

The Origin of South Devon Cattle

By C M ANN BAKER

I

Introduction

UNTIL RECENTLY, it was popularly understood that South Devon cattle were an indigenous English breed. It has now been claimed: '... Gelbvieh and South Devon had a common ancestry on the Continent and are distinct from other British breeds...'.¹ The claim is now included, without discussion, in some texts.²

The assertion of relationship rests upon a statistical analysis of biochemical data. This approach has contributed to many aspects of animal breeding but usually in conjunction with other disciplines. Indeed, there are examples where biochemical data gave apparently anomalous results which could be explained after a careful re-examination of breed history.³ The Gelbvieh-South Devon comparison did not include historical information and the origin of the latter breed was described as 'unknown'.⁴

The present paper reviews the evidence concerning the origin and history of South Devon cattle.

The oral tradition (repeated to the author as a student and, later, when resident in the south of Devon) is that the present breed of South Devon cattle arose from crosses of North Devon cattle with breeds of the Channel Island breed group, especially the Guernsey.

Written material is variable: some works may not mention matters which others discuss in detail and not all descriptions, even contemporary ones, are in agreement. To help in the assessment of such records, supplementary evidence was obtained from landscapes in local collections, summarized in Table 1.

Information about any named breed is rare before the late eighteenth century. Trow-Smith noted early evidence of Devon as an important cattle district from the large numbers recorded by the Domesday survey.⁵ In 1366 the Abbey of Tavistock received a heriot of a red bull. Although Finberg found it 'tempting' to connect this bull with the Devon breed, he apparently rejected the idea on the grounds that '... the adjective of colour would have been superfluous had other varieties been unknown'.⁶ This objection can be countered: Cornish cattle were black;⁷ and, as will be discussed later, the requirement of whole red is a comparatively late development in the history of Devon cattle.

A further suggestion of antiquity is given by the former Red Cow Village, now absorbed in Exeter and only marked by a public house called the Red Cow.⁸ Red cattle from Devon were taken to Massachusetts in 1623.⁹ Shortly thereafter the Devon chorographer, Tristram Risdon, recorded '... the great navigation in these western parts,

¹K K Kidd, D Osterhoff, L Erhard and W H Stone, *Animal Blood Groups and Biochemical Genetics*, X, 1974, pp 21 and 27.

²J B Friend, *Cattle of the World*, 1978.

³See C Manwell and C M A Baker, *Molecular Biology and the Origin of Species: Heterosis, Protein Polymorphism and Animal Breeding*, 1970; C M A Baker and C Manwell, pp 367-412 in P G Board and N S Agar (Eds), *Biochemistry and Genetics of the Erythrocyte of Domesticated Mammals*, Amsterdam, in press.

⁴Kidd *et al*, *loc cit*, p 22.

⁵R Trow-Smith, *A History of British Livestock Husbandry to 1700*, 1957, p 112.

⁶H P R Finberg, *Tavistock Abbey*, Cambridge, 1951, pp 132-3.

⁷G B Worgan, *General View of the Agriculture of the County of Cornwall*, 1811, p 140.

⁸C J Baker, Royal Albert Memorial Museum, personal communication.

⁹J E Rouse, *World Cattle. Volume III: Cattle of North America*, Oklahoma, 1973, pp 359 and 388.

TABLE I

Cattle depicted in local collections in the South of Devon*

<i>ROYAL ALBERT MEMORIAL MUSEUM, EXETER</i>			
<i>Accession number</i>	<i>Artist and dates</i>	<i>Title and locality</i>	<i>Notes on cattle[†]</i>
46/1956.4	John White Abbot 1763-1851	'On the Warren, Kenton, Devon'	5 or 6 cows: 3 or 4 red; one white with black ears and muzzle; one yellow with a very broad white blaze but yellow around the eye
77/1937.1	John White Abbot 1763-1851	'The Lime Kiln at Topsham on the Exe'	3 cows: one red (Devon type); [†] one red with a white blaze (Devon type); one white with red round the eyes and on the neck (Devon cross Shorthorn?). All have short, slightly cocky horns
52/1929.1	John White Abbot 1763-1851	'Stepping Stones'. Exact location unknown	2 cattle: both red with medium cocky horns; one has a suggestion of a white star
101/1952	W H Hallett c 1820	'View of Exmouth from the Beacon Walls'	A number of cattle, all red with medium cocky horns. 2 cows with white patches (which could be light effects); one of these has a white face
106/1978x	A B Johns 1776-1858	'Landscape', Bickleigh Vale near Plymouth. Dewerstone in the background, the river in the centre probably the Plym	5 cattle, not very clear: 4 light red; one very dark red or black
47/1933.1	James Leakey 1775-1865	'Landscape'. Probably based on Devon scenery as Leakey was born in Exeter and lived there all his life except for a few years in London	7 milch cows, from left to right: 1. White with red spots on the barrel, shoulder and flanks, short horns and biggish udder (Shorthorn or Shorthorn cross?). 2. Red with small white star, small cocky horns and biggish udder (Devon type). 3. Reddish-fawn-brown with mealy ring around the muzzle and white on belly, brisket, legs and switch, short horns and big udder (Channel Island type — Jersey?). 4. White with short horns and a big udder (Shorthorn type). 5. Red with medium cocky horns; probably a heifer as she is small and has a small udder (Devon type). 6. Red with a white star, medium cocky horns, udder looks as if in milk but is not large (Devon type). 7. White with medium cocky horns but rest of head and forehead obscured by the cow in front; udder medium size (Shorthorn or Shorthorn cross?)
47/1933.2	James Leakey 1775-1865	'Nadderwater near Exeter'	2 cows: one red; one white with coloured patches (not clear if pied or just shading); both have medium horns

47/1933.3	James Leakey 1775-1865	'Landscape'. Probably based on Torquay-Babbacombe area: sea centre distance; centre left a rock formation based on one near Torquay known as 'London Bridge'	3 cows, from left to right: 1. red with finch back, medium cocky horns (Devon type). 2. Red, medium cocky horns (Devon type). 3. Red with creamy-white blaze and cream patch on underbelly, medium cocky horns (Devon type)
32/1951.2	William Payne 1760-1830	'Near Plymouth'. Plymouth Sound centre distance; Plymouth itself behind bank centre right	2 cows: one dark red; one pied red and white
83/1932.2	William Traies	'The Lime Kilns near Topsham on the Exe'	2 cattle, not very clear: one red, one white

PLYMOUTH MUSEUM AND ART GALLERY

Accession number	Artist and dates	Title and locality	Notes on cattle
		'Langford Court'. Near Cullompton in SE Devon, north of a line between Exeter and Honiton	9 cattle: one red; 8 probably black (could be mulberry or a very dark red). 2 of these have finch backs and the other 6 have white markings (some of which could be light effects). Type not clear
		'Old View of Plymouth'	2 milch cows: one light orange with a touch of white on the face, medium cocky horns (Devon type); one dark (mulberry?) colour, short horns (Channel Island type)
	P H Rogers 1793-1853	'The Sound, seen across Beaumont Park'. Plymouth	3 cows: one red with medium horns; one black with medium horns; one white with red on the sides of the neck and shoulders and with big red patches round the eyes
	P Rogers 1811	'Landscape'	2 cattle: one mahogany red with white star, white shoulder cross and white on loin and underbelly, medium horns (Devon—possibly with Channel Island?); one corn colour with white on loin and tail, medium horns (Channel Island type)

*I thank Miss Maureen Attrill, Keeper of Art, Plymouth Museum and Art Gallery, and Miss C J Baker, Curator of Fine Art, Royal Albert Memorial Museum, Exeter, for access to and information about local landscapes.

†Some pictures contained other livestock.

‡Devon type is based on the type of the 'Devonshire Cow' facing p 327 in Vancouver.

requireth store of victuals, which is fully supplied by our own breed'.¹⁰ A century later, Defoe commented on north-west Devon, '... here are bred those fine Oxen, in great Numbers, which by the Drovers of Somersetshire and thereabouts are brought up ... fattened fit for *Smithfield* Market, whither they drive them'. Later he noted that

Bridgwater Marsh '... is wholly employed in feeding of black Cattle which they bring out of the West Part of Devon and the neighbouring Borders of Cornwall, where the finest are bred'.¹¹

By the latter part of the eighteenth century Devon cattle were known widely. This was

¹⁰ T Risdon, *The Chorographical Description or Survey of the County of Devon*, written c 1630, this edition 1811, Rees and Curtis, Plymouth, p 7.

¹¹ D Defoe, *A Tour Thro' the Whole Island of Great Britain*, written c 1724, Vol. 1, 6th edn, 1762, pp 340-1; Vol. 2, 6th edn, 1761, p 23. I could not find these passages in the 1974 edition published by J M Dent and Sons, so it may be that other editions would yield further information.

more than just a case of calling cattle by the name of the district in which they were found. The County Surveys made for the Board of Agriculture recorded Devon cattle all over England. The survey of Hampshire is of particular interest as both North and South Devon cattle are named.¹² Many writers did not distinguish between different types of Devon cattle. Others recognized differences but tended to view them as departures from a standard or ideal represented by the North Devon. Hence any discussion of South Devon cattle has to include information about the North Devon.

II

The North Devon

The centre of the North Devon (often just called the Devon) is around Torrington and Molton and north of them to the Bristol Channel. The full extent of the district is '... bounded by the river Taw on the west, extending from Barnstaple to South Molton ... thence to Wiveliscombe, Taunton, then turning towards Williton and on to the Bristol Channel which forms its northern boundary'.¹³ Much of the Devon part of this area consists of hilly land with stony soils; the Somerset part is more fertile, especially in the Vale of Taunton Deane.

Robert Smith, writing in 1859, claimed that breeding to improve Devon cattle had been practised 'for upwards of 200 years'. Pure Devon cattle were bred in the early eighteenth century by at least two North Devon families: the Quartlys of Great Champson in Molland and the Davys of Rose Ash and North Molton. Purebred Devon cattle were exported to the USA in 1817, thirty-four years before the first volume of the Herd Book.¹⁴

The Devon was, and is, primarily a beef breed, formerly used extensively for

draught and sometimes for dairy purposes. Its conformation, feeding qualities and working ability were described for a period of over a hundred years in similar terms by different writers.¹⁵ All emphasized the neat, symmetrical, compact form; clean head and forequarter; low offal and small bone. The breed was praised for ability to thrive on poor ground; aptitude to fatten (and to do so early); good handling; and high-quality meat. As a draught beast the Devon possessed docility, patience, endurance, pluck, quickness (including the ability, unusual in British breeds, to trot) and elegant movement. All writers mention the small size but regard this as a consequence of thriftiness under marginal conditions and compensated for by agility and by quality: the Devon was called '... the "pony" of the ox tribe';¹⁶ and referred to as '... the tenant farmers' breed',¹⁷ and '... a good rent-paying breed ... where more bulky animals would fare badly'.¹⁸ Practically the only writer to mention specific points of conformation which required the breeders' attention was Vancouver,¹⁹ although some others qualified their praises with reference to variation within the breed.²⁰

Opinion concerning milking ability was more equivocal. Marshall stated: 'As DAIRY CATTLE the Devonshire breed are not excellent ... Nevertheless, I have seen

¹² W Marshall, *Review and Abstract of the County Reports to the Board of Agriculture*, V, York, 1818, pp 348-9.

¹³ J T Davy, *JRASE*, 2nd series, V, 1869, p 108.

¹⁴ R Smith, *JRASE*, XX, 1859, p 336; Davy, 1869, *loc cit*, pp 116, 117 and 127.

¹⁵ For example W Marshall, *The Rural Economy of the West of England*, 1796 (reprinted 1970); C Vancouver, *General View of the Agriculture of the County of Devon*, 1808 (reprinted 1969); W Youatt, *Cattle, Their Breeds, Management and Diseases*, 1834; H W Keary, *JRASE* IX, 1848, pp 435-6 and 438; H Tanner, *JRASE*, IX, 1848, p 478; H Tanner, *Journal of the Bath and West of England Society, New Series*, VI, 1858, pp 182-3 and 185; R Smith, *JRASE*, XX, 1859, pp 336-7; Davy, 1869, *loc cit*, pp 109 and 111; J T Davy, pp 125-31 in J Coleman (Ed), *The Cattle, Sheep and Pigs of Great Britain*, 1887; F Punchard, *JRASE*, 3rd Series, I, 1890, pp 526-7; J Sinclair (Ed), *History of the Devon Breed of Cattle*, 1893; R Wallace, *Farming Industries of Cape Colony*, 1896; R Wallace, *Farm Livestock of Great Britain*, Edinburgh, 1907 (4th edn). I thank Mr Simon Hunt, Curator, Museum Services, Bath, and Miss C J Baker, Royal Albert Memorial Museum, for locating Sinclair; and Mr I Maxted of the Westcountry Studies Library, Exeter, for making this book available to me.

¹⁶ Smith, *loc cit*, p 327.

¹⁷ Tanner, 1858, *loc cit*, p 185.

¹⁸ Davy, 1869, *loc cit*, p 111.

¹⁹ Vancouver, *op cit*, p 328.

²⁰ For example Marshall, 1796, *op cit*, p 241; Tanner, 1858, *loc cit*, p 183.

some individuals of the breed, which evinced the practicality of improving them, as dairy stock.' In Bideford market he saw some heifers '... with remarkably fine bags! The most promising appearance of milk, that I have observed in the Devonshire breed of cattle.'²¹ Vancouver expressed similar opinions, but also quoted yields: one average expected per cow was a total of 190 lb of butter over 42 weeks.²²

Devon cattle are so noted for their rich red colour that this has been included in general descriptions of the county.²³ It has been claimed that this had been so 'From the earliest times'.²⁴ However, exceptions were not uncommon. Both Marshall and Youatt considered that the Devon and the Hereford were very much alike, including in colour. Marshall recorded the colour of some of the cattle he saw. Between Bideford and Barnstaple were 'Good cows; mostly of a dark blood-red'. Out of six cows belonging to one of the foremost breeders of the day, a Mr Trigg of South Molton, 'One of them superior to the rest . . . a lightish blood red; the rest darker, and mostly with smokey faces'. On Roborough Down the cattle were 'Chiefly of a dark red color; a few of them with white Gloucestershire spines'. Treby and Youatt mentioned further variation, including white patches on the body, a white star and even a white face. All these patterns can be seen in the landscapes of the period (Table 1). There is also evidence for selection for whole red colour. Vancouver specified that this should be '... without white or other spots, particularly on the male'. Davy repeated this requirement but admitted '... it is not improbable that our ancestors . . . were less fastidious . . . and probably did not object to breed from an animal with a dark muzzle or a little white on

the skin, if it came up to their standard as a meat producer'.²⁵

Other fancy points associated with colour were (and are) a light flesh-coloured muzzle,²⁶ and dark orange skin, visible inside the ears and around the eyes and nose.²⁷ The horns are variable in length (short to medium). Older pictures of the breed usually show '... elegantly turned horns, which have an upward tendency (and cast outwards at the end)'.²⁸ In more recent times there has been a tendency to shorter horns, a change Davy thought due to growth being checked by the reduction of age at first calving from 4 years to 2½–3 years.²⁹ Many writers do not mention that some North Devon cattle were polled.³⁰ These were known as Devon Natts. It is not clear whether they were kept as a separate variety or only in mixed herds with horned cattle.

Although Defoe considered the cattle from the west of Devon and the Cornish border to be the best of the breed, Marshall formed other opinions: 'In WEST DEVONSHIRE, the breed is considerably smaller, than in the Northern District; and their quality, in every respect, is lower. In CORNWALL, the breed gets coarser; with somewhat larger and more upright horns'.³¹

Some early writers regarded the Devon cattle bred on the eastern border of the county and in the Vale of Taunton Deane as distinct. The main criteria were greater size and bone, long straight hair (in contrast to the curly coat of the North Devon) and better dairy qualities. It was generally held that these differences were due to a more fertile locality, but they were sufficiently marked for at least one mid-eighteenth-century writer to refer to the 'East Devon and Somerset breed'. One Somerset breeder of

²¹ Marshall, 1796, *op cit*, I, p 242; II, p 61.

²² Vancouver, *op cit*, pp 324, 332 and 215.

²³ 'J.T.', pp viii–ix in Risdon, *op cit*; W White, *History, Gazetteer and Directory of Devonshire*, Sheffield, 1850 (reprinted 1968).

²⁴ Davy, 1869, *loc cit*, p 113.

²⁵ Marshall, 1796, *op cit*, I, pp 67, 76, 240 and 243; Youatt, *op cit*; P T Treby, *Annals of Agriculture*, 1792, p 304; Vancouver, *op cit*, pp 327–8; Davy, 1869, *loc cit*, p 113.

²⁶ Keary, *loc cit*, p 435; Davy, 1869, *loc cit*, p 113.

²⁷ Vancouver, *op cit*, p 327.

²⁸ Smith, *loc cit*, p 336; Youatt, *op cit*; and Sinclair, *op cit*.

²⁹ Davy, *loc cit*, p 112.

³⁰ Youatt, *op cit*.

³¹ Marshall, 1796, *op cit*, I, p 243.

this period, Mr Walter Farthing, could trace his herd back to his great-great-grandfather.³² Although he and others used North Devon bulls extensively, the distinction of a 'Somerset Devon' or an 'East Devon' variety within the Devon breed has persisted.³³ Yet another early variety was the 'Sheet Cow' which '... resembles a red cow of North Devonshire or West Somersetshire, with a white sheet thrown over her barrel; her head, neck, shoulders and hind parts being uncovered'.³⁴ This does not seem to be mentioned by later writers on Devon cattle.

III

The South Devon

The main centre of South Devon cattle was (and is) in the South Hams. This district lies between the estuaries of the Tamar and the Teign, bounded by the sea to the south and isolated by the hills of Dartmoor to the north. The area is so warm and fertile that it has been called 'The Garden of Devon'.³⁵ The name South Hams is significant: it was ancient when Risdon wrote; and 'ham' is not only descriptive of terrain (a flat, low-lying pasture near a stream) but of use (a stunted common pasture for cows), suggesting a long association with cattle.³⁶ South Hams is still a recognized synonym for the South Devon breed of cattle.³⁷

All writers on cattle in the south of Devon recognize them as of the same native origin as other Devon cattle. Some observers considered that the local South Devon type was due to neglect or admixture; for example, the variation for presence and absence of horns, and in colour, recorded in the parish of Plympton in the late eighteenth century, was thought to be connected with Guernsey and

Jersey cows and with bulls belonging to Lord Boringdon.³⁸ But this variation was more widespread than a single parish.

Marshall's opinion of cattle in the South Hams was, 'The BREED is that of *Devonshire* excepting . . . a few of the *short horned* breed.' He visited Plympton Fair but his only comment on the appearance of the stock was, 'Altogether a mean collection'. More information was given about the animals he saw at Tamerton Foliot Fair: 'The Cattle . . . were mostly of the West Devonshire, etc. breed: namely, bred on the East and West banks of the Tamar.' Two animals merited the description of 'Barnstaple heifers'. There were also a few shorthorned and polled cattle, which he speculated might have resulted from the Holderness breed being brought in for milk production by 'Gentlemen of the County'.³⁹ At a later date Marshall took exception to South Ham cattle being described as shorthorned, declaring, 'The South Ham breed of cattle, — if that district can be said to have one, — differs as much from the true shorthorned variety of the North of England, and the South of Scotland, as it does from the longhorned breed of the Midland Counties . . . they appear, either as an unimproved, or as a deteriorate variety of the North Devonshire breed.'⁴⁰

The cause of this outburst was a description of South Ham cattle in terms which suggested a distinct breed: 'They are of the *short horned* breed and have been in the south part of Devon from time immemorial. The best of this breed are excellent milkers and answer well for either work or fattening . . . These cattle are larger and heavier than the North Devon breed, the beauty of which is so famed.'⁴¹

This description was confirmed and extended by Vancouver. He found the South Hams stocked with what he described as

³² Tanner, 1858, *loc cit*, pp 181-3; Davy, 1869, *loc cit*, pp 108, 117, 121-2.

³³ Punchard, *loc cit*, p 527; I L Mason, *A World Dictionary of Breeds, Types and Varieties of Livestock*, Farnham Royal, 1969.

³⁴ Marshall, 1796, *op cit*, II, p 203 fn.

³⁵ Risdon, *op cit*, p 5; Marshall, 1796, *op cit*, I, p xxxiii; White, *op cit*, p 37; Punchard, *loc cit*, p 512.

³⁶ J Wright (Ed), *The English Dialect Dictionary*, Oxford, 1905.

³⁷ Mason, *op. cit.*

³⁸ P T Treby, *Annals of Agriculture*, *loc cit*, p 304.

³⁹ Marshall, 1796, *op cit*, I, p 302; II, pp 247-8 and 274.

⁴⁰ Marshall, 1818, *op cit*, V, p 556.

⁴¹ R Fraser, 1794, *General View of the County of Devon*, p 32.

North Devon cattle and '... with a larger animal of the same kind, called the Old Marlborough Red. This breed is said to have originated from the South Moulton stock, although at this time they differ very materially from them in size, and in having a dirty brown, or rather blackish colour at the ears, nose, and encircling the eyes, and in all such parts as the orange line prevails in the genuine North Devon breed.' Vancouver then went on to compare and contrast the North Devon with 'the South Ham stock'. The latter was '... in all its points a much coarser animal, and produces a greater offal. There does not appear to be any choice with regard to colour in this breed.' For draught, the oxen were described as 'equally gentle' but 'perhaps not quite so hardy'. Dairying qualities were praised: 'For the bucket, the old South Ham breed are much preferred to the North Devon when in the same pasture.' Examples were given of milk and butter yields of individual South Ham cows: one attained 24 quarts of milk yielding 2½ lb butter a day; another gave 22 quarts of milk yielding 2¾ lb butter a day.⁴²

It was not stated whether Old Marlborough Red, old South Ham and South Ham cattle were synonymous or local variant types within the South Hams district. The isolation possible from the numerous small rivers draining the South Hams makes local varieties feasible.

Some writers mention a 'native cow' in the Honiton district (which is in south-east Devon but not in the South Hams). This animal was distinguished from both the North and South Devon but was not described in detail. Again, it is not clear whether a synonym is involved. One possibility is that the 'native cow' was the East Devon, which was not described by Vancouver. The latter might seem to be supported by the inclusion of the yield of 'a cow of the Somersetshire breed' with those of South Ham cows.⁴³ Another piece of

circumstantial evidence pointing the same way is that Davy compared the Vale of Taunton Devons before the heavy crossing with North Devon bulls and the South Hams cattle indirectly: likening each in turn to the Sussex, but not directly to each other.⁴⁴

Cattle of the North Devon type also had 'a very great ascendancy' in the Honiton district and '... the great demand and high price given for the calves of this breed for raising, occasions this sort of cow to be universally in use throughout all the dairies'. The yields were very similar to those for other North Devon cattle, averaging a pound of butter a day for the first twenty weeks and a total of 206 lbs over some 40 weeks.⁴⁵

As with the North Devons, the early opinions of South Ham cattle were repeated by subsequent authors. There was general agreement that the South Ham was derived from the same stock as the North Devon although most writers regarded these as two separate breeds.⁴⁶ But Wallace thought that they were so similar that, while noting the differences in type and the separate herd book, he referred to the South Devon only as '... a division of the Devon breed'.⁴⁷

The close connection has led to the South Ham being described by admirers of the North Devon, many of whom perceived the differences exhibited by the South Ham as faults. The greater size was criticized for having greater offal and acquired the adjective 'coarse'. The flesh of the South Ham was described as inferior. After describing the South Ham shape as 'wedge-like' (a conformation traditionally associated with superior dairy qualities) Davy expressed regret that there was no evidence of attempts to select for the parallelogram shape considered ideal in the North Devon.⁴⁸

⁴⁴ Davy, 1887, *loc cit*, pp 126 and 127.

⁴⁵ Vancouver, *op cit*, pp 335, 230 and 233.

⁴⁶ Youatt, *op cit*; Tanner, 1848, *loc cit*, p 479; Tanner, 1858, *loc cit*, p 180; Davy, 1869, *loc cit*, p 113; Punchard, *loc cit*, p 527.

⁴⁷ Wallace, 1907, *op cit*, p 131.

⁴⁸ Tanner, 1848, *loc cit*, p 479; Tanner, 1858, *loc cit*, p 180; Keary, *loc cit*, p 435; Davy, 1869, *loc cit*, p 113.

⁴² Vancouver, *op cit*, pp 334-5.

⁴³ Vancouver, *op cit*, pp 335 and 337; Youatt, *op cit*, p 23.

Not all comments were biased. One writer noted: 'The North of Devon claims the pre-eminence in general estimation, probably more from fashion than any real superiority.'⁴⁹ Keary said of the cattle he criticized that they were 'sometimes designated South Devons' but occurred in Cornwall and Somerset as well.⁵⁰ Other early writers considered that South Devons were remarkably like the Hereford.⁵¹ Descriptions of animals at major shows in the late nineteenth century included 'a splendid collection' and that the bull 'filled the eye'.⁵²

Many writers pay tribute to the South Ham's ability to lay on flesh.⁵³ If fed too long, large amounts of fat were deposited, '... an excess of which is the farmer's loss and the butcher's gain'.⁵⁴ Possibly this was why many South Ham cattle were sold in what some nineteenth-century observers regarded as an unfinished state and lacking in tallow.⁵⁵ Whatever the case, the meat had a ready sale locally, especially at the naval dockyard.⁵⁶ Most writers describe milk production as good and Vancouver's estimate of 24 quarts in a day for one cow is repeated '... as no unusual quantity for a South Hammer to give' by Punchard.⁵⁷

South Ham cattle were considered hardy.⁵⁸ Both flesh and milk were produced economically from bulky foods (no doubt as a consequence of the digestive capacity which contributed to what North Devon men considered an excess of offal).⁵⁹ Above all, the farmers in the South Hams

considered their cattle profitable. It may have been no coincidence that Fraser found 'In the South Hams in particular, the respectable class of yeomanry is more numerous than in any district of England I have seen. They live in great comfort . . .', and that Marshall noted that, although the South Hams was characterized by small farms, '... it possesses men who think for themselves'.⁶⁰

This independence could have been a factor in the delay in the establishment of the South Devon herd book and the lack of selection for a common type. As late as the 1890 show of the Royal Agricultural Society of England at Plymouth, Punchard wrote of the prize-winning South Ham cattle: 'Authorities differ very much as to what is the correct type or colour of the South Hammer, and the absence of a herd-book militates against its breeders or admirers arriving at definite conclusions thereon', and, after reference to the introduction of Guernsey blood, 'The establishment of a herd-book would prevent future repetitions of this'.⁶¹

Punchard's reference to colour is probably to the exact shade of red, as he described the South Ham as '... several shades lighter' when compared with North Devons. The present South Devon cattle are usually described as red: there is, as in the North Devon, variation as to shade, but the tendency is to a lighter, more orange red. But, again like the North Devon, colour used to be more variable. Treby speculated that the original colour might have been black. White markings used to occur. Youatt wrote: 'They bear considerable resemblance to the Herefords, and sometimes the colour and horn and the white face are so much alike in both, that it is difficult to distinguish between them'. At the Plymouth Show of the Royal Agricultural Society of England in 1865, a heifer called 'Starhead' was described

⁴⁹ 'J.T.', *loc cit*, p. ix.

⁵⁰ Keary, *loc cit*, p. 436.

⁵¹ Youatt, *op cit*, p. 22; T. Rowlandson, *JRASE*, XIV, 1853, p. 449.

⁵² Davy, 1887, *loc cit*, p. 127; Punchard, *loc cit*, p. 527.

⁵³ Youatt, *op cit*; Tanner, 1848, *loc cit*, p. 479; Davy, 1869, *loc cit*, p. 113; Punchard, *loc cit*, p. 527.

⁵⁴ Davy, 1869, *loc cit*, p. 113.

⁵⁵ Vancouver, *op cit*, p. 335; Tanner, 1858, *loc cit*, p. 180.

⁵⁶ Youatt, *op cit*; Tanner, 1848, *loc cit*, p. 479.

⁵⁷ Vancouver, *op cit*, p. 335; Punchard, *loc cit*, p. 527; see also Tanner, 1858, *loc cit*, p. 180; Davy, 1869, *loc cit*, p. 113; Davy, 1887, *loc cit*, p. 127.

⁵⁸ For example Worgan, *op cit*, p. 137; Tanner, 1858, *loc cit*, p. 180; Davy, 1887, *loc cit*, p. 127.

⁵⁹ Tanner, 1848, *loc cit*, p. 479; Tanner, 1858, *loc cit*, p. 180; Vancouver, *op cit*, p. 335.

⁶⁰ Fraser, *op cit*, p. 17; Marshall, 1796, I, pp. 292 and 293; Youatt, *op cit*; Tanner, 1848, *loc cit*, p. 479; Davy, 1869, *loc cit*, p. 113.

⁶¹ Punchard, *loc cit*, p. 527.

as '... red, white spots'. A brindled South Hams bull was exhibited at the same show.⁶²

The landscapes listed in Table 1 include cattle of Devon type which are black (or very dark red) or red with white markings, including considerable white on the face.

Cattle in the landscapes show some variation of horn size and shape. There do not appear to be any polled cattle (in some pictures the animals are too small for it to be clear whether they are polled or not). However, the reports of polled cattle suggest an explanation for some of the short horns observed. Although it is conventional to refer to polled as completely dominant to horned, the expressivity of the horned trait in heterozygotes varies considerably. Many have obvious scurs (i.e. small, loose horns). At the two extremes of the range, the scurs can be either small scales, giving a polled appearance; or quite large and become attached to the skull, so seeming like a normal horn.⁶³

IV

The divergence of North and South Devon cattle
All the evidence points to a common, local source for the breeds and varieties of Devon cattle. Both North and South Devons were originally triple-purpose for draught, meat and dairy purposes. A similar range of variation, including for colour and the polled trait, occurred in both. Several writers have ascribed the differences, especially of size, to the quality of land in the various localities; and it is claimed that in its own district each breed excels the other.⁶⁴ Differences of this kind can still be observed in some relatively unimproved breeds which have populations partially isolated in geographically different areas.⁶⁵

Apart from the differences caused by environment, the South Devon became subject to different economic pressures, first from the growth of Plymouth as a naval base in the sixteenth century and then from the establishment of the naval dockyard on the Tamar in 1696.⁶⁶ 'In the South Hams, large, strong, heavy red beasts were bred for the purpose of drawing timber to the Plymouth dockyard.'⁶⁷ Before the days of rapid transport the dockyards relied heavily on the immediate hinterland for supplies. These included quantities of cheap beef, as is evidenced by references to '... neighbouring markets and navy provisions' and 'four-penny beef' in connection with South Ham cattle. In 1793, when the summer price of butter in North Devon was sixpence a pound, '... in the South ... on account of the fleets and encampments, butter was fourteen and eighteen pence a pound'.⁶⁸

The few biochemical polymorphisms for which there are data for both North and South Devons do not reveal any significant difference between the breeds.⁶⁹ But the morphological differences which have evolved by the late twentieth century are striking. If all characteristics are considered together the South Devon and the North Devon are distinct and separate breeds.

V

Relationship with other breeds

The general consensus that Devon cattle are all derived from the same basic stock has not precluded discussion of connections with other breeds. Two types of relationship have been considered: through common origin and through crossbreeding.

Most speculations concerning common origin are based on resemblance. Five possibilities have been advanced for the Devon breeds.

⁶² Treby, *loc cit*, p 304; Worgan, *op cit*, p 304; Youatt, *op cit*, p 22; JRASE, 2nd Series, I, 1865, pp lxii and lxiii.

⁶³ W F Dove, *Journal of Experimental Zoology*, 69, 1935, pp 365-6.

⁶⁴ For example Tanner, 1848, *loc cit*, pp 493-4; Tanner, 1858, *loc cit*, pp 180 and 181; Davy, 1869, *loc cit*, p 108; Davy, 1887, *loc cit*, p 127; Punchard, *loc cit*, p 528.

⁶⁵ J E Rouse, *World Cattle. Vol. 1. Cattle of Europe, South America, Australia and New Zealand*, Oklahoma, 1971.

⁶⁶ W G Hoskins, *Devon*, Newton Abbot, 1972, pp 455 and 456.

⁶⁷ P F S Amery, *Devon and Cornwall Notes and Queries*, II, 1902-03, p 120; Treby, *loc cit*, p 304.

⁶⁸ Tanner, 1848, *loc cit*, p 474; Youatt, *op cit*; Davy, 1869, *loc cit*, p 113; Fraser, *op cit*, p 31.

⁶⁹ C M A Baker, *Animal Blood Groups & Biochemical Genetics*, 13, 1982, pp 199-212.

First, a common origin with geographically close breeds of a similar type in the UK. Reference has been made to this already in respect of the Hereford. Several other breeds were regarded as belonging to the same group: Sussex; Glamorgan (probably extinct through crossing with neighbouring breeds such as the Hereford and the Welsh Black); Gloucester; Somerset (extinct); and Norfolk (extinct: probably absorbed into the Red Poll). Marshall wrote: 'These several breeds I conceive to have sprung from the same stock.'⁷⁰ This assumption is reasonable from the standpoints of morphology and location. The grouping is supported by biochemical data.⁷¹

Secondly, the Salers was considered very like what Sinclair described as '... the Devon group in all its gradations from the North Devon to the Sussex breed'. Three possible reasons were advanced for the resemblance: evolution of a similar type in both breeds; imports of the Salers to the UK (for which no evidence was quoted); or exports of English cattle to France. There is evidence that Devon cattle were exported, some to cross with the Salers; but this was comparatively late in breed history and it is not clear whether the Devon imports were for the improvement of French breeding stock or for commercial crossbreeding for beef.⁷² The latter practice has been the basis of exports of South Devon and Sussex cattle to France in recent times.⁷³

Thirdly, there have been speculations (but no evidence) concerning 'Phoenician cattle'. Sinclair interpreted Phoenician to mean cattle of Spanish origin, entering via Cornwall.⁷⁴ Wallace doubted Spanish cattle but suggested Phoenician imports could have come from North Africa. He also noted

that cattle similar to the North Devon could be seen on some of the Greek islands.⁷⁵

Fourthly, Wallace observed: 'The colour, as well as the head and forward part of the body, of the Afrikaner cow is so Devon-like, that a speculative belief based on no trustworthy evidence exists that the Devon breed must have contributed to its formation.' Despite his idea of Phoenicians bringing African cattle to the Dumnonian peninsula, Wallace did not suggest a common African origin but concluded '... the type of the Afrikaner is very different from that of the Devon'.⁷⁶ His opinion is supported by at least two authorities on African cattle who regarded any resemblance as superficial.⁷⁷

Fifthly, the occurrence of the polled gene in Devon cattle led Wilson to suggest a Scandinavian origin. His evidence was the distribution of polled cattle throughout the British Isles.⁷⁸ However, this was so widespread that it could equally well support the idea that polledness was part of the variation carried by unimproved British cattle, just as it is carried in other stocks, including African and Indian cattle.⁷⁹

Cross-breeding has occurred in the history of the South Devon. Two crosses are mentioned repeatedly: with the North Devon and with breeds of the Channel Island breed group. Even after the establishment of the South Devon Herd Book in 1891 Drennan favoured mating a South Devon bull with a North Devon cow for beef or with a Guernsey cow for milk.⁸⁰

Vancouver recommended the practice of crossing North Devon and South Ham cattle for earlier maturity and fatter beef and also noted that the North Devon was crossed

⁷⁰ Marshall, 1796, *op cit*, p 241. Many later writers have grouped these same breeds: e.g. Youatt, *op cit*; Rowlandson, *loc cit*, p 449; Davy, 1869, *loc cit*, p 108; Sinclair, *op cit*; Wallace, 1907, *op cit*; R Trow-Smith, *British Livestock Husbandry 1700-1900*, 1959.

⁷¹ C M A Baker and C Manwell, *ABGBG*, XI, 1980, pp 127-50; C Manwell and C M A Baker, *ABGBG*, XI, 1980, pp 151-62.

⁷² Sinclair, *op cit*, pp 12, 13 and 20.

⁷³ For example *Farmers Weekly*, 28 Feb 1975, p 71.

⁷⁴ Sinclair, *op cit*, p 21.

⁷⁵ Wallace, 1907, *op cit*, p 124.

⁷⁶ Wallace, 1896, *op cit*, pp 127 and 254; Wallace, 1907, *op cit*, p 127.

⁷⁷ A M Bosman, *Cattle Farming in South Africa*, 1932; H Epstein, *The Origin of the Domestic Animals of Africa*, 1971, p 490.

⁷⁸ J Wilson, *Scientific Proceedings of the Royal Dublin Society*, XII, 1909, p 160.

⁷⁹ Mason, *op cit*, records the occurrence of polled cattle in different breeds.

⁸⁰ R. Drennan, pp 168-75 in C B Jones (Ed), *Live Stock of the Farm. Volume I, Cattle*, 1916.

with the 'native cow' of the Honiton district. Youatt alluded to similar crosses and Keary wrote of the cross between a North Devon bull and a South Devon cow, 'In many instances the produce is very good.' Thus there was plenty of opportunity for gene flow from North Devon cattle to South Devon cattle as well as a common origin. But the effect of such crosses on breeding stock should not be overestimated as most of the records are with reference to the production of cattle for feeding; and at the same time that North Devon crosses were advocated for beef production, there were suggestions that South Ham cattle could be improved by selection. By the 1890 Royal Show at Plymouth, it was claimed that improvement had occurred, '... mainly by a more careful and judicious selection of sires ...'; and though the reporter thought that the South Ham could benefit from some North Devon characteristics: 'The line is, however, at present strictly drawn between them.' The following year the Breed Society and Herd Book were formed.⁸¹

At least two other crosses for beef were noticed and recommended: Hereford or Shorthorn bulls onto South Ham cows. It is not clear how many (or, indeed, if any) attempts were made to improve South Ham breeding stock by either cross, as the crossbreds were not as hardy as the pure South Ham. The Hereford cross was considered hardier than the Shorthorn cross; the former also maintained size and weight better than the latter or than the hardy North Devon cross. As the observer of these crosses thought South Ham cattle looked like 'degenerate Herefords' it would be difficult to detect any contribution of the Hereford to the former breed.⁸²

The Shorthorn has been suggested as a source of the muscular hypertrophy which

occurs in some South Devons.⁸³ But as the condition exists in other British breeds it is not at present possible to choose between crossing and other potential causes of muscular hypertrophy, namely, an ancient common origin or an independent mutation. A similar objection exists to Marshall's supposition that short horned and polled cattle indicated crossing with the Holderness, as polled cattle used to occur in many British breeds.⁸⁴

Whether or not Marshall's surmise that Holderness cows had been introduced to improve milk production was correct, both Shorthorn and Shorthorn x Guernsey cows were kept for the dairy in the South of Devon in the mid-nineteenth century.⁸⁵ John White Abbot's 'On the Warren' includes a yellow and white cow which could represent the latter cross. The same picture shows a white cow with black ears and muzzle. One of James Leakey's landscapes has a white cow of shorthorn type. Both pictures include red cattle of Devon type.

Imports of Channel Island cattle can be traced to the mid-eighteenth century.⁸⁶ They were reported in many counties, including some with North and South Devon cattle.⁸⁷ Marshall reported that in the Vale of Exeter there were '... fine Cattle of the pure North Devonshire sort ...' but that in the vicinity of the City '... many Alderney or "French Cows" are seen; and a mongrel sort, between that and the Devonshire breed are not uncommon'. Lawrence wrote of '... the South Devons, which from known facts, as well as from appearance, have been much crossed with Norman and Alderney stock ...'; and Youatt noted North and South Devons, Alderneys and 'mongrels of every description' around Exeter. However, Tanner discovered that the mixture was not made

⁸³ J J Lauvergne, J G Boyazoglu and D. Hubert, *Le phénomène cillard chez les bovins: bibliographie annotée*, Jouy-en-Josas, 1968.

⁸⁴ Marshall, 1796, *op cit*, II, p 248; Wilson, *loc cit*.

⁸⁵ Tanner, 1858, *loc cit*, p 188.

⁸⁶ Trow-Smith, 1959, *op cit*, p 118.

⁸⁷ Marshall, 1818, *op cit*.

⁸¹ Vancouver, *op cit*, pp 334, 335 and 337; Youatt, *op cit*, p 22; Keary, *loc cit*, p 436; e.g. Tanner, 1848, *loc cit*, p 479; Davy, 1869, *loc cit*, p 113; Punchard, *loc cit*, p 527.

⁸² Tanner, 1858, *loc cit*, pp 180 and 181.

indiscriminately: 'In the vales of the Exe and Honiton . . . [i]t is a frequent practice to keep one Guernsey cow in a dairy of ten or twelve Devons — the milk and butter being much improved in quality and *appearance* by it.' Later writers suggested that the Guernseys would be got in calf by the South Devon bull and the female descendants would be absorbed into the breed, increasing its divergence from the North Devon.⁸⁸ A similar practice once existed in Normandy, where a few Jerseys would be included in a herd to help the rise of cream and improve the quality of the butter.⁸⁹ It is of interest that, at the time Marshall wrote, some dairies had started to supply the London market and so were making butter by churning raw cream. In the days of hand-skimming this did not separate from the skim milk as completely as the traditional clotted cream raised by heat.⁹⁰

Although several breeds of the Channel Island group are named in connection with the South Devon, the most frequently mentioned seem to be the Alderney (in earlier literature) and the Guernsey (in later literature). The former breed was largely absorbed into the Guernsey breed by the earliest twentieth century.⁹¹

The local landscapes include a number of cattle of Channel Island type. Further identification is made difficult by conflicting claims that the Alderney was identical with the Jersey *and* the Guernsey.⁹² This uncertainty means that it is not easy to trace Alderney influence on the South Devon breed. Its possession of traits derived from the Guernsey is recorded by several writers.

Furthermore, in the first half of the nineteenth century the Guernsey was a triple-purpose breed, and discarded work oxen were fattened to weights of 1300 pounds or over.⁹³

The frequency with which mention is made of crossing the South Devon with the North Devon and the Guernsey raises the possibility that these could have been crossed with yet other breeds, enabling these to make an indirect contribution. There is little firm evidence that this occurred to a great extent.

For the Guernsey, it has been suggested that there were contributions from Froment de Leon and Normandy cattle in the eleventh century;⁹⁴ and that imports of Spanish cattle and of the old Red Dutch breed were made before foreign breeding stock were forbidden to enter the Channel Isles. After this, the exchange of dowry calves among the various islands was still permitted; and, as mentioned earlier, the Guernsey absorbed the Alderney.⁹⁵

There are early references to crosses between the North Devon and Somerset, Welsh, Cornish, Hereford, Durham and Guernsey.⁹⁶ The last three crosses are mentioned by later writers. Tanner thought that for the dairy 'a *slight touch* of the Guernsey renders them more profitable' but noted that the Hereford cross increased size to the detriment of activity. Sinclair described experimental crosses which some nineteenth-century breeders of North Devons made with Herefords and Short-horns but concluded ' . . . the cattle having alien blood were either sold . . . or else crossed so often back to the Devon that within a few generations all traces of the cross had disappeared'.⁹⁷

⁸⁸ Marshall, 1796, *op cit*, II, pp 119–20; J Lawrence, *A General Treatise on Cattle, the Ox, the Sheep and the Swine*, 1805, p 44 (I thank Dr H B Carter for sending me a copy of this material which was not available in Australia); Youatt, *op cit*, p 23; Tanner, 1848, *loc cit*, p 479; Punchard, *loc cit*, p 527; W. Houseman, *Cattle Breeds and Management*, 1915.

⁸⁹ R. Delatouche, p 144 in E J Boston (Ed), *Jersey Cattle*, 1954.

⁹⁰ Marshall, 1796, *op cit*, I, pp 249–53 and II, p 120.

⁹¹ 'A Native', p 230 in Coleman, *op cit*; Wallace, 1907, *op cit*, p 230; F. Eggleston, *The Times*, 2 July 1977, p 12; P W Radice, *The Times*, 11 July 1977, p 13.

⁹² For example see C P Le Cornu, *JRASE*, 20, 1839, p 62; Wallace, 1907, *op cit*, p 230.

⁹³ For example see Punchard, *loc cit*, p 527; J C McKellar, *Veterinary Record*, LXXII, 1960, p 507; 'A Native', *loc cit*, p 231; Wallace, 1907, *op cit*, p 228.

⁹⁴ R B Becker, *Dairy Cattle Breeds*, 1973, p 187.

⁹⁵ Boston, *op cit*, pp 39 and 53. E P Prentice, *American Dairy Cattle*, 1942; C Wheaton-Smith, in A E Mourant and F E Zeuner (Eds), *Man and Cattle*, 1963.

⁹⁶ Youatt, *op cit*, pp 11, 17, 21, 25 and 27.

⁹⁷ Tanner, 1848, *loc cit*, p 478; Sinclair, *op cit*, p 66.

A cross which excited interest at the time involved the zebu *Bos indicus* L. John White Parsons of Westcamel, Sherborne, Dorset made various crosses between Devon and 'French' (i.e. Channel Island) cattle, both then common in the county, and 'Indian Cattle'.⁹⁸ Although the breed (or breeds) of zebu was not specified, Parsons was given a bull by the Duke of Bedford, who owned a Guzerat (Kankrej) bull and a Ceylon bull, so it is not unreasonable to assume that one of these was involved.⁹⁹ Some of the crosses mentioned are: 'A beautiful cow and bull, of a mixed breed, between an East Indian bull and a Devon cow. . .'; a bull ' . . . of the Devon and French breed. . .' and a cow ' . . . of the Devon and Indian breed . . .'; and a cow of ' . . . the mixed bred Indian, French and Devon'. This cow was modelled by Garrard. There are also reports of cattle bred by a Devon bull from a 'small Indian cow' owned by Sir William Curtis.¹⁰⁰ Lawrence acknowledged, 'Nothing could be more preposterous in speculation, than the idea of crossing Devon cattle, already sufficiently fine, with Indian zebu; . . . I have yet seen Devon heifers, apparently having Indian blood, squarer in form, and shorter legged than the pure Devons, and equally well laden with flesh. Impartiality demands of me this avowal.'¹⁰¹

Sinclair thought ' . . . the Indian-Devons . . . had died out',¹⁰² but the possibility that the zebu made some contribution to the Devon breeds cannot be dismissed completely.¹⁰³ Further investigation should be made of pedigree records and for zebu characteristics. The latter include several

cryptic markers: bifid processes to the last thoracic vertebra;¹⁰⁴ the *Bos indicus* Y chromosome;¹⁰⁵ and the occurrence and frequency of some protein polymorphisms.¹⁰⁶

VI

The Gelbvieh connection

There seems to be no record or speculation concerning relationship with the Gelbvieh until the twentieth century, when justification was sought for crossing this breed with the South Devon in South Africa. The biochemical data upon which the claim rests were not published, and, despite a claim that they were available from the authors, cannot be obtained. However, it was possible to investigate the matter further by assembling and analysing data published in other papers. One analysis confirmed the traditional position of the South Devon and Gelbvieh in separate breed groups. The second, made at the level of individual breeds, placed the South Devon closer to the North Devon, Hereford and Guernsey than to the Gelbvieh.¹⁰⁷ However, the distance calculated between the South Devon and the Gelbvieh was very close to the value obtained by Kidd *et al.*¹⁰⁸ A possible reason for this agreement was supplied by an anonymous referee: Devon bulls were used in Franconia (the centre of the Gelbvieh breed) in the first half of the nineteenth century.¹⁰⁹ While this does not explain the other, discrepant results (possible reasons for which are discussed elsewhere) it confirms the importance of historical information in biochemical studies.¹¹⁰

⁹⁸ Sinclair, *op cit*, p 62; H B Carter, *His Majesty's Spanish Flock*, 1964, p 275 and personal communication. I thank Dr H B Carter for corresponding with me on this topic and for sending me copies of the appropriate material (cited below) from Lawrence *op cit* and from the *Agricultural Magazine* which were not available to me in Australia.

⁹⁹ J. Clutton-Brock, *Ag Hist Rev*, 1976, pp 18-26.

¹⁰⁰ *Agricultural Magazine*, XI, 1804, pp 453 and 454; *Ibid*, XII, 1805, p 214; *Ibid*, XIII, 1805, pp 435 and 453.

¹⁰¹ Lawrence, *op cit*, p 45.

¹⁰² Sinclair, *op cit*, p 62.

¹⁰³ Carter, *op cit* and personal communication; Clutton-Brock, *loc cit*, p 26.

¹⁰⁴ Epstein, *op cit*, pp 197-8.

¹⁰⁵ T C Hsu and K Benirschke, *An Atlas of Mammalian Chromosomes*, Berlin, 1967.

¹⁰⁶ Baker and Manwell, 1980, *loc cit*; Manwell and Baker, 1980, *loc cit*.

¹⁰⁷ Baker and Manwell, 1980, *loc cit*; Manwell and Baker, 1980, *loc cit*; C M A Baker, *ABGBG*, 13, 1982, pp 199-212.

¹⁰⁸ Kidd *et al*, *loc cit*.

¹⁰⁹ H. Gutbrod, *Land Jahrbuch*, Bayern, Heft 4, 1924. I thank the referee and Dr R L Spooner (Ed, *ABGBG*) for sending me this information; and Professor C Manwell for translating Gutbrod's paper.

¹¹⁰ Baker, *ABGBG*, 13, 1982; Baker and Manwell, 1980, *loc cit* and in P G Board & N S Agar, *loc cit*, 1983, pp 367-412.

Tracing the evolution of breeds and the relationships between them is not the function of any one discipline to the exclusion of all others, but the synthesis of information from a variety of sources. The latter approach reveals that, although there is a link between the South Devon and the Gelbvieh in the recent past, it is not by 'a common ancestry on the Continent'; and that the position of the South Devon among other indigenous British breeds is confirmed.

VII

Summary

The historical evidence is that North and

South Devon cattle were derived from a common stock and that, after divergence, there was some gene flow from the former to the latter. The other main contribution to the South Devon was from the Channel Island breeds, especially the Guernsey. These relationships are supported by pictorial evidence from early nineteenth-century landscapes and by analyses of biochemical data.

Minor contributions may have been made by adjacent, related breeds, by the Shorthorn and, possibly, from *Bos indicus*. There is no evidence of any contribution from the Gelbvieh.

Notes on Contributors

DR J V BECKETT is a lecturer in history at the University of Nottingham. His main research work is on English landowners and their estates since the seventeenth century, on which he has published a number of articles and a related book, *Coal and Tobacco: the Lowthers and the Economic Development of West Cumberland 1660-1760* (Cambridge, 1981). He is currently working on a book about the English aristocracy, and on a survey of the history of the East Midlands. In addition, he has recently received funding for an economic and social study of the Nottinghamshire open field village of Laxton.

DR MICHAEL REED is Reader in Landscape Studies at Loughborough University. His publications include *The Buckinghamshire Landscape* (1979), 'Buckinghamshire Anglo-Saxon Charter Boundaries' in M Gelling, ed., *Early Charters of the Thames Valley* (1979), 'Ipswich Probate Inventories, 1583-1631', *Suffolk Records Society*, vol. 22, 1981, and *The Georgian Triumph* (1983). He has also edited a volume of essays, *Discovering Past Landscapes* (1984), and he is currently working on an edition of Buckinghamshire probate inventories, 1660-1714, to be published by the Buckinghamshire Record Society.

PROFESSOR H E HALLAM graduated in history at Jesus College, Cambridge and his PhD was in economic history at the University of Nottingham in 1957. After six years teaching history at Spalding Grammar School, Lincolnshire (1949-55) and a further six years at Loughborough Training College, Leicestershire (1955-61), he migrated to Western Australia (1961) as Senior Lecturer in Medieval History at the University of Western Australia, where he subsequently (1966) became Professor of Medieval History. He has published three books on agrarian history, *The New Lands of Elloe* (Leicester UP, 1954); *Settlement and Society* (CUP, 1965) and *Rural England 1066-1348* (Fontana, 1981) and many articles, both in Britain and Australia. In 1972 he became a Fellow of the Australian Academy of the Humanities.

C M A BAKER worked for a number of years as an Advisory Officer in the Ministry of Agriculture, Fisheries and Food, England and Wales. At present she is a Visiting Research Fellow in the Department of Zoology, University of Adelaide, South Australia. Most of her research concerns the genetics and evolution of domesticated animals. She has also published on the biochemistry of egg-white proteins, the molecular basis of hybrid vigour in fish, and the sociology of science. She is co-author of *Molecular Biology and the Origin of Species*. In 1983 Miss Baker was elected an Honorary Member of the Australian South Devon Cattle Breeders' Association in recognition of her work on the breed.

(continued on page 169)