction the sum of 1450 guineas for a Lincoln ram bred by him,—the highest price paid for a sheep in the United Kingdom. In the same year Robert and William Wright, of Nocton Heath, Lincoln, sold their flock of 950 animals to Señor Manuel Cobo, Buenos Aires, for £30,000.

The *Devon Longwool* is a breed locally developed in the valleys of W. Somerset, N. and E. Devon, and parts of Cornwall. It originated in a strong infusion of Leicester blood amongst the old Bampton stock of Devonshire. The Devon Longwool is not unlike the Lincoln, but is coarser. It is white-faced, with a lock of wool on the forehead.

The *South Devon* or *South Dum* are, like the cattle of that