

ABS.1.80.102

National Library of Scotland

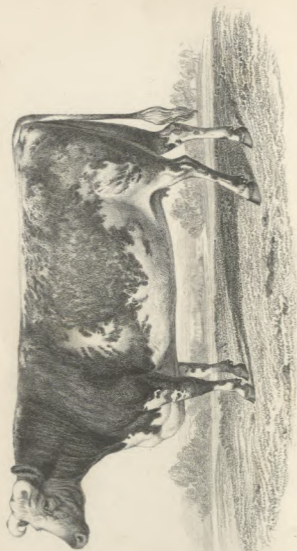


B000081511



~~ABS. 1. 30. 103~~





SHORT-HORNED COW

JUDITH — Aged 5 Years.

Bred by, and the Property of, M^r. W. Lof. Elphinstone Tower

THE
BREEDING AND ECONOMY
OF
LIVE STOCK

BEING
THE RESULTS OF FORTY YEARS' PRACTICAL EXPERIENCE
IN THE MANAGEMENT AND DISPOSAL OF
CATTLE, HORSES, SHEEP, AND PIGS.

BY JAMES DICKSON,

One of the Judges at the Cattle Shows of the
Highland and Agricultural Society of Scotland, and the Author of
Various Papers in the Quarterly Journal of Agriculture.

SECOND EDITION, REVISED AND CORRECTED.

EDINBURGH:
ADAM AND CHARLES BLACK, NORTH BRIDGE.

MDCCCLL.

EDINBURGH: PRINTED BY ROBERT CLARK.



PREFACE TO THE SECOND EDITION.

A WORK containing plain practical information in the several departments of rural economy connected with the breeding and rearing of live stock, and conveyed to the reader in a popular form, and at a moderate price, has long been a desideratum. The object of the present treatise is to supply this want; and the rapid sale of a large edition is sufficient evidence, not only that this has been satisfactorily accomplished, but that the subject is one which, at the present day, commands no ordinary degree of attention, and on which information is eagerly sought.

The Author did not live to see his book published.

Mr. Dickson was a shrewd and careful observer, and always diligently noted those facts which he considered worthy of remembrance, as a guide for the regulation of his future business transactions. These notes (the

publication of which was evidently an after-thought) form the superstructure of his volume. Although somewhat redundant, and not always arranged in strict systematic order, they will, nevertheless, be found of no small practical value, as recording, for the use of breeders and feeders of stock, the result of his personal experience, extending over a period of forty years.

In the preparation of the present edition, the Editor has had access to the original notes of the Author; by the aid of which, and from other sources, he has been enabled to correct several errors of the original edition. In various places, too, where the meaning was obscure, the sentences have been reconstructed; but in no case have the Author's opinions and calculations, as originally expressed and set down, been interfered with.

E. R.

EDINBURGH, MARCH 1851.

CONTENTS.

INTRODUCTION	PAGE 1
------------------------	-----------

ON CATTLE.

CHAPTER I.

THE BREEDS PECULIAR TO SCOTLAND	11
1. The Galloway Breed	12
2. The Ayrshire Breed	15
3. The West Highland Breed	18
4. The Fife Breed	22
5. The Angus Breed	23
6. The Aberdeen Breed	25
7. The Banff or Moray Breed	28
8. The North-Highland Breed	28
9. The Orkney Breed	30
10. The Zetland Breed	30
11. The Border Breeds	32
GENERAL OBSERVATIONS ON THE SCOTTISH BREEDS	33

CHAPTER II.

	PAGE
ENGLISH AND WELSH BREEDS OF CATTLE	36
1. The Improved Short-Horned Breed	36
2. The Lancashire, or Long-Horned Breed.	48
3. The Hereford Breed	49
4. The Devonshire Breed	50
5. The Sussex Breed	50
6. The Suffolk Breed	51
7. The Welsh Breeds	51
GENERAL OBSERVATIONS ON THE ENGLISH AND WELSH BREEDS	52

CHAPTER III.

THE BREEDS OF CATTLE PECULIAR TO IRELAND	55
--	----

CHAPTER IV.

ON CROSSING THE VARIOUS BREEDS OF CATTLE IN GREAT BRITAIN	59
--	----

CHAPTER V.

ON THE FEEDING OF CATTLE	71
------------------------------------	----

CHAPTER VI.

PROPOSAL FOR ESTABLISHING A SHORT-HORNED BULL- BREEDING FARM	75
---	----

ON HORSES.

CHAPTER VII.

THE BREEDS PECULIAR TO THE UNITED KINGDOM	82
1. The English Racer and Hunter	83
2. The Cleveland Bay	87

3. The Suffolk Punch	87
4. The Lancashire Cart Horse	88
5. The Clydesdale	89
6. The Highland Pony	91
7. The Welsh Pony	92
8. The Zetland Pony	93

O N S H E E P.

CHAPTER VIII.

ON THE VARIOUS BREEDS OF THE UNITED KINGDOM	95
1. The Leicester Breed	95
2. The Teeswater Breed	107
3. The Lincolnshire Breed	107
4. The Kent, or Romney-Marsh Breed	108
5. The Gloucester, or Cotswold Breed	108
6. The Irish Long-Woolled Breed	110
7. The Southdown Breed	113
8. The Cheviot Breed	115
9. The Black-Faced Breed	127
10. The Dorset Breed	136
11. The Old Norfolk Breed	137
12. The Border Mugs	137
13. The Welsh Breed	138
14. The Ryeland Breed	138
15. The Old Shropshire Breed	138
16. The Herdwick Breed	139
17. The Kerry Breed	139
18. The Wicklow Mountain Breed	140
19. The Old Scottish Breed	143
20. The Spanish or Merino Breed	146

CHAPTER IX.

	PAGE
ON CROSSING THE VARIOUS BREEDS OF SHEEP	149
1. Blackfaced Ewes with Leicester Tups	149
2. Blackfaced Ewes with Cheviot Tups	162
3. Cheviot Ewes with Leicester Tups	166
4. Cheviot Ewes with Southdown Tups, and the produce with Leicester Tups	176

CHAPTER X.

ON THE BREEDING OF LEICESTER TUPS	181
---	-----

CHAPTER XI.

ON THE FEEDING OF SHEEP	190
-----------------------------------	-----

CHAPTER XII.

ON THE GROWTH AND MANAGEMENT OF WOOL	202
--	-----

CHAPTER XIII.

ON THE ROT	205
----------------------	-----

ON PIGS.

CHAPTER XIV.

ON THE VARIOUS BREEDS IN THE UNITED KINGDOM	210
The Suffolk Breed	214
The Bedford Breed	214
The Berkshire Breed	215
The Essex Breed	215
The Cumberland Breed	216
The Hampshire Breed	216
The Yorkshire Breed	216

INTRODUCTION.

IN former times, the British Farmer depended more on his grain-crops than on his live stock; but, for several years back, the case has been reversed, stock having paid better than grain crops, even on the very richest lands. In proof of this, many farmers holding the best and highest-rented lands in Scotland have altered their system of management and rotation of cropping; and, in place of carrying on the four-shift course of husbandry, which was quite common on such farms (in the fertile district of East Lothian, for instance), great portions of the best of them are now kept in pasture. The possessors of such farms must have found it to their advantage to convert so considerable a portion of their lands to the purposes of grazing, instead of continuing the old system of alternate husbandry. In adopting a six, seven, or eight shift course of husbandry, a great saving of expense is effected by grazing and resting the land three, four, or five years; and by depasturing sheep on these fine lands, a much greater quantity of grain is raised from that portion of them under tillage. A further

saving is also effected by the reduction in the number of horses, ploughmen, and other servants and workers.

The attention of farmers must be primarily directed to whatever system of husbandry enables them to raise the greatest amount of marketable produce at the smallest expense on a certain number of acres of land. There are many in this country in possession of large farms, perfectly ignorant of the practical details of their adopted profession, and therefore unable to determine the merits of the different systems. To such men the following pages are principally addressed. Farming, like all other trades or arts, requires a regular system of training, to obtain a sound practical knowledge of its varied details, so as to enable any one to judge how the greatest remunerative profits shall be secured—keeping in view that the rules of good husbandry are strictly observed. Land should always be improving, not deteriorating. This is the test of good farming. The contrary is apparent, where men, from want of practical knowledge, or other causes, have lost their entire capital, and been compelled to relinquish their farms. It is often argued, that where success is not achieved, and capital lost, the cause is traceable to the great outlay in improving the land. This sometimes happens; but it too often results from want of practical knowledge and consequent bad management. Farmers with a thorough knowledge of their business have no objection to succeed ignorant tenants, whose farms are in bad condition; knowing, as a very cursory examination will enable them to do, that, from shallow ploughing, or other causes, the lands are not so

much exhausted as they might have been under better management; and thus, in most cases, to bring this land into a proper state of cultivation, it only requires to be well manured, green cropped, cleaned, and the greater part of the turnips, if practicable, eaten on the ground by sheep. This, however, is so well known that these remarks might be considered superfluous; but as green cropping opens up a wide field for rearing and feeding large numbers of cattle and sheep, where formerly few were kept, and furnishes manure for a future succession of crops, it cannot be out of place. Guano, bone-dust, and other extraneous manures, may now be had at moderate prices, and in unlimited quantities, by means of which turnips can be raised on all well-drained lands, be the quality of the soil what it may. Stiff retentive soils, when thorough drained, will also grow good crops of turnips, if sufficiently supplied with guano or other manure. From the portable nature of many of these new fertilizers, thin, high moor uplands have, by their aid, been of late years much improved, and now produce good crops of turnips, where it was before thought impracticable for any vegetable to be raised. The extent of land at present under turnips is almost incredible; and the number of cattle and sheep bred and fattened defies calculation. At a moderate computation, there are now at least four times the quantity of turnips grown than there was in 1820; for about this latter period the Lothians and Border counties of Scotland, Northumberland, &c., were the only districts where supplies of fat stock could be depended on, the other counties of Scotland being consi-

dered merely as breeding districts: the consumption of this crop was therefore very limited. Sometimes a supply of fat stock was sent from beneath the Firth of Forth, but, being few in number, no effect was produced on the ruling prices at any time. Mark the difference now, when every county on the east and north-east of Scotland has both its breeding and feeding districts; and, by means of steamers and railroads, fat stock can be sent as expeditiously to the Edinburgh, Newcastle, and London markets, as from the surrounding districts. The expense of transportation may certainly be a little more; but this can be readily afforded, from the lands on which the stock is raised being lower rented, and extraneous manures nearly as cheap as in the immediate neighbourhood of the markets. The breeders and feeders, therefore, from Caithness to Berwick, are now, from these circumstances, fairly pitted with each other.

Thirty years ago, not a Short-horned or crossed animal had been introduced in the extreme northern counties, while neither Leicesters nor crossed sheep were known. The cattle, called North Highlanders, were plain-skinned *dour*-feeding animals, and the sheep were, also, very inferior, with the exception of some flocks of Cheviots in the southern hilly districts. Those on the lower grounds were a mongrel race, being crosses of the old wild breeds of Scotland. In 1821 Mr. William Darling, then, and still, factor on the Scouthel estates in Caithness, gave the writer an order for a Short-horned bull, two heifers of the same breed, twenty Leicester ewes, and two rams, all of which were carefully selected and sent.

From these the Short-horns, Leicesters, and Crosses, at present in that country had their origin. The native breed of cattle was crossed by this bull, and other successive ones, introduced by James Traill, Esq. of Ratter, the Earl of Caithness, and others. Cheviot ewes, obtained from Sutherlandshire, &c., were afterwards crossed with the Leicesters. The great increase and improvement in the breeding of cattle and sheep in this county will be noticed more fully afterwards; but it may be here mentioned, that at the time Mr. Darling assumed the management of the Scouthel property, only ten acres of turnips were grown upon it, and a couple of oxen fattened. Now, or lately, on the same estate, there are upwards of 400 acres of turnips grown; and besides feeding in one winter 150 fat cattle, an extensive stock of breeding cows and young stock is kept up; and large flocks of Leicester and cross-bred sheep supported.

Thirty years have produced a great revolution in the method of conducting the ordinary operations of farming; while the systematic culture of green crops, and the breeding and feeding of cattle and sheep, have greatly increased. In fact, farmers who remain near home, and who of late years have not had an opportunity of visiting the different counties on the east and north-east coasts of Scotland, can form no conception or estimation of the increase, the improvement, and general management of live stock in these districts. There are, of course, many farmers in the south who have never passed the Firth of Forth: to such, a few weeks spent in visiting the north-eastern counties of Scotland would be attended

with many advantages. If the visit was made in summer, many of the large markets and local agricultural shows in the different counties might be attended ; and a general knowledge of the method of farm cultivation and breeding of stock thus acquired. South-country farmers have generally but an imperfect or erroneous idea of the resources of the north of Scotland, which a personal inspection can alone correct. In Caithness, an exhibition of live stock is held in July, where there is generally, both in respect to numbers and quality—particularly as regards Short-horned cattle and Leicester sheep—as fine a show as in more favoured districts. These breeds, it is erroneously supposed, are not sufficiently hardy for this northern latitude ; but an inspection of the animals collected at the above annual exhibition will prove the contrary. Every young man who intends following the occupation of a farmer should make such tours ; but the sons of farmers are often prevented from obtaining the information they require, from the work at home occupying all their time. It would be well if farmers were to allow their sons sufficient opportunities to visit, at least, the markets and agricultural shows in their own localities, and not grudge the money or time thus expended. By means of visiting distant localities, young men are enabled to become acquainted with the general progress of agricultural improvements ; and thus is created a spirit of emulation which stimulates to similar improvement on their own farms. How else can young farmers obtain a practical knowledge of improved systems and processes ? and what can be expected if they are kept at home, toiling with their

fathers in the dark, as it were, and following the empirical routine of their grandfathers? There are yet, even in this age of improvement, many farmers content to follow in the steps of those of the "old-school"—their sons seeing nothing, and therefore having faith in no system different to that they have followed from their youth up. The consequence is, that when they possess farms of their own, they have nearly all the elements of the improved systems of agriculture to learn. And particularly, as regards the breeding of live stock, many of these "old-school" farmers would think no one but a lunatic ready to give £30 or £40 for a bull, or £20 for a tup; therefore all farmers' sons should urge their fathers to allow them the opportunity of taking such tours as before mentioned, in order to make observations on the high farming systems which may come under their notice, and especially as regards the breeding and crossing of live stock; which is one of the most essential points in high farming, although little or no notice is taken of it by the great advocates of the system. How often do we hear that such a one is a good corn-farmer, but knows little about stock! And how little do the wheat and bean farmers of the carses of Gowrie, Falkirk, and Stirling, or the cheese-farmers of Ayrshire, or the butter-farmers of Clydesdale, know about sheep! Can such men be called complete agriculturists? Such men as Mr. Mechi, Mr. Caird, and many other advocates for high farming, know comparatively little of the merits of breeding, crossing, and feeding of live stock, and therefore cannot be truly denominated complete agriculturists. To attain this distinction, they

would require to serve a long apprenticeship to farmers who can claim this title. It is becoming quite a common practice to send young men to serve apprenticeships to eminent farmers, or at least to those who pretend to be so; and £100 a-year is the general sum demanded, and given, as a fee, for board, lodging, keep of a horse, and instructions. When a horse is allowed to the young man, and his master gives him much liberty, it too frequently happens that he spends more of his time in visiting, hunting, and other enjoyments, than in learning the true business of agriculture; and too often returns home little better than when he left. Apprenticeships to farming ought to be like other trades; young men should be bound for a certain number of years—say five—and, like lads going into a shop, take the lower duties on the farm for the first and second year; the third year, they might take charge of a pair of horses, and learn the art of ploughing, &c.; the fourth year, they should be almost constantly employed with the shepherd or farmer, attending to the breeding and feeding of live stock; and in the fifth year, they might be allowed a horse, and attend, with the farmer, the different markets and cattle-shows in the neighbourhood; and, when at home, to stacking, mowing, sheep-shearing, and other important duties; last, not least, he should, in his fifth year, assist in keeping the books of the farm. Throughout the whole term of his apprenticeship, he should keep a regular diary of every day's occupation. Such a diary would be most useful to him in after years, and ought to be carefully preserved. By such a course of training he would ac-

quire a practical knowledge of all farming operations, from driving the dung-cart, hoeing turnips, or greasing a cart-wheel, upwards.

Although some of the foregoing remarks may not altogether apply to the subject of this volume, the writer begs to be excused for making them. The following Treatise is chiefly confined to the breeding and crossing of live stock, now so extensively carried on throughout the north of England and Scotland; and the principal object of it is to point out how the different breeds should be crossed, to insure the produce to be alike profitable to the breeder, feeder, butcher, and consumer. A great part of the art of breeding lies in the principal of *judicious crossing*, for it is only by attending properly to this that success is attained, and animals produced that shall yield the greatest amount of profit for the food they consume. All eminent breeders know full well that ill-bred animals are unprofitable both to the breeder and feeder.

To carry out the system of crossing judiciously, certain breeds of cattle, sheep, pigs, &c. must be kept pure of their kind—males especially; indeed, as a general rule, no animal possessing spurious blood or admixture with other breeds should be used; but as the produce in almost all cases assimilates to the male parent, the use of inferior males ought at least to be avoided.

The writer has had occasion to visit periodically most of the counties of Scotland and north of England; and having personally observed the great and different changes, the unprecedented increase and improvements

in the breeding of live stock for twenty or thirty years back, he is enabled to offer the result of his personal observations, owing nothing to information culled from books by different authors who have written on the same subject. He conceives that improvements can still be made on the breeding of live stock, and even new breeds formed by the amalgamation of different bloods, if guided by the true principle of judicious crossing. He will therefore, in the proper place, venture some remarks on forming new breeds; and should such be approved, and this Treatise be in any other way useful, the object in bringing it before the public will be fully answered.

ON CATTLE.

CHAPTER I.

THE BREEDS PECULIAR TO SCOTLAND.

THE attention of the farmer, in regard to his live stock, appears, in former times, to have been almost exclusively devoted to the breeding of *cattle*, particularly in Scotland, as there is no proof of any regular system being adopted in the management of *sheep* prior to the middle of the 18th century. At this period there seems to have existed no distinct breed of the latter animal, except the black-faced. The other varieties were mixed, or, if pure, were but accidentally so, from being peculiar to isolated districts. Of cattle, however, from the earliest record, breeds distinguished by striking external characteristics have been objects of care and attention. The origin of these breeds being involved in obscurity, it is not intended to discuss the conflicting theories put forth by modern authors relative thereto, but to limit the inquiries to what is known of them, dating from the middle of the last century; and afterwards to offer some remarks on their present condition, so far as personal experience or well-authenticated information warrants. It is then in-

tended to define a system for breeding, crossing, and amalgamating, on correct principles, some of these breeds, in order to improve the general stock of cattle in the country.

The breeds in Scotland are thus distinguished, viz.—

1. THE GALLOWAY.
2. THE AYRSHIRE.
3. THE WEST HIGHLAND.
4. THE FIFE.
5. THE ANGUS.
6. THE ABERDEEN, which comprises three different breeds—
 - a. THE POLLED, or BUCHAN.
 - b. THE LARGE LONG-HORNED.
 - c. THE SMALL, or BRAE CATTLE, in the Highlands and Glens.
7. THE BANFF, or MORAY.
8. THE NORTH HIGHLAND.
9. THE ORKNEY.
10. THE ZETLAND.
11. THE BORDER BREEDS.

These form the principal breeds of Scotland; and although there may be others, they are so mixed and degenerated, as to render them unworthy of the breeder's attention.

1. THE GALLOWAY BREED.

From their name, it is evident they are natives of Galloway, although widely spread over the adjoining

county of Dumfries. They are doubtless a very old breed, and are considered to exist in a state of purity at the present day, judging from their uniform appearance, which is good evidence that they have been kept free from admixture of other blood. They are a hornless race, and in colour black. Other colours are sometimes seen, but it is generally believed to be caused by crossing with other breeds. Rather short-legged, with good symmetry, fine coats of hair, and thick and mellow in handling. In form they are round and barrel-like, with wide backs, full loins and rumps. The crops are also full, and have little coarse beef; bone fine and flat; head well set on, and rather fine; eyes prominent; muzzle fine; ears rather rough, and a tuft of hair on the brow; while some of them have manes. Altogether, the Galloways are considered a fine race of cattle, and have long been favourites in the London market, and also greatly prized by the English graziers, particularly in Norfolk; almost all that are sent across the Border being driven into this county.

The breeders generally keep them till three years old, and make them what may be styled half-fat, or rather fresh in condition. Very frequently, however, they are bought, as one or two year olds, by the large farmers in Galloway from the high-country small farmers, who keep them until they have attained the age of three years. A great trade is carried on in the spring months by dealers, who purchase at Dumfries and other markets, and also from the farmers. Large droves are thus made up, which are sent to the different fairs in Norfolk, principally to Castlehill, in Norwich, Woolpit, &c. Nine-tenths of the Galloway cattle, at a moderate computation, are sent into

Norfolk and Suffolk for feeding—not less, say, than from 15,000 to 20,000 yearly. They are there well grazed in summer, and fed in winter with turnips, hay, oil-cake, grain, &c. Under the care of the Norfolk farmers, who are proverbial for good feeding, the animals are fit for the London market in the following spring. The Norfolk season for selling cattle is from February to May, when the animals are generally in first-rate condition. In Smithfield phraseology, they are termed “Norfolk Scots,” are well liked by butchers, and bring always the top price of the market, as “prime Scots,” particularly the heifers, which are perfect models of symmetry.

Although principally confined to the counties of Galloway and Dumfries, yet some first-rate stock exists at present in the north of Scotland. They were introduced in Sutherland nearly thirty years ago by Mr. Alexander Craig, Kirkton, near Golspie, who still keeps a large and superior breeding stock, and has carried several of the Highland and Agricultural Society of Scotland's local premiums. Mr. Craig occasionally selects first-rate bulls from Galloway, with the view of infusing new blood into his herd; and by these means has maintained the character of the original stock, which was selected with great judgment and care. Galloways have also been recently introduced into Caithness, by Sir John Sinclair of Dunbeath, who asserts that he never had cattle which throve better. Sir John obtained a high price for his two-year-olds in 1849. Although not to any extent, yet several bulls have been introduced into Angus, for crossing the Angus Polled cattle. One of the most eminent breeders of Polled cattle in Scotland is Mr. Watson, Keillor, near Coupar-Angus. The excellent points and fine symme-

try of his stock — celebrated throughout the kingdom — give it the appearance of having been improved by the Galloway blood. Some of the best Polled cattle ever exhibited in Scotland were bred by Mr. Watson; and not only at the local competitions in his own county, but at those of the Highland and Agricultural Society, and at the great Smithfield shows in London, premiums have been obtained by him.

2. THE AYRSHIRE BREED.

This breed is famed throughout Britain for its milking qualities, which is justly merited. There are many conflicting opinions regarding its origin, which it is unnecessary to particularize; but they all lead to the conclusion, that the *accident* which gave rise to this variety of the bovine race is shrouded in obscurity. They are apparently quite distinct from all other Scottish breeds; and although existing pure in the west of Scotland generally, the best type is to be found in the Cunninghame district. In colour, they are generally red and white, but the best are spotted; horns short; head fine and tapering; neck thin; chins narrow; in general, the backs and hooks narrow; ribs rather flat; buttocks thin; bone fine; hair generally thin and transparent; hide soft. Altogether, they have light carcasses, with light foreends, which is generally a true index of good milkers. That they are good dairy cows cannot be denied; but they are not considered profitable stock for feeding purposes, as they want the symmetry, substance, and aptitude to fatten, possessed by the Short-horned, Galloway, and many other breeds. It is of importance, therefore, that they be

kept pure, as they generally are, for dairy use. Some trials have been made, with the view of improving their feeding qualities, by crossing with Short-horns, which have been successful; their symmetry and fattening properties being much improved, while their characters as milkers were not greatly diminished. In the counties in which they are now bred, viz., Ayr, Renfrew, Lanark, Dumbarton, Stirling, and part of Linlithgow, few bull calves are kept, being mostly killed when young, and the heifer calves only kept as breeders. The oxen of this breed are generally of plain and middling quality; and although a large number of bulls are shewn at Falkirk and other markets, they are not much admired, and often sell at low prices for distillery feeding. The cows have obtained a world-wide celebrity as milkers, and are to be found in most of the dairies of noblemen and gentlemen in every part of the kingdom; but the breeding of them is still confined to the counties above enumerated, as bulls are seldom to be found in any other districts.

When selected for particular dairies, heifers or young cows are generally preferred; but when purchased by cow-keepers or dairymen in large towns, the old cast cows are taken, which are in general great milkers. Some very fine Ayrshire cows are kept in the Duke of Buccleuch's dairy at Dalkeith Palace, which have been selected from the best herds, without regard to price. At Rutherglen fair, near Glasgow, and many other west-country markets, good animals are always to be seen, with some choice cows frequently among them.

The owners being aware of the competition among purchasers for first-rate cows, always ask a high, or rather

what is termed a "fancy" price, which is often extravagantly so. Dairymen cannot, of course, afford to give such large sums; but no such obstacle stands in the way of the owner of a private dairy, and the sellers are therefore justified in making such customers pay a good price. It is not probable that the Ayrshire cattle, in their pure state, will ever be much improved, as the selection both of bulls and cows is made on fallacious principles. For instance, a bull calf is kept because his mother was a great milker, and a heifer from the same cause. Again, if a few heifers are to be sold, it is generally those which are calves of the worst milkers, which are frequently the best; and those kept for breeders are the calves of great milkers. Regard to symmetry or points is not studied, or, if considered at all, it is simply with reference to the milking, not feeding qualities. As before stated, it may be as well to allow the Ayrshire breed to remain as they are, for dairy stock, in those counties where they are bred, and where dairy produce is the principal object of the farmer.

The best cow the author ever saw of this breed belonged to the late George Rennie, Esq. of Phantassie. She was a very great milker; and a bet being laid as to the quantity, it was proved that she produced ten imperial gallons per day! The Ayrshire dairy farmers believe their cows to be the best milkers in Scotland; but on a comparative trial being made at the Caledonian Dairy near Edinburgh, they were surpassed by the old Tweedside breed of cows. This was, however, in a measure counterbalanced by the latter animals consuming a larger amount of food.

3. THE WEST-HIGHLAND BREED.

This invaluable breed, which is the oldest and purest in Scotland, was evidently at one time peculiar to Argyllshire and the western coasts of Scotland. They are now bred in great numbers in Perthshire, and other parts of the Highlands: and their hardy nature, and rough and shaggy hides, well adapt them for the wet and boisterous climate of the Western Highlands. Their hides are thick, but mellow in handling; the forehead broad, with tuft in centre; fine muzzle; wide nostrils; bright and daring eyes; beautiful long turned-up white horns, with black tips; and manes like horses. In point of symmetry and form, the same remarks which have been applied to the Galloway breed will hold good with the West Highland. Although smaller, it is doubtful whether, being in equal condition, a West Highlander or a Galloway will bring the highest price per stone in Smithfield market. The grain of West-Highland beef is finer, but the Galloways have an advantage in the fulness of their crops, fore-ribs, loins, and rump.

Considerable attention has been paid by the best breeders to the selection of animals intended for propagation; and the breed in consequence continues to improve in size and symmetry. A portion of this success is doubtless owing to better keeping, which is now found through all parts of Scotland. The predominant colours are black and dark; but orange, brindled light red, and duns, are common enough. There does not appear to exist among breeders any favour or prejudice in regard to colours as indicative of the purity of blood; as red and

dun, when crossed promiscuously with black, are often the best, and shew equally high breeding. West Highlanders, although a small breed, attain to great weights, when aged. The heaviest ox on record (upwards of 120 stones) was fed by Mr. Spearman of Wharton, Northumberland. It was purchased among a lot at Falkirk, and turned out a most extraordinary animal. Many fine specimens of the breed have, at various times, been exhibited at the Highland and Agricultural Society's annual Shows, but it would occupy too much space to enumerate the names of the owners. The purest blood of West-Highland cattle is to be found in the Island of Skye, where there are some eminent breeders, among whom may be named Mr. M'Kinnon of Corryhatten, and others. From that island new breeders principally select their stocks, for which very high prices are paid, especially for superior animals—as much as £100 having been given for a single bull, and proportionate sums for cows and heifers. Besides those in Skye, Mr. M'Neil, in the Island of Colonsay, and Mr. Campbell in the Island of Jura, possess fine herds; while very superior stocks have been bred by Mr. Campbell of Islay and the late Captain Campbell of Sanderland, in the same Island.

The West-Highland breed is now spread over Islay, Mull, Barra, and other western islands; indeed, from the Isle of Skye to the Mull of Cantire, stretching along the shores of Lochfine, into Perthshire, as far as Breadalbane, and embracing the whole of Argyllshire, and the western parts of Inverness and Perth shires, it may be said to predominate. The principal show of this breed may be seen at the Great Dumbarton Carman Fair, on the first Wednesday of June. They are there collected in great

numbers, generally about 10,000 or 12,000 head, from all the principal breeders in the Western Islands, as well as the breeding districts of the mainland. It is really a fine sight, as the breeders vie with each other in shewing their best cattle; and, consequently, few inferior lots are to be seen. The animals are, however, in rather a lean state, as few of them have turnips during the winter, and, in many instances, are wintered in the woods and rough pastures, seldom being housed, or even under shelter, except what is afforded by the natural woods of the country. The principal buyers at this market are English dealers, and parties commissioned by noblemen and gentlemen, to purchase for the use of their private tables. When fed for premiums, they are termed *cherry ripe*, and are splendid-looking animals. In the northern parts of Scotland, where the West Highlanders have been introduced, they thrive remarkably well. A noble herd exists at Dunrobin Castle, belonging to His Grace the Duke of Sutherland. These were originally from the Skye stocks, but have acquired the name of "Dunrobins," and are far famed among breeders and feeders. From the careful selection of the original stock, close attention, and probably from high feeding and rich pasturage, these cattle have outstript in size all others of the same breed in Scotland. When shewn in a public market, they have a handsome and sprightly appearance in comparison with other breeds. The author once saw sixty four-year-olds at Falkirk, which were purchased by the late Mr. Henry Lee of Skateraw, near Dunbar, at eighteen guineas each. They were fed by Mr. Lee till December, when he sold them by public roup, at an average of nearly £24 each. Some of the best were purchased by Mr. Wilson from

Berwickshire, and fed until the following April, at which time they had a very promising appearance. On being slaughtered, although weighing nearly eighty stones, they did not turn out so well as expected, as their hides were heavy. It has been asserted that there is some mixture of blood in the Dunrobin cattle; but no symptoms of it is manifest, as they have the true outward appearance of being pure West Highlanders. The circumstance of their large size and heavy hides may arise from high feeding, or from suckling their mothers when calves. Stocks of West-Highland cattle are also to be found in the hands of Mr. Gilchrist of Ospisdale, and Mr. Innes, Crakaig, in Sutherlandshire; also in Caithness, belonging to Mr. Dunbar of Scrabster, Mr. Sutherland of Forse, Captain Henderson of Stempster, Mr. Gunn, Dale, and several other gentlemen. They were introduced in the Orkney Islands, about thirty years ago, in the Island of Burra, by the late Lord Duffus, who selected them from Skye. Many breeders in Orkney supplied themselves from Lord Duffus's stock, for which they paid high prices—Mr. Strang of Lopness having given ten guineas each for twenty one-year-old heifers, when he commenced breeding. Many are yet to be found pure in the Orkneys, but they have, to a great extent, been amalgamated with the native breed of those isles.

The hides of West-Highland cattle are very valuable, and will fetch nearly double the price of Short-horned, or most other hides. They are thick and mellow, and, when tanned and dressed, are worth one shilling per pound, as crop leather, while others will only realise eightpence.

4. THE FIFE BREED.

This breed is now very much intermixed with others; and it may be said there are three or four distinct varieties, all known as Fifeshire cattle. The old Fife breed (which it is to be regretted is nearly extinct) had superior qualifications to the present, or new breeds. It is, however, yet to be found pure in the possession of a few farmers and proprietors, viz., Colonel Lindsay of Balcarras, Mr. Ferney, Kilmux, and others. The appearance or outline of the old breed is quite different to all the other black breeds in Scotland. The animals stand high on their legs; a very long body, characterised by pretty fair symmetry, but not fine; the back, loins, and hooks rather narrow; ribs round and well formed, but light-lyred;* bone fine and clean; hide thin and mellow, with smooth hair; head fine; with flat horns gracefully turned up. Of a quiet disposition, they are consequently good feeders; their beef fine in quality, for a large breed; and they are good milkers. Altogether, this old breed is considered to be profitable for breeders, feeders, butchers, and dairy-keepers,† and why it has been allowed to become nearly extinct, it is difficult to hazard an opinion. One thing admits of no question, that worse breeds have been substituted, comprising both a Horned and a Polled variety, unlike any others in Scotland. The new Horned breed, is, like the old, large in size, but not so symmetrical,

* *Lyre*: a Scotticism, signifying the lean part of butcher meat. See *Jamieson's Scottish Dictionary*.

† This old breed, it is said, was much improved by King James, who resided at Falkland Palace, and was a great breeder and improver of cattle and other live stock.

while the bone is stronger and fuller of lyre; beef coarser; hide thicker, and hair rougher. In comparison, too, with the old breed, the head is not so fine; horns shorter and flatter, and not so well turned up. From the preceding, it will be seen that, on the whole, the new is a coarse breed, and scarcely fitted for supplying families, although quite good enough for shipping purposes and navy stores. The Polled breed is also of good size and substance, and, like the new Horned race, rather coarse, but equally suitable for shipping. Both lay on flesh very well, and seldom deceive the butcher in weighing. It is puzzling to imagine how the Fife farmers first established, and why they maintain these breeds, to the exclusion of the old one, which undoubtedly possessed some good qualities, which are nearly all wanting in the new. Here is certainly a case in point, in which ignorance or a disregard of first principles has produced its fruits. A fine specimen of the old Fife breed was the Dunearn ox, a portrait of which may be seen in the Museum of the Highland and Agricultural Society of Scotland. The best bull of the same breed belonged to Colonel Lindsay of Balcarras, and was shewn at Colinsburgh in 1836.

5. THE ANGUS BREED.

There are four distinct varieties of Polled cattle in Scotland—the Galloway, the Angus, the Aberdeen, and the Fife. The Angus cattle, in point of size and appearance, resemble the Galloway, but are inferior in many points, easily perceived by a competent judge; although a useful and valuable breed on the whole. In comparison

with it, the Angus do not lay on flesh so well; and in symmetry, compactness, and substance, are also deficient; while their hides are thinner and not so mellow. In comparing the two breeds, it will be found that the Galloways are in general appearance more uniform; and although some fine specimens of improved Angus cattle are to be found in the stocks of many eminent breeders, as Mr. Watson of Keillor, yet, from all appearance, this superiority is to be traced to crossing with Galloway blood. There are many careless breeders in Angus-shire, whose stocks consist of narrow, thin-skinned, small-boned animals, possessing very few good points, and little symmetry, but which feed pretty well, and make good beef. From the want, however, of bone and substance, they always deceive the butcher, being bad weighers. The reverse holds with the Galloway cattle, which are as well bred, and full of substance, in the hands of both large and small farmers. This is a fact deserving the attention of the small breeders, as well as the landed proprietors in Angus. The best kinds of Angus cattle are well liked by East Lothian feeders; and at three or four years of age they are fit for the butcher. The average weight is from five to eight cwt. The beef is rather fine grained, and the fat and lean well proportioned.

The principal and best stocks are to be found in the eastern parts of Angus and the Mearns. Formerly a great number was sent south, in a half-fattened state, to be fed on the rich pastures of the Lothians, &c.; but since the extension of turnip husbandry, the greater proportion is now fed by the breeders, and sent to the Edinburgh and Glasgow markets in a fat state. The

larger animals suit the Glasgow markets, as a pretty large beef-ham curing trade is there carried on, for which the full buttocks of the Angus cattle are well adapted.

6. THE ABERDEEN BREED.

There are three distinct breeds in Aberdeenshire, known respectively, as—the Polled, the Long-horned, and the Brae or Glen.

The Polled.—This variety originated in the district of Buchan, which stretches along the north-east coast of the county. Hence the name of “Buchan Doddies,” which they have acquired in some localities. They are very distinct from the other Polled breeds, and approach, in externals, nearest the Angus, but much larger, with, comparatively, rough points and plain skins. When young, their appearance is rather raw and flat, but when aged, they fill out and attain great weights. Colour black; head large; lumpy heavy forend; back and ribs flat; skin plain and smooth. When fed till four years old, the average weight is from 80 to 100 stones, and some, when fattened for premiums, reach upwards of 120 stones. Thirty or forty years ago, very few were fed for the butcher, except for the supply of Aberdeen and other local markets. The remainder were sold in fresh condition, or nearly half fat, to dealers, who drove them south, principally to the Falkirk markets. A considerable trade was carried on in this way—the dealers purchasing cattle at the great Okey and other fairs, to make up large droves for the southern markets. A number of these cattle changed hands at Trinity Muir, near Brechin—the purchasers being English dealers. This trade, since the

introduction of steam, in 1829, has ceased; all cattle intended for the London and other English markets being shipped from Aberdeen direct to Leith, Newcastle, Hull, and London. The beef of these Polled cattle being coarse, is more suitable for shipping purposes than for family consumption; and, therefore, the animals do not realise so large a price in London and other markets as the Galloways and West-Highlanders. Since the introduction of Short-horns into Aberdeenshire, useful Crosses have been produced, which are now sent to market in large numbers. From the Buchan cows being large and roomy, a very superior progeny is the result of the cross with the Short-horned bull. They are now fattened for the market at three, in place of four years old, as formerly—the Short-horns imparting the aptitude to fatten thus early.

The Long-horned.—These cattle are bred in the middle districts of Aberdeenshire, as Don-side, Strathbogie, Inverury, Huntly, Keith, &c. The breed is of large size, with long spreading white horns; colour generally black; legs short; back and hooks wide. In comparison with the Polled, they have a thicker and more compact carcase; bone finer and flatter, and shorter in the leg, and attaining a great weight when aged. They are good feeders, and in some respects have a resemblance to the West-Highlanders; while they are particularly well adapted for crossing—upon which some remarks will be afterwards made. This breed is known in England as “Aberdeenshire Runts,” a term generally given to all Scottish breeds with long horns and smooth coats.

Before dismissing this breed, it may not be out of place here to mention, that in 1825 a sweepstake was

entered into by five East-Lothian farmers, to be claimed by the one who should be pronounced the best feeder of cattle. In order that an equal chance should be enjoyed, Mr. Charles M'Combie, then an extensive dealer in Aberdeenshire, was instructed to forward forty Long-horned Aberdeen cattle. These were of the same age, and in equal condition, and were divided as fairly as possible among the five farmers. The price was £18 per head. The cattle were put up to fatten in the second week of September. There was no restriction as to feeding. At Christmas following, they were exhibited at Haddington, and the improvement was most remarkable. The late Mr. Lee of Skateraw was declared the winner. He had used boiled beans throughout in feeding. The other competitors fed very high, as on draff and dreg, swedish turnips, hay, bruised beans, and oats. The superiority of boiled beans was here proved—a fact which deserves the particular attention of cattle-feeders at the present day.

The Brae or Glen.—This is a small race, peculiar to the braes and glens of the higher districts of Aberdeen and the adjoining counties of Kincardine and Moray, including Glenlivat, &c., and the Highlands in the eastern parts of Inverness-shire. The term “North Highlanders” will, in fact, almost apply to this breed. They are stunted in appearance, with short horns, and evidently a distinct race. Although somewhat resembling the West-Highland breed, the symmetry, fine points, and shaggy coats of the latter, are wanting. They lay on flesh readily when well kept, and generally weigh from thirty to forty stones when fat. The beef is of excellent quality.

7. THE BANFF OR MORAY BREED.

The original breed of cattle in the lower parts of these counties is very like the Long-horned cattle of Aberdeenshire, but rather smaller in size, and with shorter legs; carcass generally thick and compact, with full back and loins; ribs round and well formed.

Before breeders and feeders had an opportunity of sending their cattle by steam to the southern markets, very few were fed, and those only for home consumption, as the markets of Edinburgh and Glasgow were at too great a distance to render the driving of fat beasts profitable. They were consequently purchased by dealers in a half-fattened condition, and driven to the Falkirk or English markets; but this trade, as previously mentioned in the case of the Aberdeen breeds, and for the same cause, is at an end. Most of the cattle now bred in Banff and Moray shires are Crosses, and are fed and shipped by the breeders, consigned to salesmen in the southern markets.

It may not be out of place here to mention, that about thirty years ago there were only three salesmen in the Edinburgh market; there are now nearly twenty, besides numbers in Glasgow and Newcastle, all having large consignments from the northern districts of Scotland.

8. THE NORTH-HIGHLAND BREED.

The cattle which come principally under this denomination were those bred in the higher districts of

Ross-shire, and in Sutherland and Caithness, previously to the introduction of Short-horns. The Brae cattle, in all the higher districts, from Forfar to Inverness shires, are classed under the Aberdeen breeds; and although, in some of these districts, a dash of West-Highland blood is apparent, a large proportion may correctly enough be placed under the present head. The North-Highland cattle have plain points, narrow backs and hooks, and present in general a rough outline; with plain skins, called by dealers "slope" skins. These cattle are difficult to dispose of in the southern markets. These and other of the old coarse breeds are gradually disappearing; but there are still too many to be seen at the different Caithness markets, Kyle of Sutherland, Muir of Ord, and other places where Highland cattle are shewn, including the Castletown of Braemar, Slateford, Spittal of Glenshee, Amulree, &c. By some these cattle are called "Norlans."

A very small breed is kept up on the estate of Skibo, the property of Mr. Dempster, in Sutherland, who has also an estate, Dunichen, in Forfarshire. This gentleman has carried on the practice for a long time, of taking from the small tenants on the Skibo estate their yearly cast of cattle. They are all numbered, and sent to Forfarshire, and sold by public roup, and the tenants get credit for the price of their cattle, after deducting expenses. This breed is rather celebrated for superior beef, and the animals are generally bought by gentlemen and farmers for their private use. High prices are consequently obtained, which these small tenants get the advantage of.

9. THE ORKNEY BREED.

The breed of these islands is small, with fine turned-in horns; skin thin, and silky to the touch; carcase round, but curiously formed, the rump bones being high, hooks narrow, and middle rather thick. They are also light lyred, with small fine bone; are good feeders, and produce delicately-grained beef. The weight of the cows, and heifers, when fat, is from 60 to 100 lbs. per quarter; but the oxen, which are often kept for working, feed to good weights, when five, six, and seven years old. They have been crossed with West-Highlanders, Polled Aberdeenshires, and Short-horns. The results of the Short-horned cross is a race of good feeders when on good keep; but those bred from the pure old cows are the best. The cross with the Polled Aberdeen has improved the size of the breed, but their feeding properties have lessened in the same ratio. Turnip-growing is increasing wonderfully in Orkney, and the cattle yearly improving—there being now some spirited breeders in the islands, some of whom keep pure Short-horns, such as David Balfour, Esq. of Tronabey, Dr. Still of Smoogro, Archer Fortescue of Swanbister, and others. Some of the Orkney proprietors and farmers breed and feed from thirty to forty head of cattle yearly. The soil and climate are well adapted for growing turnips, clover, and other green crops.

10. THE ZETLAND BREED.

This diminutive breed of cattle seems to be quite a

distinct race from all other known breeds. They are perfectly symmetrical, and, when fat, shew good points. Skin particularly fine, and mellow; hair silky, feeling under the fingers like the softest wool; hide, as soft as a piece of chamois leather; bone, fine and small. The beef very delicate in the grain, excelling all others, being almost as fine as Black-faced sheep. In fact, a piece of fine-fed Zetland beef is a dainty for an epicure. Many noblemen and gentlemen will have no other beef for their table if this can be obtained. The Duke of Buccleuch, and other noblemen and gentlemen, purchase three-year-old Zetland oxen, which they feed two years, when they are considered in their finest condition. They never weigh heavy, seldom exceeding thirty stones, and the average even less. Instances now and then occur of an animal reaching forty stones, but this is very rare. The weight of fine fat cows and heifers is from twelve to twenty stones imperial. In 1815, the writer purchased a lot of superior Zetland oxen, bred by the late Mr. Charles Herriot of Kelloe, which had been fed nearly three years, which averaged about thirty-eight stones imperial each; but they were extraordinary animals. Beef being very high in price at that time, £18 each was paid to Mr. Herriot, and they were resold to the late Mr. Hutchison of Haddington at £21; but these were war prices. Mr. Bell, late of the British Linen Company's Bank, took pleasure in feeding Zetland oxen, some of which he fed to a large size, and of fine quality, on his property in Dumfriesshire. At the Duke of Buccleuch's, the late Sir William Purves' of Marchmont, and many other places, where fed for private use, the animals attain more than an average weight. Some successful Crosses

have been made from Zetland cows, which will be noticed, with some suggestions for forming a new breed, when treating of Crossing.

11. THE BORDER BREEDS.

About one hundred years ago, the only distinct breeds of cattle on the Borders, were the old-fashioned Short-horns or Tweedside, and the Teviotdale; but how these were bred, it would be useless, and indeed impossible, to trace. Their horns, size, and colour, were much like the Short-horns of the present day, excepting that the red was darker and duller, and the horns darker and coarser, and rather longer. The prevailing colours were red and white; head large; nose generally black; outline coarse; shoulders and buttocks thick and heavy; ribs flat; back narrow; bone coarse and round; rather slow feeders; but when aged attained a great weight, although never put up to fatten until four or five years old. This large breed occupied the lower ranges, and better cultivated farms, while a smaller race of the same description was to be found in the higher districts. These breeds, within the last fifty or sixty years, have given way to the improved Short-horns; although many of the most celebrated Short-horns of the present day are undoubtedly descended from these old breeds. These old-fashioned races are, however, not yet extinct, as small herds are still to be seen in the south and south-eastern districts of Scotland. There are yet many old-fashioned breeders in almost all counties, who are either bigoted to their old breeds, or grudge the price of good bulls to improve and renovate their stocks. The extinction of the one must therefore

be cotemporary with the disappearance of the other. The prices of good Short-horned bulls being now moderate, expense can no longer be an excuse for perpetuating an inferior breed of cattle. Another objection urged is, that Short-horns will not thrive in high districts, and on poor keep; but as turnips and clover can now be grown in all districts, this argument is also fallacious. Experience has proved that Short-horned bulls, with thick mellow hides, and soft close woolly hair, are well adapted for high districts, and are found to be as good feeders as the thin-skinned fine-haired varieties. The introduction of such animals would, in a few years, produce a change in the old breeds of a very marked character. Old-fashioned breeders are not, however, very easily moved, particularly when a few extra pounds have to be expended on the purchase of a bull.

Oxen of these old breeds were at one time used for draught, their size and strength well adapting them for labour. They were kept to the yoke until six or seven years old, and then fed off, when they made excellent ship beef. Very few draught oxen are, however, seen in Scotland at the present day, except in Caithness and the Orkneys, where many hundreds are still kept, and, in addition to ordinary farm work, are found useful for driving sea-ware from the shores.

GENERAL OBSERVATIONS ON THE SCOTTISH BREEDS.

Some of the Scottish breeds, from being either well adapted for certain localities, or celebrated for peculiar

properties, it is advisable to keep pure; while with others no question can arise as to the propriety of crossing, or even complete amalgamation with other breeds. On these points, the following remarks, the result of long observation and experience, may perhaps prove useful.

The Galloways.—This breed should be kept pure, although no doubt splendid animals may be, and indeed have been, bred from Galloway cows and Short-horned bulls. The fact, however, of the breed being a favourite in Smithfield market, and realising the top price, is a sufficient reason for maintaining its purity.

The Ayrshires.—This breed having attained a world-wide celebrity as dairy stock, should also be kept pure.

The West-Highlanders.—To maintain the purity of this breed is a matter of primary importance, as no other cattle can thrive in the Western Highlands and Isles. Efforts should also be made to introduce them in those districts now occupied by that coarse and inferior breed, the North-Highlanders. The high districts of Ross-shire, the Lews, Sutherland, Caithness, the eastern parts of Inverness-shire, and high districts running south as far as Forfarshire, are well adapted for the West-Highland cattle, where they would be found to thrive well. From their hardy constitutions and habits, they can withstand almost any degree of cold in the open air, foraging for their food in woods and glens, even in pretty deep snow. The extension of this breed, to the Highland districts generally, could easily be effected if landlords were to lay down stringent rules and regulations with this object in view; and as the interest of landlord and tenant is identical, a plan might easily be carried out for effecting this improvement, in which, there is no doubt, the tenants

would readily acquiesce. Suppose a certain district to contain fifty small tenants, the proprietor of which is anxious to introduce an improved breed of cattle. Let him send a competent and skilful man to Dumbarton, or some other market, where the best West-Highlanders are shewn, to purchase 100 two-year-old heifers of a good stock. These should be divided among the tenants, and charged at cost price, including expenses. Two or three young bulls, to serve these heifers, should also be provided, but at the expense of the landlord, a fair price being charged for their use. This arrangement would soon effect the desired change, care being taken that the old bulls were cut off. A couple of years would clear off the old breed, and its place being supplied by a new race, worth at least £1 per head more than the old, the stock would always command a ready market.

The Zetlanders.—This breed is also recommended to be kept pure, for the reasons before set forth under this head.

The Fife, Angus, Aberdeen, Banff, Moray, and other unenumerated breeds, should be crossed with Short-horns, wherever the climate is suitable; it being now an established fact, that either pure Short-horns or Crosses are more profitable than the original cattle in all those arable and feeding districts on the east and north-east of Scotland.

CHAPTER II.

ENGLISH AND WELSH BREEDS OF CATTLE.

THE principal breeds in England and Wales may be thus classified:—

1. THE SHORT-HORNED, DUTCH, TEESWATER, or DURHAM.
2. THE LONG-HORNED, OR LANCASHIRE.
3. THE HEREFORD.
4. THE DEVON.
5. THE SUSSEX.
6. THE SUFFOLK.
7. THE WELSH.

There are also a few important distinct varieties, which cannot be referred to any of the above classes. Their value, in an economical point of view, is, however, so small, that it has been thought expedient to avoid, except incidentally, all allusion to them.

1. THE IMPROVED SHORT-HORNED BREED.

This invaluable breed of cattle, which has, at different times, been distinguished by the name of "Dutch," "Durham," and "Teeswater," did not, as is generally supposed, originate in the county of Durham; as they

have existed for centuries in Lincolnshire, Yorkshire, Northumberland, and the Borders. There can be no doubt of their Dutch origin, the breed being improved by frequent selections and importations from Holland. It is to be regretted that a better record of the different importers of these cattle does not exist; but sufficient proof is extant that several breeders, nearly one hundred years ago, made trips to Holland, and selected some of the best bred cattle of that country for improving their own stocks. A few bulls, cows, and heifers, imported by Sir William St. Quinton of Scampster, and the Debinsons, effected a considerable change; and to those gentlemen the country is indebted for the present "Improved Short-horned Breed." The spirit of emulation once being aroused, improvement succeeded improvement; and it may now confidently be asserted that this breed is without a parallel. In the pages of *Coates' Herd-Book*, the pedigrees of all pure-bred animals are now recorded in a similar manner to those of the race-horses in the *Stud-Book*.

The *Herd-Book* contains the pedigrees of all animals of note since the time (1777) of the celebrated bull "Hubback." The work is published periodically, and is now under the superintendence of Mr. Henry Strafford, an artist, who for some time illustrated it. The value of this record of pedigrees is fully known to all breeders of Short-horns, and is, from the accuracy with which it is kept, an acknowledged authority on all matters in which the purity of blood of any animal is called in question; indeed, no breeder of the present day need attempt to sell young bulls unless the pedigrees of the sire and dam are recorded in the *Herd-Book*.

Since the appearance of the bull "Hubback," calved

in 1777, bred by Mr. Brown of Henworth, many breeders in the county of Durham, on the banks of the Tees, seeing the good effects of proper selections, and the improvements made on their own stocks by importations from Holland, were led seriously to turn their attention to the new breed, now first known as "Short-horns," a name given from the animals being shorter in the horns than any other large breed of cattle in the kingdom. The appellation of "Teeswater" or "Durham" breed, was acquired from their having been first improved in this part of England. The first great step of the breeders in these districts, in improving the breed was by selecting bulls and cows of the most perfect form and symmetry, with fine bone; while the object of the Lincolnshire and Yorkshire breeders was the selection of large animals. From this cause, the Short-horns on the Tees obtained pre-eminence over those of other parts of the country.

The Short-horns owe much of their fame to those eminent breeders, Messrs. Charles and Robert Collings, who did more to develope their peculiarities and good qualities than all breeders who preceded them; and to these gentlemen does this breed owe much of its high and well-merited celebrity. The famous bull "Comet" was bred by Mr. Charles Collings, and sold for one thousand guineas!

The Improved Short-horns were for some time confined to the county of Durham, where there were several distinguished breeders, as Mr. Hill, Mr. Maynard, Messrs. Charges, Mr. Mason, Colonel O'Callagan, Mr. Crofton, and others, through the skill and judgment of whom the breed now stands pre-eminent. Gradually, however, they have spread over all parts of the United King-

dom, and many parts of the Continent, America, and Australia. The breeders of Lincolnshire and Yorkshire have never, in the opinion of the best judges, been able to raise animals equal to those produced in the county of Durham, the cattle being generally wanting in symmetry. The principal breeders in Northumberland, about fifty years ago, were the Culleys, the Comptons, the Smiths, the Greys, the Thomsons, the Jobsons, Hunt, Curry, and others; while, north of the Tweed, was the late Mr. Robertson of Ladykirk, who procured his first stock from Mr. Collings. The writer, having had frequent opportunities of inspecting Mr. Robertson's stock, is enabled unhesitatingly to state that the animals composing it were unrivalled. Mr. Robertson kept about thirty breeding cows, all of them perfect models. In colour they were generally roan, light grey, and white, or rather cream colour, and occasionally bright blood-red. The nose and mouth, and also about the eyes, were cream coloured; eyes full, lively, and prominent; forehead broad, and from eyes to nose rather long; muzzle fine; ears thin; horns short and white; neck well set on, rising gently from the shoulders, and fine, but not thin; neck, veins, and breast, full and prominent; shoulders full at the top, and moderately so down to the forearm, and full of muscle; small, clean, flat bone below the knee; fore-legs straight, and moderately wide; the foreend open, wide, and prominent; the crop full and round, and wide behind the shoulders, or girthing-place; ribs round, and well arched; back and loins full and broad; hooks wide and long to rump-bone; well filled from the loins to the setting-on of the tail, which is almost in a straight line with the shoulders; tail broad

and full of hair, dropping outside of the hocks; the hips or buttocks well filled on the outer and inner sides; hind legs wide and well set, and full of muscle above the knee; belly straight, the whole carcass being nearly cylindrical; hide rather thick, soft, and mellow, with a fine touch; hair woolly. Such were the forms and qualifications of the Ladykirk Short-horns. At one time Short-horns were preferred with thin hides, and thin silky hair; but these being found unable to withstand the cold, Mr. Robertson and other breeders selected those with soft, but thicker hides, and thick-set woolly hair: indispensable requisites to protect the animals from cold. Mr. Robertson's stock possessed great aptitude to fatten, and fed to great weights at an early age—his two-year-olds weighing from 70 to 80 stones each, and his three-year-olds upwards of 100 stones. The stock arrived at maturity at two years old. Mr. Robertson was a liberal man, and did not demand such high prices for his stock as other breeders. He frequently sold and allowed the use of his best bulls at moderate rates. To his own tenants he made no charge for the use of bulls; consequently, but little inferior stock was seen on his estate. As an illustration of the value of the stock, it is related that an eminent breeder, visiting Mr. Robertson, and seeing twenty cows pasturing in one field, offered him 100 guineas each for the lot, which was refused. The late Mr. John Rennie, after commencing his career as a Short-horned breeder, purchased many of his best animals from Mr. Robertson; in fact, he for some years bought nearly the whole of that gentleman's surplus stock, several of which were sold at his great sale in 1827. The famed bull "Romulus" was bred by Mr. Robertson, and

purchased from him by Mr. Rennie. This animal gained the Highland Society's premium for the best bull, at Edinburgh, in 1827. Mr. Rennie also purchased from Mr. Robertson a favourite white cow when a heifer, which he afterwards presented to Mr. Carnegie. This cow gained the Border Union Agricultural Society's first prize at Coldstream, and was the dam of Mr. Carnegie's famed bull "Edrom," which obtained a premium on more than one occasion. This animal was got by a bull bred by the late Mr. Mason of Chilton. After Mr. Robertson's decease, his stock was sold at very high prices to many eminent breeders. Some of the best were purchased for the Duke of Buccleuch, and among them the favourite high-bred cow "Vesta." Mr. Robertson followed the practice of breeding "in and in," as it is termed; the reason alleged being the fear of deterioration by introducing other blood. His cattle, in consequence, shewed a delicacy and weakness of constitution, which no doubt arose from this cause. The system is justified by many breeders, but condemned by a large number. A slight acquaintance with animal physiology would, however, convince breeders generally of its bad effects. Cotemporary with Mr. Robertson, as celebrated breeders in Berwickshire, may be mentioned the names of the Messrs. Wilson, Thomson, Logan, Brown, Heriot, Jobling, Colonel Johnston, and others, the stocks of whom were much improved by Mr. Robertson's.

The improved breed soon spread over Berwick and Roxburgh shires; and for many years back, very superior animals have been exhibited at the Union Agricultural Show, at Kelso and Coldstream, both for premiums and sale. The writer has seen about twenty one-year-

old bulls shewn at Coldstream, by Mr. Crisp, late of Dod-dington. Breeders from all quarters now attend these shows in April, to purchase yearling bulls, the best of which can now be bought at from £20 to £30. Twenty years ago similar animals would have cost nearly double the money. No farmer of any extent can therefore plead an excuse for using inferior bulls. Admitting the higher sums to be paid, the animals can be used for two years, and then either sold to other breeders, or cut and fed, when they will fetch, from the butcher, nearly the original purchase-money. The bull "Diamond," which was purchased at the Coldstream Show, about thirty years ago, for 150 guineas, was a most splendid animal, and left a great deal of fine stock in Berwickshire. Nearly the whole of the breeders in the lower parts of this county, and the adjoining one of Roxburgh, have good stock. All their cattle are quite fat at two years old, and fit for the butcher. The average weight at this age is from forty-five to sixty imperial stones. Many of the best breeders and feeders give the animals no oil-cake, corn, or hay, during the second year. A little oil-cake is however usually given the first winter, which not only improves their condition, but is supposed to ward off diseases. There is less pampering in Northumberland, Berwickshire, Roxburghshire, and East-Lothian, than any of the other feeding districts in Scotland. In fattening two-year-olds, much depends on the treatment the animals have received as calves, which will subsequently be noticed.

The first breeder of Short-horns in Scotland was General Simpson, in Fife, who selected his stock from the county of Durham. Mr. John Rennie must, however, be

considered the earliest breeder on an extensive scale; and from his selections and breeding, the present high-bred stocks in Scotland are nearly all descended, the herd having been widely dispersed at his great sale in 1827.

Among the principal breeders in East-Lothian within the last thirty years, may be named the Marquis of Tweeddale, Messrs. Bogue, Walker, Brodie, Carnegie, Reid, Tod, and Douglass. In Mid and West Lothian, the Duke of Buccleuch, Earl of Hopetoun, Dudgeon of Almondhill, and a few others. In Clackmannanshire, Messrs. Mowbray, Cambus, Ritchie, Bonhouse, &c.

In the counties of Fife, Perth, and Angus, there are but a few herds.

In Kincardineshire, Captain Barclay Allardice of Ury, who, as regards the north-east of Scotland, is usually called the "Father of the Short-horns," purchased largely at Mr. Rennie's sale, and has been a considerable breeder for upwards of twenty years. His stock has always been in repute; and annual sales of bull-calves, &c., are made by him. At these sales £50 and upwards have been obtained for calves four months old. The stock purchased by the Captain at Mr. Rennie's sale, was principally descended from Mr. Robertson's herd. The only other breeder of note in Kincardineshire is Mr. Irvine Boswell of Balmuto and Kingcausie, who introduced Short-horns into this county, and also in Fife, on his estate of Balmuto, more than twenty years ago. Mr. Boswell's stock was originally selected from that of Mr. Crisp, Doddington, &c., who purchased from that celebrated breeder, Mr. Hunt of Thornton, Northumberland.* Mr. Bos-

* Mr. Boswell was the owner of the celebrated bull "Billy," figured in Macgillivray's "Domestic Cattle."

well's herd, from the continued introduction of new blood, and the care and attention bestowed on the selection of animals, has always maintained a high character.

In Aberdeenshire, Mr. William Hay, Shethin, near Ellon, has long been celebrated for his cows and heifers, which are eagerly purchased at high prices. One of the most eminent and spirited breeders, however, in this county, is Mr. Cruickshank of Sittyton, whose stock is of a first-rate class, and not surpassed by any in England. He obtained the first premium for a bull, "Fairfax Royal," at the Highland Society's Show at Aberdeen in 1847. This animal was allowed to be one of the finest bulls ever seen. An eminent English breeder present at the show offered Mr. Cruickshank £450 for the bull, but Mr. Cruickshank refused to take £1000. So great was the aptitude of this bull to fatten, that Mr. Cruickshank, fearing he would get too unwieldy for serving his cows, had him occasionally put into the harrows. Mr. Hutchison of Monyruy, near Peterhead, has imported several fine bulls, among which may be mentioned "Sir Thomas Fairfax." In Banffshire, Mr. Grant Duff of Eden enjoys a high reputation as a careful breeder, and has set an example, which cannot be too soon followed, of publishing, and widely circulating, annual statements of the present condition and progress of his stock; of all new animals introduced, with their pedigrees; and the produce of his cows for the preceding year. In dealing, therefore, with Mr. Grant Duff, no suspicion of genuineness of blood can ever arise—the publicity given by the annual statement, allowing purchasers ample opportunity for thoroughly investigating the pedigree of every animal. The stock of cows and heifers in particular is widely celebrated.

Twenty years ago not a Short-horned animal had been seen in Morayshire and adjoining counties; now there are many fine stocks, particularly that of the Duke of Richmond at Gordon Castle. All the cattle fattened for the southern markets, are now mostly Short-horned Crosses, and are sent off in great numbers to London and other places by steamer.

Very few Short-horns have been introduced in Inverness-shire; but they are now pretty numerous in Ross-shire, where they are mostly used for crossing. Great numbers of Crosses are fed in this county. Sutherlandshire being principally a sheep-breeding district, very few Short-horns have found their way there.

In Caithness the importations have been very considerable. It is twenty-nine years since they were first introduced by Mr. Horne of Scouthel; but Mr. Darling the factor, affirms, that "Young Diamond," got by "Diamond," was the best, although the first bull ever sent there, and did much good. Mr. Darling first commenced crossing with the common cows of the country, and a few West-Highlanders, and the produce was very satisfactory. Some of the first Crosses were fed at home; but subsequently Messrs. Craig and M'Donald, from Cumberland, bought largely, and drove their purchases into that county to fatten. Mr. John Wilson from Berwickshire, was also for several years a purchaser. Mr. Horne's success in rearing Crosses soon attracted the attention of other breeders, and the practice became, subsequently, both general and profitable. The writer recollects a lot of twenty-five animals being sold at Dunse fair in 1836 for £25 each. Their average weight was seventy stones. These cattle were shipped from Leith to

London, and were considered the best in Smithfield, when shewn there. A still finer lot, comprising twenty four-year-olds, fed at Stirkoke, was sold by Mr. Horne in Smithfield for £40 each. This was in 1838; while, in 1847, Mr. Darling sold twenty three-year-olds to the late Mr. John Hutchison, Haddington, for £22 each. A person not acquainted with Caithness would scarcely believe that such cattle could be bred and fed so far north.

Although a few pure-bred cows have been imported into Caithness by Mr. John Paterson, Skynet, Mr. George Brown, Watten, and others, it appears rather to be the object of breeders in this county, by the importation of bulls, to raise Crosses with the native cows. From ten to fifteen bulls, principally yearlings, reach Caithness annually, the greater number being sent by Mr. John Wilson, Simprim, Berwickshire. The principal breeders in this northern county are the following:—The Earl of Caithness, Sir John Sinclair of Dunbeath, Sir George Dunbar of Hempriggs, George Traill, Esq., M.P., Captain Henderson of Stemster, Mr. Sinclair of Forss, Captain Sutherland of Forse, Mr. Macleay, Bilbster; Mr. Dunbar, Scrabster; Mr. Davidson, Stanstill; Messrs. James Henderson, Gunn, Leith, Paterson. Brown, Purves, Keir, Calder, Turnbull, Swanson, and others. Mr. Dudgeon of Almondhill, also, while he possessed the farm of Greenland, did much in improving the native breed, having introduced many pure Short-horns.

The quantity of turnips grown in Caithness is now great, as several breeders feed their own stock, which is sent south by steam in the spring. Feeding, however, is falling off, as it is found more profitable to reserve the

turnips for sheep, and sell the cattle to feeders at two and a-half years old. A great number are now shewn at the Georgemas market in July—Mr. Dudgeon, Mr. Wilson, and the Morayshire feeders, being large purchasers; a great many are also purchased by dealers, and sold at the Muir of Ord market to feeders. At the Caithness Agricultural Society's Competition in July, there is generally a fine turn-out of Short-horned bulls, sometimes as many as thirty, almost all bred in the south. The other stock shewn consists principally of Crosses, bulls, cows, and one and two year old heifers and oxen, besides those shewn by the smaller tenants paying under £50 of rent. The writer has acted as one of the judges at this show for four years, and every year saw decided improvements, particularly in the stock of Sir George Dunbar, who only commenced breeding in 1838. At that time he purchased from the author two yearling bulls of pure blood, and he now breeds about 100 Crosses yearly. His stock has improved rapidly. Among his bulls may be mentioned some very highly bred from Mr. Hunt of Thornington, and other eminent breeders in Northumberland. No gentleman farming his own land pays more attention to the breeding and feeding of cattle and sheep than Sir George, who is altogether a good practical farmer, and understands all the details of his business as well as any man in Scotland, being also a first-rate ploughman. Taking Caithness as a cattle-breeding county for Crosses, it is of some importance.

Short-horns have also found their way into Orkney, and are succeeding well. Mr. Hay of Laxfirth introduced them into Zetland, but with what success is not at present known.

2. THE LANCASHIRE OR LONG-HORNED BREED.

The enormous horns which characterise this breed have given rise to the name by which they are now generally known. Colour generally dark red and white, or "flecked," as it is locally termed, the back sometimes quite white; horns curved downwards; head heavy, dull looking; neck thick and coarse; hide thick; hair long and close; bone strong and round; and exterior altogether rough. They have compact carcasses, and well filled on the back. On the whole, they are rather symmetrical animals, but their appearance indicates a want of aptitude to fatten. The celebrated Mr. Bakewell, about fifty years ago, selected some of the finest animals, and, through his judicious selections and management, established a stock in every way superior to the original native breed. The secret of Mr. Bakewell's success was the preference he gave to small-boned animals, while the breeders of Lancashire generally made an opposite choice.

Mr. Bakewell's improved Long-horns resembled, in many respects, the improved Short-horns, and he contended they were superior; but this is a doubtful point. Attempts have been made to cross the Galloway and West-Highland with the Lancashire, but the experiment has not been successful. Experience has now proved that Short-horns arrive earlier at maturity than Long-horns; feed to greater weights at an early age; and produce beef of finer quality. In the writer's opinion, therefore, the Short-horned, being superior to all, is capable of improving other breeds by crossing; while in

itself it is incapable of improvement by any existing breed. Let the crossing system now pursued throughout Scotland be examined. Surely, if Long-horns had been superior to Short-horns, the former would have been long since tried for crossing; but breeders must think otherwise, and should, and will, stick to the Short-horns.

3. THE HEREFORD BREED.

The Herefords are said by some to be a variety of the Devonshire breed; but sufficient proof exists that they are natives of the county whose name they bear. A cursory examination will shew that they have distinct features and points, and bear little or no resemblance to the Devons. The breeders of Herefords, like those of the Long-horns, contend that they are superior to the Short-horns; but without entering upon this question, it is readily admitted that the Herefords may be classed as second only to this famed breed. In colour the animals are invariably red, with white or speckled faces, and finely turned-in horns; hides soft and mellow, and full of close soft hair. They are what may be termed mellow handlers. In symmetry and points they may be classed with the Short-horns; but they do not arrive so early at maturity, nor feed to the same weights. In these particulars, as previously mentioned, the Short-horns are unrivalled. The Herefords have been introduced into Aberdeenshire by Mr. James Lumsden of Auchry, near Turriff; and, from the extent to which they are bred by him, it is pretty evident they must succeed well, and prove profitable. They are better milkers than pure-bred Short-horns. It would be satisfactory to try experiments in

crossing some of the Scottish breeds with Herefords, to prove their qualifications for crossing purposes.

4. THE DEVONSHIRE BREED.

This may be classed as the third among the English breeds. Many superior lots are often shewn in Smithfield; but they want many of the fine points of both Herefords and Short-horns. Heads fine, and well set on; horns short, but not so symmetrically turned-up as the Herefords; colour invariably a bright blood-red; skin thin, and hair short; handling well. They have a flatter carcase than the Short-horns or Herefords, and do not carry beef so full on the back. With fine bone, and beef delicately grained, they are, consequently, well liked by the London butchers. Devonshires were introduced in Scotland by Lords Somerville and Lynedoch, but the breeding was not persevered in—Short-horns being found to be a more profitable and faster-feeding stock. The writer once tried an experiment with feeding Short-horns and Devons on grass, and found the former fattened quickest.

5. THE SUSSEX BREED.

Like the Hereford, the Sussex breed is said to be a variety of the Devonshire, but it is evidently a distinct race; for although similar as to colour, the animals stand higher on the legs, and the bone and hide are not so fine. They are, on the whole, a coarser and heavier breed than the Devon, and get to greater weights. The beef is not so fine in the grain as the Hereford or Devon, but is well adapted for ship use.

6. THE SUFFOLK BREED.

This is rather a peculiar breed, generally known as "Suffolk Duns." They are without horns, and in colour mostly light dun or light red; less in size than the Galloway, and, in appearance, very distinct from all other Polled breeds. They have a thin hide, with fine silky hair; bone small, and clean below the knee; neck thin; rather a narrow flat carcass, and thin lyred. The breed is noted for its docility and milking qualities; in the latter respect being scarcely inferior to the Ayrshires, and therefore much valued as dairy stock. To some extent they are used for suckling fat calves for the London market. Although probably at one time peculiar to Suffolk, it is now the principal breed in Essex, where the cows are used entirely for dairy purposes. In this respect it is a useful breed, and ought to be kept pure.

7. THE WELSH BREEDS.

The cattle bred in the south of Wales are generally of a very coarse description, mostly black, and resembling, in some respects, the largest North-Highland. They have long, coarse, flat horns; a heavy, dull-looking head; plain, thick hide, with smooth, coarse hair; narrow back and hooks; flat ribs, and a rough bone; very thin in the hips, and hind legs wide apart. Altogether, they are very coarse. They are shewn fat in Smithfield, never of fine quality, and large lots are sent lean to Epping Forest and Barnet fair for sale. Graziers and feeders only buy them at low prices, as the Scottish cattle are

preferred; and the sale is, consequently, slow. The Welsh breed would certainly be much improved by crossing with the West-Highland.

The North Wales cattle are much superior to the South, particularly those bred in Anglesea. They are shorter in the legs, more compact and better formed, and have broader and finer heads and horns, and finer hides and hair. Their appearance indicates a dash of West-Highland blood, although they want many of the fine points and symmetry of this breed, while their beef is not so fine in quality. If proof be wanting, the writer has seen "Dunrobins" bought for Sir Watkin Williams Wynn, who purchases a lot of West-Highlanders every year to feed for his own use. Were the Welsh breeds as fine in quality, cattle would, of course, not be brought from Scotland to supply a resident gentleman's table.

GENERAL OBSERVATIONS ON THE ENGLISH AND WELSH BREEDS.

The different distinct breeds in England and Wales, so far as they can be distinguished, have now been enumerated. There are many others to be found, particularly in the midland and dairy counties; but they are all so crossed with Short-horns, Long-horns, Herefords, Devons, and others, as to render it impossible to give a separate account of them. Many mixed breeds are good milkers, and suit the dairy districts. In Yorkshire, for instance, those bred in the East Riding, in Holderness, and along the northern side of the Humber, are a

species of Short-horns, but not so fine as those of the adjoining county of Durham and farther north. As you proceed west, they get coarser, and present a greater diversity of colours, such as dark and dingy reds, duns, with every appearance of a mixture of breeds; but the cows, notwithstanding, are said to be good milkers. The same remarks apply to the counties of Nottingham and Lincoln, where there is also a great mixture of breeds, but where dairy produce is the principal object of farmers. In many of the cheese-making midland counties, the breeding of cattle with fine feeding points is generally neglected, as feeding and milking qualities are seldom combined in the same animal. This is clearly shewn in the Short-horns, for the more they possess the aptitude to fatten, in the inverse ratio is the production of milk—some of the highest-bred cows being very bad milkers, and scarcely able to support their own calves. The West-Highlanders of the best description are also bad milkers; indeed, it is rare to find a superior Short-horn or West-Highland cow even a tolerable milker. England is justly famed for some pure and distinct races of cattle; yet it is to be regretted that so many mongrel animals exist, which a visit to Smithfield Market any Monday morning will render evident. Probably out of 4000 cattle, there will be fully 1000 of the most inferior description—the coarsest brutes imaginable. It may with confidence be asserted, that there are at least 50,000 of these inferior cattle exposed annually in Smithfield market. Reckoning that better bred animals would realise £1 more to the breeder (a very low estimate indeed), a clear yearly loss of £50,000 thus arises from sheer neglect in *one* market alone. What must, there-

fore, be the loss to the whole kingdom from this palpable neglect, which could be easily remedied by a little more care, and at a trifling additional expense! Who are the parties blameable for such neglect? The landlords; for were they to adopt proper regulations on their estates, they could enforce a better system of breeding by their tenantry; and while they neglect this, they neglect not only their own interests, but the interests of their tenants. Were they generally to adopt measures for this laudable object, it would confer a boon on the tenantry of Great Britain. The Highland and Agricultural Society of Scotland, the Royal Agricultural Societies of England and Ireland, and the various local societies throughout the kingdom, may offer premiums, and give every possible encouragement for the improvement of breeds; but they cannot enforce regulations for this object. Many of these societies, even, are neglected by landlords, whose duty it should be to foster and encourage them by all the means in their power.

CHAPTER III.

THE BREEDS OF CATTLE PECULIAR TO IRELAND.

IRELAND seems originally to have possessed three different breeds of cattle :—

1. A very large breed, occupying the southern, midland, and western counties.
2. A smaller, occupying the northern district.
3. A very diminutive breed, peculiar to the Kerry mountains.

A minute description of these races will not be attempted; but it seems certain that the first two were large and coarse breeds. Ireland has been long resorted to for beef for victualling the British Navy, which may perhaps account for no systematic attempt being made to improve the native breeds; weight and substance, for which they are noted, being the principal objects of the Irish contractors. It is asserted by some that the original large breed was a cross between the Welsh and Longhorns, which seems not improbable. In the horns and colour the animals resemble the coarsest Lancashire cattle; and, in many of their coarser points, the Welsh. About fifty years ago, the breeders of this country,

through the encouragement of the Irish Agricultural Society, imported Long-horned bulls and heifers into most of the midland and western counties; they also imported Short-horned, North Devon, Hereford, and Sussex breeds into other districts; so that the cattle now bred in Ireland are, generally speaking, a mixture of many breeds; but as they all tend to improve the old breeds, no great harm results from the practice. The various breeds of Irish cattle have of late years very much improved, which may be traced to the abundance of rich pasturage, the quantity of turnips and other green crops grown, and the importations of Short-horned bulls. The Crosses with this famed breed have turned out well. The writer once noticed some heifers of this cross in Dublin Smithfield Market, some of which weighed from eighty to ninety stones, and sold for £26 each. They were got by a bull bred by the late Mr. Thomson of Laws. These heifers were very fat, and full of beef on the rump and loins. The cattle in the north of Ireland, which were formerly sent to Scotland and the north of England to feed, were coarse, plain, thick-skinned animals, and not at all liked by feeders; but being generally offered at low prices, always found buyers. The exportations of cattle from that country at the present day are, however, very different; many thousands, both fat and lean, now come over to Scotland and England, bearing the real stamp, in outward appearance at least, of the Short-horned blood; but when slaughtered, still retaining that coarseness of grain common in the old breeds, and wanting the fine mixed and marbled qualities so peculiar to many of our fine Scottish breeds. From a close examination of the lots of Crosses, it is to be feared that

breeders in Ireland are still using cross-bred bulls, which is perhaps traceable to the circumstance of very few pure-bred Short-horns being bred in that country. If bulls are required, they must, consequently, be imported from England or Scotland. From the system of crossing being almost universal, a great number of young bulls are necessarily required; but the expense and trouble in procuring them being considerable, cross-bred bulls, descended from cows a few years crossed, are used. This system, as is well known to all practical breeders, is bad, and the progeny comparatively worthless. The practice is not confined to Ireland, but is also carried on in many parts of Scotland, and cannot be too strongly deprecated. To its prevalence is to be attributed the non-improvement of the quality of the beef of the Crosses.

The cattle in the southern, midland, and western parts of Ireland, are different, for many of them are descended from Long-horned, Short-horned, Hereford, Devon, and Sussex bulls, which were imported into Ireland upwards of forty years ago. Among the first importers and improvers in Ireland, were the Earl of Farnham, Earl of Meath, Lady Harriet Daly, Mr. Finches, Mr. Critchley, Mr. Synge, and Sir John Parnell. The latter imported a superior bull of the Long-horned or Lancashire breed, got by Mr. Paget's bull, "Shakspeare," which was sold for 400 guineas. This bull, grandson of Fowler's "Shakspeare," was bred by Mr. Fowler in Oxfordshire, and purchased by Mr. Critchley, who also imported cows from England, bred by Mr. Stubber, from Mr. Fowler's stock. This gentleman purchased cows, bred by Mr. Munday, from Bakewell's celebrated Long-horns. If, therefore, there is much

merit in the Long-horns, Irish breeders have long ago secured the best breeds of them. The quantity of beef cured in Cork, &c., is now much diminished; and as the number of cattle fed in Ireland is daily increasing, the surplus is sent fat to Liverpool, Manchester, Glasgow, Edinburgh, and other markets. Some of these animals are of good quality, but the greater part retain the coarseness of the old breed, and will never be altogether free of that alloy, if breeders go on crossing with bulls not pure bred. This fault does not altogether rest with the Irish breeder; for what are considered pure-bred bulls are continually brought from England, having all the appearance of genuine Short-horns, and accompanied with seemingly well-authenticated pedigrees. Pedigrees are, however, easily manufactured, and it is too common a practice among bull-breeders to resort to this deception. It requires the utmost caution and judgment to select pure-bred bulls. The best guarantee against fraud is to deal only with breeders who have acquired a reputation, and whose characters are beyond suspicion.

CHAPTER IV.

ON CROSSING THE VARIOUS BREEDS OF CATTLE IN GREAT BRITAIN.

HAVING already made some remarks on the success of crossing with Short-horns in Caithness and Orkney, the different counties farther south will now demand our attention. In Sutherland, little has been done except by one breeder, Mr. Innes of Thrumpster, on his extensive arable farm of Craikaig, near Helmsdale, who procured a lot of West-Highland cows and heifers from Dunrobin, and crossed them with Short-horned bulls. He has bred some of the most splendid Crosses ever seen in Scotland, both cows and bulls being first-class stock. He obtained the first premium for the best bull at the Highland and Agricultural Society's Show at Inverness.

In Easter-Ross, Cromarty, and the eastern parts of Inverness-shire, there has been a good deal of crossing within the last twenty years, but previously to that time it was quite unknown in these districts. The Muir of Ord, near Beauly, was the great market for the sale of cattle bred in these localities, the whole of which were, before the introduction of crossing, mostly black, and almost all North-Highlanders, except a few of the West-

Highland breed. At the present day these markets present a different appearance, the cattle now exposed being chiefly Short-horned Crosses. The Caithness Crosses purchased in that county by dealers are sometimes shewn here. The same remarks apply to the counties of Nairn, Moray, and Banff, and all along the south side of the Moray Firth, where, previously to 1830, very few cattle were fed except for home consumption, and these principally at distilleries. The writer was in that district in 1830 (prior to the introduction of steam), but saw neither fat cattle nor sheep except two, belonging to a Mr. Mellish of Spynie, for which a most extravagant price was asked. Matters are now changed. Almost all the farmers in that district breed and feed large numbers of Crosses, many thousands of which are fattened yearly, and sent to the southern markets by steam. The Morayshire farmers, in fact, have now become very extensive feeders, making journeys to Caithness and Muir of Ord to buy Crosses. Some splendid cross cattle have been produced at Gordon Castle, bred by his Grace the Duke of Richmond, and also by some of his Grace's tenantry. This patriotic nobleman does not, like many other landlords, neglect the interests of his tenants in the extensive districts in which Providence has placed him. Few proprietors have done so much. When at Gordon Castle he attends all the agricultural meetings and shows. His factor or land-agent, Mr. Thomas Balmer, is not less alive to the interests of his tenants, and acts up to the wishes of his noble master. In Banffshire a great number of cattle are fed and shipped from Banff to the south.

Aberdeenshire is now considered the greatest breeding

and feeding cattle county in the kingdom, exporting more fat cattle than even Yorkshire. Few sheep, however, are either bred or fed within its limits. The wide field opened to breeders and feeders in the North by the introduction of steam, has, more than once, been dwelt upon. It has been a great boon, not only to Scotland, but also to the inhabitants of London, and other large cities in the South, the effects of which have been to provide a market for the increased quantity of stock now bred and fed in Scotland which could never have been consumed, had not this great mart been opened up. It has also had the effect of reducing the price of butcher meat considerably. Meat is now often sold cheaper in London than in Edinburgh: it *must* be sent to London, be the price what it may, as the great quantity fattened in Scotland could neither be sold nor consumed there. Another advantage to feeders is the very trifling deterioration in weight cattle undergo in their transit by steam to the markets of the South. Under the old system of driving, the animals sometimes became mere skeletons when they reached their destination. Shortly after steam navigation gave a stimulus to the Aberdeenshire breeders, they found out that Crosses fattened a year sooner than pure oxen of the native breed, sold as readily in London, and realised nearly as high a price. The original breeding of Crosses, therefore, soon became pretty general in Aberdeenshire. The change is certainly somewhat striking; for in 1828 but few Crosses or Short-horns were seen, and even in 1829 and 1830, the cattle sent to London was either of the large Polled or Horned breeds. The shipments at the present day consist almost exclusively of Crosses, and of these, immense numbers are sent south weekly—

the "City of London" steamer often carrying 200 head, not twenty of which are of the old breeds. Crosses are generally fit for the butcher at three years old, or sooner, when they weigh from fifty to seventy stones imperial, and some near eighty. At four years old their weight is enormous. A most extraordinary ox (a cross between a Short-horned bull, and Long-horned native cow) was shewn by Lord Kintore at the Highland and Agricultural Society's Show at Aberdeen in 1834, and obtained the first premium for symmetry, fatness, and weight. The animal had been sent to London, and exhibited at the Christmas Show of the Smithfield Cattle Club in 1833, after which it was brought back to Aberdeen. When killed, it was seven years old, and weighed upwards of 170 imperial stones. Mr. Rodgers, butcher, Aberdeen, purchased him for £100. Mr. Boswell of Kingcausie exhibited a superior three-and-a-half-year-old at the same show, which was also considered a fine animal. It was slaughtered by Mr. Sparks, and weighed about ninety stones. Mr. Hay of Shethin, and many other Aberdeenshire breeders have, at various times, produced splendid Crosses, and of great size. These results, certainly, were to be looked for, as the Aberdeenshire cows are "roomy," and otherwise well adapted for crossing. Captain Barclay Allardice of Ury, Mr. Stronach of Ardmeallie, and others, have crossed the West-Highland cows with the Short-horned bull, and animals of an extraordinary size have been thus produced.

In Angus-shire, for the last twenty years, the native breed has been likewise crossed with the Short-horned; the first who began the system in this county being Mr. Stephens, late of Bemadaus, who produced three-year-

old Crosses weighing above eighty stones. Mr. Miller of Belumie, and Mr. Hood of Hatton of Eassie, followed the example, and with success—many fine animals having been shewn by the latter at the Glammis markets. Angus, like Aberdeenshire, now produces large numbers of Crosses, which are fed in the county, and shipped for the South. Many of the Berwickshire farmers carry on this system of crossing. Mr. Wilson, Edington Mains, Mr. Wilson, Cockburn, and the late Mr. Blackadder, for instance, who purchased Polled Angus heifers at Trinity Muir Market, and crossed them with Short-horned bulls—the produce of which were fattened at two years old, and, in some instances, weighed upwards of fifty imperial stones. Mr. Wilson has sold two-year-old Crosses of this kind at £16. The heifers cost little for keeping the first winter, and fed very fast after the calves were weaned. Instances are not uncommon of these young cows selling, fat, at £12 each, which the previous year cost but £6. Angus Crosses, although fine in quality, are not so full of substance as those with the Aberdeenshire cows, and consequently do not weigh so well. A lot of Angus cross heifers, bred near Montrose, were purchased by the writer in 1829, in the Edinburgh market, from Mr. Henry, salesman. Although they were very fine in quality, and small boned, and had very little coarse beef, they fell short of the estimated weight. They were the produce, no doubt, of small-boned Angus cows, which in general want substance. Quality is principally looked to by the cutting butcher; but still he must have weight, as it is by this only that he can be properly remunerated. Cattle that weigh well, but of inferior quality, do not suit butchers who have particular customers, neither does fine

quality without weight. Well formed and well fed animals generally combine both requisites. Butchers who have good customers, study the quality of the beef they purchase, and must charge accordingly. With those who have a secondary trade, quality is not so much an object, if the price be moderate. Animals which combine both qualities, always find a ready sale. Breeders in general do not think it necessary to study these points; but they are wrong, particularly those who feed their own stock, as they should always look to those markets where their cattle is likely to be sold when fat, and what description best suits those markets. London may now be said to be the principal market for Scottish-fed stock, and where the best joints for roasting and steaks, as rumps, loins, fore and middle ribs, &c., command generally $1\frac{1}{2}$ d. to 2d. per pound more than boiling beef—unlike Scotland, where a great proportion of all kinds of meat is consumed for soups and broths. To accommodate the London market, therefore, breeders, in selecting their breeding stock, should make choice of animals with fine points, full back and rump, and full of substance, particularly the bulls, as the produce almost invariably takes after the male parent. The safest course to pursue, however, is to have both parents good; but too fine bone in the cows should be guarded against, for such animals have often narrow chests and backs, flat ribs, and want lyre. A bull having these points in perfection may make up for the deficiency in the cow; yet the produce often deceives the butcher in weighing. Some of the Angus cows are of this description, although a great many are possessed of good points and fair symmetry, and pretty full of substance.

The native breeds of Fifeshire have been successfully crossed with Short-horns for the last twenty-years—few cattle being better adapted for it than the cows of this county; both the old and new breeds being large in size, and with roomy carcasses. Crosses with the old breed are, however, to be preferred, being finer in quality. The new breeds have been much improved by crossing with the Short-horns, many of the rougher points being got rid of; and, being generally full of substance, never deceive the butcher—often exceeding their estimated weights;—so that by a continuation of the use of Short-horned bulls, they are likely to become one of the best cross breeds in Scotland. A judicious selection of animals is of course necessary, as a random choice seems to have been too much the practice of Fife breeders of late years. Cross-bred bulls must of course be avoided. Fifeshire Crosses, when heavy, are well adapted for shipping purposes.

On the south side of the Firth of Forth, some fine Crosses have been produced from the Zetland cows, and Short-horned bulls. One particular animal of this cross was an ox bred by Mr. Baillie of Mellerstane, out of a very small Zetland cow. It was purchased by the writer, when three years old, at Earlston Fair for £25, and, after being fed for twelve months on turnips and grass only, was sold to Mr. Thomas Taylor, flesher, Edinburgh, for £40. This extraordinary little ox was a complete model as to symmetry, with short legs and fine points—weighing upwards of eighty imperial stones, and was considered the best of his size ever killed in Edinburgh. Mrs. Boswell of Blackadder had a small Zetland cow which produced an ox of seventy stones, and a heifer nearly

sixty stones. Two heifers of this Cross, of first rate quality, were shewn by Mr. Dudgeon of Spylaw, at the Highland and Agricultural Society's Show at Kelso in 1832. Mr. Dudgeon has carried on this system of crossing to a considerable extent, and has bred and fed many fine animals. Messrs. Dudgeon Almond-hill and Humbie, also tried this system of crossing, and produced cattle of superior quality. When the former gentleman possessed the farm of Greenland, in Caithness, he kept generally from forty to fifty Zetland cows, which were crossed with Short-horns, the produce being of fine quality when fed. In point of *quality*, this Cross cannot be excelled by any other breed, pure or crossed, except by the pure Zetlanders. These crosses have many good points; the beef distinguished for its fine grain, rich juices, and beautifully marbled appearance. When well fed they soon reach maturity, being quite ripe at two years old, and command the top price per stone in all markets. The contrast in size of the sire and dam of this Cross is certainly great, but experience has proved it a most judicious one, and easily fed.

Experiments have been made in the Border counties, in crossing with Short-horned bulls, and West-Highland cows, the results of which have always proved favourable. The writer once tried a cross of this kind with twenty West-Highland heifers, purchased at Dumbarton Fair in June, at £4:12s. each. These were put to a cream-coloured yearling Short-horned bull, got by "Young Diamond" out of a roan cow, "Dandy," bred by Mr. Compton of Carham. Being served late in the season, the cows did not calve till the end of June and beginning of July. The heifers were nearly all black,

a few being red. A bet was laid before they calved, that there would neither be a white calf, nor a black or red one among them, which turned out to be the case, as the calves out of the black cows were blue roans, and those out of the red cows, red roans. The heifers, when in calf, were never housed, and were wintered on a high farm—meadow hay being supplied to them in hard weather. The calves suckled their mothers on the farm of Blackrigg, on the Lammermuir hills, till four months old, when they were weaned, and put on turnips, and at ten months disposed of to Mr. Skirving, Garlton, at seven guineas each. At that time Mr. Skirving had two superior two-year-old West-Highland dun oxen, which he bred himself, out of two very superior dun cows, bred by Mr. Peter M'Intyre, of Glenartney. For the purpose of testing their comparative feeding qualities with the West-Highland Crosses, two of the latter animals were selected, and the whole four put up to fatten. Although the pure-bred animals had fourteen months' start of the Crosses, they were fed together for two and a-half years, and shewn at the Highland Society's Show at Edinburgh in 1827. The West-Highlanders gained the first premium in their class, and one of the Crosses gained the premium for the best ox of any age, or breed, shewing the most fat, symmetry, and weight—beating many oxen of other breeds, five and six years old, although he was only three years and six months old. The two Crosses were each six stones heavier than the West-Highlanders, the weight of the prize animal being eighty-two stones. The four animals were purchased by Mr. Thomas Taylor and the writer, for £170; but the two Crosses were resold to Messrs. Duncan and Cowan of Glasgow, before leaving

the show-yard, for £100. The remainder of Mr. Skirving's lot, when three years old, were disposed of at £21 each, and afterwards resold at £22 each, the whole being of superior quality. There was one Zetland Cross which was among the best of the heifers. Several breeders in Berwickshire have also tried this system of crossing, including Mr. Brodie of Northfield, and his successor, Mr. Alexander Herriot. In some instances these breeders have sold their oxen, fat, at two years old, for £15 each. The late Mr. John Blackadder, Blanearne, and others, have also been successful with this Cross. Numerous other proofs of the superiority of this Cross might be adduced; but enough has been said to demonstrate its value.

Crossing, particularly in Scotland, seems now not only to be appreciated, but its principles generally understood, and its practice judiciously carried out. The question now is, what are the best breeds to be crossed or amalgamated, to form animals suitable to all localities, where good keep can always be commanded, and where animals can be produced which shall obtain the highest market price per stone in London and other great markets, and at the same time return to the breeder and feeder the greatest amount of profit for the food consumed. This is a problem which should, long ere this, have commanded the attention of the Highland and Agricultural Society of Scotland and the Royal Agricultural Society of England, and premiums offered for its solution. In the absence of this, therefore, an attempt will be made to shew how this can be done. The first step will be, to select some Zetland cows, with the best symmetry, points, and handling, and a high-bred, West-Highland

bull to put to them. The produce would probably be a neat, handsome little animal, of a medium size between the two breeds. The shaggy hide, long horns, symmetry, and fine points of the West-Highlander, would be imparted to this Cross, which would not only be a good feeder, and very hardy, but the beef of superior quality. The great point would of course be the proper selection of breeding animals. The next step towards improving this would be the crossing of these Crosses with a pure Hereford bull, which would improve the size, and impart still finer points, more substance, with greater aptitude to fatten. By combining these three favourite breeds, the produce would in all probability be very superior, not only attaining to good weights, but feeding well, and arriving at maturity at an early age. The breeder must not be satisfied, and here rest, but go a point farther, and cross the heifers of the third Cross with a Short-horned bull. The result will doubtless be an animal complete in every requisite quality that is required in cattle, and alike suitable and profitable to the breeder, feeder, butcher, and consumer. These ideas may not be altogether correct; but it is often by contrasting differences of opinions that useful results are arrived at. By laying the foundation of this proposed cross with the Zetland cattle, the beef of which, from its fine quality, as before mentioned, is preferred to that of all others, and by crossing with the pure-bred West-Highlanders, Herefords, and Short-horns—in which hardihood, size, aptitude to fatten, and early maturity, are combined—perfection would be attained. It is hoped that an opportunity may be afforded for testing the merits of such a new breed, by some spirited breeder solving the question by actual experi-

ment. As to the method in which this new Cross is to be maintained, the answer is, Go on with pure Short-horns, till Zetlanders become Short-horns; and although they would in time lose all trace of the original stock in outward appearance, their fine-grained beef will never be lost, neither will the shaggy coats of the West-Highlanders. Should the inestimable qualities of the Zetlanders and West-Highlanders require to be maintained, skilful breeders could easily revert occasionally to the original system of breeding pure animals. Everything requires a beginning. Many an old-fashioned breeder has been not only sceptical as to the result, but reluctant to change the old races; but, by seeing his neighbours successful in crossing, has been induced to follow the example. The last twenty years have done much in shewing the grand results of crossing, and a few years longer may probably place the Zetland breed of cattle in a very high position.

CHAPTER V.

ON THE FEEDING OF CATTLE.

CATTLE cannot be properly fattened for the market without proper materials. In the first place, it would be folly to attempt any system of feeding with cattle of an inferior breed; for all the care and management possible would not make them fat at an early age. Animals intended for feeding should be of a good breed, fine bone, good points, handling well, and possessing aptitude to fatten early. Short-horns or fine Crosses can be made sufficiently fat for any market at two years old, without any extra food or pampering.

For the first two or three weeks, the calves should have daily about a gallon and a-half of new milk from the cow; for the next three or four weeks, the quantity should be increased to two gallons; and from that period until three months old, two and a-half gallons should be the daily allowance. At two months they will learn to eat a few sliced Swedish turnips, or a little fine clover hay. They should be kept clean and dry, and not too close; and if early calved, should be placed in a loose house. As the season advances, a little yard and shed, well sheltered, with a southern exposure, should be provided. About the beginning or middle of

May, according to the state of the weather they should be turned into a park, with plenty of grass, and a temporary shed to protect them from cold or wet. They should be weaned at twelve weeks old, and the oldest calves separated, but not mixed with cows or other cattle. If kept in a calf park, cut clover must be given them in racks, as soon as ready. They cannot be too soon put on clover foggage, or clover stubble. When turnips are ready, the animals should be brought to eat them on the fields, and afterwards put into yards on a full allowance, say in October. The white globe variety is the best to commence with. The tops and tails should be taken off, and the bulbs cut, and given to the animals in boxes. They will do well on white turnips till January, when yellows should be substituted, finishing the winter with Swedish, all cut throughout. A little hay or oil-cake would be beneficial; but they will be in fit condition to turn to grass if fed and attended to as pointed out. In order to make cattle sufficiently fat and rich at two years old, they should either be fed on new grass, well planted with red and white clover, particularly the former, or placed on old rich pastures. New pasture is to be preferred for year-olds, which may be put to grass about the first of May, or sooner, if the season is early. A quantity of white early globe, or tankard turnips, should be sown about the end of May, which will be ready for eating about the middle of September, or sooner: when ready, a few to be given in the pastures, and if they get clover foggage so much the better. Early in October the animals should be put into the yard on white turnips for a month, and afterwards yellows till January; when Swedes, and plenty of fine

oat-straw should be supplied. The turnips must always be cut. With this treatment continued to April, Short-horns will be sufficiently fat.

As to the different modes of feeding in yards, box-feeding, and tyeing up, there is much diversity of opinion. Tyeing up, or house feeding, is not good, particularly for young cattle. Box-feeding, no doubt, must be a better practice; but Short-horns, and other quiet-tempered cattle, feed as well in yards as anywhere, due care being taken that too many are not put together. Small yards, with two animals in each, always do well. A serious objection to box-feeding is, that one beast never lies so contented and quiet as when supplied with a companion. These little sheds ought to be deep and not high in the roof, but well ventilated. A small yard should be attached, with troughs for the turnips, which must be given three or four times a-day, fresh cut from the pits. Frosted turnips should never be given. Troughs or feeding-boxes must also be provided inside, in case of very hard stormy weather. Fine oat straw will be required at least twice a-day. Fattening animals should be well bedded with clean dry straw. If hay can be spared for eating in place of straw, so much the better. Plain and careful feeding, with such high-bred animals as Short-horns, or right Crosses, is the best paying system; but if beans or other grain are low in price, it will pay to use such food with oil-cake, which produces both finer quality, extra weight, and more tallow. This must, however, be left to the discretion of feeders. This system of feeding Short-horns, and Crosses, is given to shew that, by proper breeding, attention to suckling the calves, and regular feeding throughout, this object can be attained,

with the right kind of cattle, on plain and substantial food. They may be fattened quicker by giving them, when calves, oil-cake or grain, when they will be fit for the butcher at twenty or twenty-one months old; or even at eighteen months, if oil-cake is supplied immediately after being weaned, and continued with grain till eighteen months. Boiled beans, or even bean-meal, which is cheaper than oil-cake, may be substituted, with equally successful results. With high feeding, Short-horns can be easily made fifty stones imperial and upwards at eighteen months old.

Breeders who feed their own stock will thus see the advantages of good breeding, and also the profits; for if cattle of the improved breeds can be fattened at two years old, and weigh as heavily as the old coarse breeds at three and four years old, it is surely their object to cultivate only those kinds which give the quickest return, and yield the greatest profit. Although the feeding of cattle at two years old is not yet so general as it ought to be, it is gradually increasing, and in time will become general. Several new systems now pursued in feeding cattle might here be pointed out; but as the art of feeding is so well understood, any further remarks on this point will be superfluous.

CHAPTER VI.

PROPOSAL FOR ESTABLISHING A SHORT-HORNED BULL-BREEDING FARM.

IT may, in the first place, be as well to consider what kind of farm would be most suitable for a bull-breeding establishment. It should neither be too small nor too large—about 200 acres of deep black loamy land would suffice, at, say, £2 per imperial acre, which, according to present times and future prospects, would be a fair rent for good land of this description. The number of cows to be kept for breeding will be the next consideration; but, before entering into particulars, it will be necessary to detail the mode of management requisite to support these animals and their progeny, till sold. Forty acres out of the 200 should be laid down to permanent pasture—the land being first thoroughly cleaned, well manured, and sown down with proper seeds;—the other 160 acres to be managed under a five-shift course of husbandry. Under this system, there would be, in

	Acres.
New grass	32
Two-year-old grass	32
Oats	32
Barley and wheat	32
Turnips, potatoes, and tares	32
Permanent pasture	40
	<hr/>
Acres.....	200

The number of Short-horned cows such a farm would support under a certain mode of management, and selling the calves at certain ages, have next to be considered. In order to make the trade regular and uniform, a certain number must be disposed of annually. If the farm is supposed to be capable of keeping 36 breeding cows, the stock required will be—

12 two-year-olds in milk.
12 three-year-olds, do.
12 four-year-olds, do.

The following calculation will shew what amount of capital is required to stock such a farm, supposing the entry to be at Whitsunday, with sufficient grass on the farm to keep the stock required. As no sale can take place the first year, the whole must be purchased to commence the system, and prepare for the sale in the following year. The stock to be purchased will thus be—

12 two-year-old heifers, in milk.....	at £40 each	£480	0	0
12 three-year-old do.	at 40 ,,	480	0	0
12 one-year-old do.	at 25 ,,	300	0	0
12 heifer calves	at 15 ,,	180	0	0
1 yearling bull	at 50 ,,	50	0	0
5 horses	at 30 ,,	150	0	0
Implements, &c. of all sorts, say		80	0	0
Guano		40	0	0
Meal for servants, &c.		20	0	0
Other outlays, including servants' wages, seed corn, &c. &c.		220	0	0
Capital required.....		£2000	0	0

The above may be said to be too high an estimate; but, in laying the foundation of a stock of this kind,

nothing but the highest-bred Short-horns must be selected, which can only be procured at high rates. The £220 for incidental expenses will all be required, as there will be no crop on the farm the first year. The 40 acres of permanent pasture should graze the cows, and the 32 acres of two-year-old grass should suffice for the heifers and horses—the 32 acres of new grass to be cut for hay, except what may be used for soiling the horses, cows, and young calves, at night. The bull calves must be sold in August, say at from four to six months old; and as 15 acres of turnips should be sufficient for the cows, one-year-old heifers, &c., it will leave 17 acres more for other green crops, say

4	acres	in	tares.
8	„		potatoes.
5	„		turnips, to be eaten off by sheep.

The cows should be drafted yearly, and sold in August, along with the bull calves, by public roup, and the cows stunted with high-bred bulls. The cast cows, being then only four years old, would be purchased by the breeders; and, after making a fair allowance for deaths or other casualties, there will be for sale—

15 bull-calves, at £20 each	£300	0	0
12 cast cows in calf, four years old, at £50 each	600	0	0
	<hr/>		
	£660	0	0

Losses, from death by disease or accident, must be guarded against by insurance.

The next calculation will be as regards the crops and other products of the farm. The grain crops should stand nearly thus:—

	Quarters.
32 acres oats, say 6 quarters per acre.....	192
For seed.....	22 quarters.
,, horses, say	40 ,,
,, servants' meal, &c., say	50 ,,
	<hr/> 112
Leaving 80 quarters oats for sale.	80
Two acres wheat for farmer's use.	
Barley, 30 acres, say 6 quarters per acre	180
For seed.....	15 quarters.
,, meal	25 ,,
	<hr/> 40
Leaving 140 quarters barley for sale.	140

The other items to be sold, besides the stock, should be as under:—

140 quarters barley, at 20s.....	£140	0	0
80 ,, oats, at 18s.....	72	0	0
Milk of 20 cows, from August till, say, 1st December	40	0	0
Four cows' milk for the use of farm.			
Spare potatoes, say 20 tons	50	0	0
5 acres turnips, to be eaten by sheep	25	0	0
Proceeds of cows and calves.....	660	0	0
	<hr/>	£987	0 0

RENT, EXPENDITURE, &c.

Rent	£400	0	0
Rates and taxes.....	10	0	0
Interest on £2000.....	100	0	0
Insurance of stock.....	25	0	0
Servants' wages, &c.....	80	0	0
Seeds	20	0	0
Tear and wear of implements	15	0	0
Wear of horses	15	0	0
	<hr/>		
Carry forward.....	£665	0	0
		£987	0 0

Brought forward.....	£665	0	0	£987	0	0
Cutting crop	25	0	0			
Cutting hay	5	0	0			
Daily workers.....	20	0	0			
Tradesmen's accounts	20	0	0			
Incidental expenses	32	0	0			
				<u>£767</u>	<u>0</u>	<u>0</u>
						£220 0 0

The above shews a profit of £220, which would be rather limited for a farmer so employed; but it will be seen that £100 are set down for interest of capital, with an ample supply of meal, potatoes, and milk, and two acres of wheat and garden stuff. He might also keep a few Ayrshire cows, pigs, poultry, pigeons, sheep, lambs, and a small ox for beef, &c., so that the house would be kept in a great measure from the farm. As, on such a farm, young men are to be preferred as servants, the whole of whom should be lodged and victualled by the farmer, the wages are, therefore, set down as under:—

Grieve, say	£15	0	0
Two ploughmen, say	21	0	0
Cattle-keeper, say	10	0	0
A woman or boy assisting	6	0	0
One servant girl for house-work	7	0	0
Three for dairy and other work.....	21	0	0
	<u>£80</u>	<u>0</u>	<u>0</u>

This is ample enough, even if a few extra cows are kept, as well as those for breeding. An overflowing supply of milk should always be secured, which would cost nothing additional, in summer at least, when there should be plenty of spare grass.

As every calf is allowed the milk of its own mother,

they will be bad milkers if they do not do ample justice to the calves. The heifer-calves may be weaned at three months old, and the bull-calves should get their extra quantity of milk till sold, or, say, from 1st of June till August. This would be increasing their supply of milk in place of reducing it, as is too common a practice with breeders. The bull-calves, when exposed for sale in August, will be in first-rate condition, from receiving this extra supply of milk, more especially if they have been soiled with a little clover or tares. This may be thought too high feeding, but it is an erroneous notion; for if calves have been fed on sweet milk, or other nutritious food, in place of slops, they will be strengthened in their constitution, easier kept, and be less liable to disease. Look at calves which have suckled their mothers, how strong and robust they are, seldom being attacked with the diseases generally so common to young stock! Little doubt can be entertained of many of these maladies being attributable to feeding with slops.

There is another absurd practice among breeders, of giving turnip-tops to calves, which is considered a saving; but anything more injurious cannot be imagined, as they are of a laxative nature. Calves should never taste turnip-tops. Give them what is natural, viz., sweet milk; and as they advance, provide them some additional nourishing food, of rather a solid nature, but not too strong. When properly nursed and well kept, calves get strong before winter—the severity of which they are thus enabled to withstand, more especially if descended from stocks with plenty of hair. Ill-fed calves, on the contrary, suffer severely in winter, and often fall victims to the parsimony of their owners. An idea is entertained

by some breeders, that if all their cows produce calves, they are sure to be well paid; but one good calf is better than three bad ones. Animals which would have made good oxen, heifers, or cows, are ruined when calves: they may recover, but not when young; so that their early maturity can never be attained. Every day's neglect in properly feeding calves retards their maturity; while every day's good feeding will tell in the animal's favour. On such a bull-breeding farm as now described, nothing but the best of food must be supplied to the calves, otherwise they will cut a poor figure when exposed for sale. It would be good policy for breeders to have an extra set of cows for four months at least to suckle the bull calves as they should be.

If the preceding calculations be correct, a bull-breeding trade will be a safe speculation to those who understand its principles; but it must not be undertaken by men who are not thorough judges of Short-horns, and practically acquainted with their management. Such a farm should produce manure for itself; and by leaving every fourth or fifth drill of turnips to be eaten off by sheep, it will tend to consolidate the land and prepare it for a barley crop. Tares and potatoes could be raised with less manure than what is required for turnips. The capital required for such a farm is considerable, being £10 per acre; still, this shews a return of five per cent. on the capital, and a fair remunerating profit. Extravagant profits from farming must not now be looked for; and to a farmer who admires and values good stock, this will be a most agreeable occupation.

ON HORSES.

CHAPTER VII.

THE BREEDS PECULIAR TO THE UNITED KINGDOM.

IN the breeding and rearing of cattle and sheep, the principal objects to be considered are those qualifications by which they are rendered most serviceable to man in the matters of food and clothing. The uses of the horse are different—its value being gauged by strength, speed, and docility—qualities that alone adapt it to the wants of man, as a beast of burthen and draught. Nature has formed distinct breeds of these animals, viz., the Racer and Hunter for men of sport; the Flanders horse for heavy drays and waggons; the Clydesdale horse for the plough and cart; the Cleveland Bay for gentlemen's carriages; the Zetland pony for ladies and school boys; and some intermediate breeds for Hacks, Gig Horses, and other purposes. The different pure races of horses are not so numerous, either in Scotland or England, as those of cattle and sheep, although cross-bred horses (which may be called mongrels) are more numerous than those of any other animal in existence. An attempt to give a proper description of all the horse tribe is not deemed

necessary ; therefore, the most important points only will be adverted to, when treating of the principal varieties, which may be thus classified :—

1. THE ENGLISH RACER AND HUNTER.
2. THE CLEVELAND BAY.
3. THE SUFFOLK PUNCH.
4. THE LANCASHIRE CART HORSE.
5. THE CLYDESDALE.
6. THE HIGHLAND PONY.
7. THE WELSH PONY.
8. THE ZETLAND PONY.

1. THE ENGLISH RACER AND HUNTER.

The English Race Horse has been so thoroughly described by many able writers, and its qualifications for the turf so well known to the sporting world, that any particular remarks regarding it would be superfluous. They claim a pre-eminence over all other races of animals in the world as to purity of blood, which will be found fully proven in the *Stud Book* and *Racing Calendar*. As, however, the purity of their blood and other high qualifications render them well adapted for improving and crossing other breeds, and most favourable results are so obtained, even in the breeding of animals used for hunting and other field sports, some remarks may therefore be made. In breeding cross-bred horses, a judicious selection of the sire and dam is indispensable, both of which should, if possible, be pure of their kind. When Hunters are bred out of mares not pure bred, or even with nine-tenths of pure blood, this is called cross-

ing; consequently, those Hunters bred out of mares not exactly thorough-bred, must be looked upon as Crosses. In the breeding of Hunters, it is of primary importance that the stallion be thorough-bred, and otherwise properly chosen; for although many a thorough-bred horse may be a first-rate Racer, yet he may be too slender and want substance to beget a race of horses adapted for hunting. A stallion to be used for this purpose should possess great strength of bone; flat below the knee; good wide sound feet; the arms above the knee, thick, and full of muscle; head and neck well set on, with full eyes and pricked-up ears; nostrils wide and expanded; shoulders sloping well back; ribs round, and well turned; deep from shoulder to the heart (or girthing place); thick strong back; short couplings; long quarters, from hook to rump bone; tail well set on; round and well formed hips; good hocks, and hind legs; when walking, to bring his legs well in below him. Too long legs must be avoided; a horse from $15\frac{1}{2}$ to 16 hands high, or say 15 hands 3 inches, is a very good size for a Hunter—as it will be found that an animal of this height will do more work than a larger one; carry a greater weight, and will last longer in a hard day's run through a deep country. When such a horse has been selected to breed from, or to cross mares not thorough-bred, care should be taken to select mares with similar points, although only three parts bred; as from such parents there is every chance that the produce will be good. It is of importance, also, that both sire and dam have proved themselves to be of good temper, and free from all vice and blemish. There is a singular discrepancy connected with the breeding of horses, even

thorough-breds, as "Caleb Quotem" and "Stamford" were full brothers, but different in shape and substance. It is singular that these two horses got a different kind of stock out of the same mares; those got by "Caleb Quotem" were strong and thick, and made excellent Hunters, and those by "Stamford" were light made and first-rate Racers, while Caleb's produce had no racing qualifications. In this particular instance, therefore, the rule of "like begetting like" was not proved. Thorough-bred horses seldom make good Hunters, except for light weights.

The horses now bred in Ireland are principally got by thorough-bred English stallions, out of Irish mares, which are generally not more than three parts bred, being Crosses of different removes from the old Irish breed. A number of first-rate Hunters are now brought from Ireland—all being improved Crosses from the English thorough-bred horse. They not only carry heavy weights, but can go at a rattling pace, and are first-rate at a fence. This latter qualification, however, may be said to be acquired, as the Irish horses are all trained to leap when young. Even when foals or year-olds, Irishmen will be "learning them to jump," as they call it. The breeding of horses in Ireland has been, with other kinds of live stock, much improved within the last twenty or thirty years, which is principally owing to the proper selection of good males from English stocks. Some pretty good Hunters are also bred in Yorkshire, out of good-actioned Cleveland mares, by thorough-bred stallions.

Thorough-bred horses, when their racing career is closed, are generally brought out as covering stallions; but, although fine showy animals, are deficient in bone

and substance. These are shewn at the different provincial towns on market days, accompanied with long printed pedigrees, and trained to prance and jump about by their keepers. Farmers and others seeing such horses, and probably having useful hackney mares, fancy to themselves, that their mares and such stallions will produce good foals, or probably good Hunters. The experiment is tried; but in nine cases out of ten the produce is generally small-boned, and fit for no useful purpose.

We have only to visit any of our large horse markets, and see the proportion of useless, in comparison to useful animals, &c. The breeders, in fact, had better have shot them when foaled, as they can never pay for their keep. How often are such animals lame and full of blemishes at three, four, and five years old, not worth £5, and fit for no purpose but the kennel! The breeding of no animal requires more caution in the selection of the parents, if good Hunters or first-class Harness horses are required. The latter, when fit for gentlemen's carriages, with fine points, size, colour, action, &c., command very high prices. Such horses are valuable also as officers' chargers; bays, browns, greys or good bright chesnuts, being the most fashionable. It is an old saying, that "A good horse cannot be a bad colour;" notwithstanding which, however, the most fashionable colours always command the highest prices. When such horses are below size for Hunters or harness, or what may be called Cobs, if possessing good points and action, frequently command good prices, either as Hacks to carry heavy gentlemen, or for Gig horses.

The best show for all the breeds of horses (except thorough-breds) is at the great Howden Fairs in York-

shire. There, first-rate Hunters, Harness horses, Chargers, Hacks, Cobs, &c., will be seen of all kinds. This great fair is attended by dealers from London and other places in England, &c., and also by foreigners, and is supposed to be the greatest horse fair in Britain, or perhaps in the world. Many hundred animals are here purchased for the use of the army.

The thorough-bred English horse is said to have a dash of the Arabian blood; but some of the first Racers that ever appeared on the turf trace their descent from the Godolphin Barb.

2. THE CLEVELAND BAY.

A distinct race from all others. Their colour and general points being very uniform, shew that the breed is not a mixed one. Of a large size—16 hands and upwards; colour, bright bay with black legs; good points, symmetry, and substance; strong clean bone, and full of muscle; good action; head and neck well set on; and, on the whole, what may be called a most useful breed of horses for farm work; while the best-shaped are adapted for gentlemen's carriages. When fit for the latter purpose, they generally bring high prices—from £80 to £100 being quite common for a four or five year old. A great many of the best Cleveland nags are purchased by London dealers.

3. THE SUFFOLK PUNCH.

This breed is used exclusively for the plough and cart, in Suffolk and adjoining counties. Colour generally

chesnut, and in form something like the Clydesdale, but not so large and heavy. They are compact, thick, and "punchy" in appearance—qualifications from which they have evidently derived their name. As excellent workers and good farm horses, they enjoy a high reputation; although the animal is not so large as those used for similar purposes in England and Scotland. It is often observed that short-legged, firm, compact horses, do their work better, and last longer, than larger ones—particularly if they have a clean flat bone and plenty of muscle. It is well known that Cart horses of great height and weight generally have round bones; but round-boned horses, of any breed, are often gummy, and are apt to get greasy; besides which, it indicates softness.

4. THE LANCASHIRE CART HORSE.

This breed, in colour a mixture of black, brown, and grey, is distinguished by its great size; but wanting in the compactness and fine symmetry of the Suffolk and Clydesdale. The largest and heaviest of the nags are generally purchased for Liverpool as Dray horses, where some of them are to be seen seventeen hands high and upwards, possessing great strength. They are also to be seen in many of the farms in Lancashire, where, the land being generally strong and deep, heavy horses are necessary. In London, they are also useful as Dray and Cart horses. Some of the other counties in England breed horses of a similar description to the Lancashire; but they are evidently mixed. A great number of the Dray horses used in London are picked up at Barnet, and other fairs

in England; but the heaviest are importations from Flanders, a country which is supposed to possess the largest and most powerful horses in the world. A stranger from some northern county visiting London, and seeing the immense Dray horses, is struck with wonder and amazement, not only by their great height, but by the apparently unwieldy fatness of their bodies, and their fine sleek skins. It may, indeed, be said to be one of London's wonders, to see six such immense animals, in single file, harnessed to one dray, with their splendid trappings, and the tractable and easy way in which they do their work, the driver guiding them with his long whip, which acts as a kind of helm, and steering them through narrow streets and lanes, and round sharp corners with the greatest nicety! Their long flowing manes and tails are further objects of attraction, and would certainly be an imposing sight to a Zetland man newly imported—the contrast being so great betwixt the Flanders horse and the Zetland pony, the one being the largest, and the other the smallest, horse in the world.

5. THE CLYDESDALE.

This is the principal and most distinct breed of horses in Scotland. They are very extensively bred, not only in Clydesdale (Lanarkshire), but in the counties of Renfrew, Ayr, Dumfries, Galloway, &c. They are used almost exclusively for the plough and cart, and for general farm work, for which they are better adapted than any others. Their general characteristics are short legs, and strong, thick, and compactly-formed bodies; a fine head; well-set-on neck; wide expanded nostrils; full chest;

well-laid-back shoulders; deep from shoulder to heart; round well-formed ribs; short back; strong loins, with short couplings; long well-formed hind-quarters; round well-turned hips; tail well set on; strong hocks; strong flat bone; sound good feet; hairy legs, and full of muscle; colour black, brown, or grey. This breed is used generally for farm work all over Scotland. Many farmers in the Lothians, or Border counties, on taking new farms, attend the great fairs of Rutherglen, Glasgow, &c., to purchase their stock of horses—very large shows being held at both of these places, particularly at Rutherglen in April, which is the best market in Scotland. They are sold at four and five years old. Breeders castrate one, two, or three yearly. Very few mares are sold at these markets. Nags are worked gently by the breeders in spring, and kept in good condition. When offered for sale they are usually in first-rate order, being well kept for a few weeks previously. These nags are principally picked up by dealers before the market, and shewn for sale in large lots, sometimes forty or fifty, by one dealer. Notwithstanding the depression in the price of stock, and the extension of railways in all directions, good Clydesdale horses are always in demand at fair prices—a first-rate five-year-old nag still bringing from £40 to £50.

The breed is now spread over every district in Scotland, the Zetland Islands alone excepted. Many fine horses have been, and still are, bred in Berwickshire by the Messrs. Wilson. A few years ago a very superior brown horse was bred by Mr. Wilson of Simprim, which obtained several premiums; and a grey horse, by Mr. Wilson of Edington Mains, which also carried off premiums. The best horse of this breed ever exhibited,

was a black one, belonging to Mr. James Steedman, Bog Hall, near Edinburgh, bred by Mr. Law of Morton, which gained some of the Highland Society's premiums, and also some at local shows. This animal was about 17 hands high, with splendid symmetry and points, good action, and nearly all the other qualifications of a first-rate Clydesdale draught stallion. Very superior horses of this breed have been introduced into Caithness by Mr. George Brodie, late of Sibster, near Wick. Importations have also been made by the Messrs. Horne, Mr. Traill, Mr. Gunn, and others. A first-rate black stallion, bred by the late Mr. James Wilson, Simprim, called "Little Britain," was among those sent to Caithness. This horse left a great deal of good stock behind him. He was a perfect model, with particularly short legs.

Before leaving the subject, it may be observed, that were farmers who breed their own horses to cross the best selected brown or grey Clydesdale mares, of good action, with thorough-bred, strong-boned, well-formed stallions, combining great substance with fine action, the Cross would answer better for farm purposes than pure Clydesdales; they would move quicker in the plough, and answer the road better; and if got by the very strongest, thorough-bred horses, would be sufficiently strong for all farm work. The writer has seen some very powerful animals of this cross sold at high prices.

6. THE HIGHLAND PONY.

The next distinct variety worthy of notice, is the pony, bred in the Highlands and Islands of Scotland. At one time the northern districts possessed a small

breed, called Garrons; the type of which was a very compact, well-formed little animal, generally from 12 to 13½ hands high, with fine head and neck, sloping shoulders, short back, fine quarters, strong bone, and good action. From crossing, however, with heavier breeds, they are now almost extinct; although a few of them are yet to be seen in Orkney, Caithness, and other parts of the Highlands. They were well adapted for small farmers, being hardy and active, strong, and easily kept. The writer once saw a pair of these Garrons, twenty years old, brought out at a ploughing match by a south-country farmer, upwards of 70 years of age. There was a considerable turn out of good-sized draught horses; but these little Garrons completed their allotted task with as much ease as any horses on the field, and gained the third prize. The small farmers in the North have nearly lost this valuable little breed, and now find that the larger horses are much worse to keep up. Some very superior stocks are yet to be found in parts of Argyllshire; particularly at Bunaw, where they are bred in the extensive woods belonging to General Campbell of Lochnel, but held under lease by an English company. A number of these ponies are frequently to be seen at Falkirk, marked on the shoulder with a "B." They are generally strong and compact, and mostly brown; and sometimes well-matched pairs are to be found among them.

7. THE WELSH PONY.

The Welsh breed of ponies is something like the Garrons, but appears to have got a dash of blood. Some very superior ponies are bred in Wales.

8. THE ZETLAND PONY.

The last and least of the horse tribe in Britain is the Zetland pony, being the most diminutive little animals, in the shape of horses, in the world; but how the breed originated is a mystery, as their characteristics are so very distinct from all others. Their height, when full grown, is from thirty-three to forty-four or forty-five inches. Though diminutive in size, they are the most perfectly formed, in regard to symmetry, exquisite points, and splendid action, combined with strength, of any breed in existence. Could it be possible to breed draught horses with the points and action of a Zetland pony, they would be most valuable, particularly as stallions. Let us only fancy that a good judge of a Clydesdale horse looked through a glass which would magnify a first-rate Zetland stallion to the size of a Clydesdale, and having its superior action. What would be his opinion? Why, that such a draught horse could not be bred, combining all the qualifications of the true bred and complete Zetland; but if bred, that his value would be great. Some attempts have been made to cross them; but it only tends to spoil the breed. Sir Arthur Nicolson, who breeds large numbers in the island of Fetlar, introduced a white Arabian stallion a few years ago: the result of his crossing has not been revealed. The cross will probably answer well for ladies' pads and for the sons of our aristocracy; but for young boys, none can excel the pure-bred Zetland pony.

When exported to England, well-formed animals are sold at good prices, particularly those of fancy colours,

as piebalds, &c. The Zetland pony is also well adapted for working in coal and other mines. In 1849, some were sent by Mr. Thomas Wylie to Peru, to work in the gold mines there.

There are some other breeds of horses in Scotland; those peculiar to Fifeshire and the different carses, for instance; but they are generally heavy, slovenly, long-backed animals, wanting the fine symmetry of the pure Clydesdale. Scarcely any other breeds in England or Scotland can be particularized as distinct. Numbers of counties possess what are called breeds, the characteristics of which it would be impossible to describe, being mixed up and crossed with all sorts of mongrels.

ON SHEEP.

CHAPTER VIII.

ON THE VARIOUS BREEDS IN THE UNITED KINGDOM.

The principal breeds in the United Kingdom are the following:—

- | | |
|-----------------------------|-------------------------|
| 1. LEICESTER. | 11. OLD NORFOLK. |
| 2. TEESWATER. | 12. BORDER MUGS. |
| 3. LINCOLNSHIRE. | 13. WELSH. |
| 4. KENT, or ROMNEY MARSH. | 14. RYELAND. |
| 5. GLOUCESTER, or COTSWOLD. | 15. OLD SHROPSHIRE. |
| 6. IRISH LONG-WOOLLED. | 16. HERDWICK. |
| 7. SOUTHDOWN. | 17. KERRY. |
| 8. CHEVIOT. | 18. WICKLOW MOUNTAIN. |
| 9. BLACK-FACED. | 19. OLD SCOTTISH. |
| 10. DORSET. | 20. SPANISH, or MERINO. |

After treating of these, a suggestion will be made as to the practicability of forming a new breed by crossing.

1. ON THE LEICESTER BREED.

In regard to this breed, much can be said in its commendation, in addition to what has already been written by different authors, since the days of Mr. Robert Bake-

well of Dishley, Leicestershire, under whose discriminating eye, and sound practical judgment, Leicester sheep attained the high celebrity which they enjoy at the present day. The *old* breed of Leicesters possessed many good properties and feeding qualities before Bakewell's time; but by his care and judicious selection of breeding animals, it was almost remodelled. Although possessing some good points and aptitude to fatten, it is still deficient in many respects. Their long thin staple of wool is easily wetted, so that rain or snow has ready access to the skin, producing a very injurious effect on the health of the animal. Their heads and ears were bare, so that, when newly lambed, they demanded the greatest care and attention to preserve them alive in anything like bad weather. In these two respects they required to be improved. Some of the descendants of the old race still retain the latter peculiarity, being quite bare and blue about the head and ears. At one period they were called "Blue Caps." Mr. Bakewell, by his judicious management, in a great measure corrected these deficiencies in the breed of Leicesters, and otherwise so much changed them, that they became quite a different race of sheep, and were afterwards called the "New Leicesters," or "Dishley Breed." Mr. Bakewell was ever on the alert in picking up any sheep which he considered would improve his own stock. It is said, that when visiting an eminent breeder in Lincolnshire, he cast his quick eye on a sheep belonging to his friend which possessed fine points and good symmetry; and his mellow touch and handling pleased him. He must have been a splendid animal to have satisfied such a man; and he prevailed on this breeder to sell the animal, as he stood

rather low on the legs. His friend was induced to part with him, as breeders in Lincolnshire prefer sheep which stand high on their legs, while Leicestershire breeders prefer those with rather short legs, provided the carcase be long and well formed. Mr. Bakewell considered the tup as a prize; and it was said this animal corrected many of the wrong points and defects of the Leicesters, particularly in the wool and covering of the heads, which they so much wanted. The wool of this sheep was of a closer texture than usual, and his head and ears well covered.

The New Leicesters possess many good points: their fine heads are rather prominent; nostrils wide and expanded; eyes full and quick; ears thin and pricked; with bright white close-covered heads, and pleasant features. As regards the head, it is generally a true index to the valuable qualities of any breed of sheep. Shew a thorough judge the head of a sheep, keeping its carcase out of view, and he can tell what kind of animal it is. Mr. Bakewell's New Leicesters obtained so much celebrity, that breeders availed themselves of every opportunity of procuring his stock; and as they had no other way of doing so than by hiring tups for the season, or by sending their ewes to Dishley to be served, he frequently obtained from 100 to 400 guineas for the use of a ram for a single season. From 80 to 100 guineas was considered by him a very small sum. He had one favourite tup, and he took in ewes to be served by it at ten guineas each: this animal served no fewer than 120 ewes in one season. This affords clear proof of the value of his sheep at that time, and how they were prized by other breeders. Mr. Bakewell never sold either tups or ewes as breeders. The tups, when old and unfit for use, were disposed of to

butchers; but he invariably went himself and saw them slaughtered. With respect to his ewes, to prevent any breeder getting the use of them, he flooded a piece of low marshy land in autumn, on which they were placed, in order to contract the disease called the rot, which, of course, rendered them useless as breeders. They were generally sold at low prices to butchers; while he probably would have realized £50 for each as breeding stock.

Many other Leicestershire breeders, after getting possession of these sheep, carried on the same system; and the breeding of New Leicesters was for a long time a complete monopoly.

They were first introduced into Northumberland by Messrs. Culley and Gibson, who selected their stock at very high prices. The breeding of Leicesters was at one time as much a monopoly in Northumberland as in their native county. Mr. Culley and others, like Bakewell, for several years obtained large sums for the hire of their tups; and they also carried on the same system of selling tups and ewes to butchers, to prevent other breeders getting their pure blood. All monopolies, however, must have an end; and by some means or other the pure Leicesters got into the possession of other breeders in Northumberland, who soon became eminent, viz., the Comptons, Smiths, Thomsons, Greys, and others. They soon after found their way into the hands of Mr. Robertson, Ladykirk, and the Wilsons, Logans, Thomsons, Cairns, Herriots, Hoggarths, and other breeders in Berwick and Roxburgh shires—in fact, they got widely diffused on the Borders. Those who possessed the pure blood became tup breeders, such as Mr. Thomson, Bog-end; Mr. Smith, Marldown, &c.; and those who had

not the pure breed at that time, resorted to the tup shows yearly, where they hired for the season at pretty high rates—generally from £10 to £50, and sometimes as much as £105. Tup breeding has for many years become a great trade among farmers who possess high-bred stock; but from the great competition and rivalry among tup breeders, the system of letting tups on hire for the season is almost abandoned in the Border counties. They can now be purchased at much lower rates than what was formerly paid for their hire for a single season. The system now carried on by breeders is, either to advertise the sale of their tups on their own farms by public auction, or to sell them at Kelso and other fairs. Kelso is now a great mart for the sale of tups, belonging to different breeders, which are there sold by public competition, as an immense number of buyers attend. The sales take place on the day of the Border Union Agricultural Society's Show in September; and to this cause is attributable the great concourse of buyers. Prices of tups here vary according to quality, some of the best realizing £20 and upwards, and some being sold under £3. The highest priced are purchased by those who have well-bred Leicester stocks, and the lower priced by those breeders who cross Cheviot and Blackfaced ewes. The general average is between £5 and £6. At these prices Leicester tups are now within reach of all breeders, whether for crossing Blackfaced or Cheviot ewes, for which the low priced ones answer, or for putting to pure-bred Leicesters, for which the higher price may be paid, as only one or two tups yearly are required for the latter stock. It is advisable to have a change every year or two, to renovate as it were, the stocks, and to avoid too close affinity

in the produce. On the subject of breeding, "in and in," as it is termed, different opinions prevail; but it is well known that many eminent breeders justify this course, such as the late Mr. Culley, Mr. Thomson of Stamford, and others. Most of these breeders had a notion that their stocks, from the purity of blood, were superior to all others; and that, by introducing tups from other stocks, however pure, it would deteriorate their own. This was undoubtedly the real cause of their supporting the system; but the breeders of the present day have more enlightened views, and justly condemn it—being of opinion, that breeding too close is injurious, and must result in the production of stock of weakly constitution. Tup breeders, who occasionally make a proper selection of high-bred sheep from good stocks, act wisely, as by no other means can the constitution and substance of their own stock be kept up. However high bred a stock may be, individual animals may throw out inferior points, which no care can prevent, and is only to be remedied by a careful selection of tups from the flocks of other breeders. It is well known that, while some flocks of pure-bred Leicesters possess superior points, in others, although equally well bred, these points are deficient; therefore, taking this view of the matter, it is actually necessary to make a change to correct these points, and the sooner breeders do so the better, even although it be attended with considerable expense.

From the remarks made on Leicester sheep, and the general prices now obtained for shearling tups, they will return the breeder a sum averaging from £5 to £6 each. This may be considered a fair remunerating price to a tup breeder, as there is a great deal of expense attendant

on the breeding, which is not incurred in breeding sheep for feeding purposes only. In the first place, a pure-bred Leicester flock is of much greater value than a common one, as tup breeders must buy tups yearly, at high rates, to maintain the character of the flock, no matter how superior it may originally have been. There are also a number of incidental expenses that cannot be calculated on. Altogether, tup breeding requires more attention, and is accompanied by greater expense than any other system of breeding sheep; and, taking these circumstances into consideration, a breeder is not overpaid when he obtains £5 or £6 for his shearing tups.

The foregoing observations apply only to Leicestershire, Northumberland, and the Border counties; but as Leicester sheep have found their way into almost every county in Scotland, including the isles of Orkney and Zetland, a few words relative thereto will not be out of place. About forty years ago very few sheep were to be found in the Lothians, except a few wedders for winter feeding, and ewes of common breeds, for producing fat lambs for the Edinburgh and Glasgow markets. These sheep were generally bought at Falkirk and other markets. The New Leicesters were introduced into East Lothian, about thirty years since, by the Marquis of Tweeddale, whose example was quickly followed by the late Messrs. Rennie, Bogue, Brodie, Brown, and others. Shortly after their introduction in this district, a keen competition took place among breeders for the premiums at the different shows, at Gifford, Haddington, and Salton; and for many years the noble Marquis hired a tup yearly from Leicestershire, for which he paid 100 guineas. Mr. John Rennie also selected some very high-bred Lei-



cesters from Northumberland and Berwickshire, at high prices, and among them the entire stock of ewes belonging to the late Mr. Thomson of Stamford, for which he paid ten guineas each. This flock possessed a very high tone of blood, although bred "in and in." At Mr. Rennie's sale, these, with many other high-bred Leicesters, were sold and distributed among breeders in East Lothian, the principal purchasers being Mr. Darling, West Fortune; Mr. Reid, Ballancriff; Mr. Walker, Ferrygate; and Mr. Brodie, Amisfield Mains. Leicester sheep were introduced into Mid-Lothian by the Duke of Buccleuch, Mr. Dudgeon, Almond Hill, &c. Some splendid specimens of this breed have been shewn at the Mid-Lothian Agricultural shows at Dalkeith; but as the premiums are open to East Lothian and Berwickshire, they are sometimes carried off by the Lauderdale breeders. High-bred stocks of Leicesters are now in the possession of Mr. Watson of Esperston, Mr. Douglas of Atholstaneford Mains, East Lothian, and Mr. George Weir of Brownrigg, all of whom have been very successful of late years in obtaining premiums. There are also some stocks of Leicesters in West Lothian, and other south and west counties of Scotland, but not to a great extent, except in Dumfriesshire. In the east and north-east of Scotland considerable flocks are kept. Mr. Watson of Keillor and Captain Barclay of Ury have been successful breeders. In no county of Scotland, however, have they been more successfully bred than in Caithness, where, as mentioned at page 5, they were introduced 29 years ago by Mr. Horne of Scouthel; but from the undrained state of the land, and from an unfavourable and wet autumn, the stock at Scouthel was, shortly after its introduction, con-

siderably deteriorated, a great number dying of the rot. Through the perseverance, however, of Mr. Darling, in making new importations, and from the land getting drained, the flock not only increased but thrived admirably—contrary to the expectations of many who predicted they would not succeed in that northern latitude. No one was more sceptical as to their success than that great breeder of Cheviot sheep, Mr. John Paterson, Borlum. The Leicester sheep on the Scouthel estate stand high in the estimation of breeders; and they have obtained several premiums at the Highland and Agricultural Society's shows. At the last show in Edinburgh in 1848, Mr. Darling obtained the premium for two-year-old Leicester widders, although bred and fed within a few miles of John-o'-Groat's. The breeders of Leicesters in Caithness have selected their stocks from some of the best in Northumberland and Berwickshire, and to improve their Leicesters have purchased several prize tups. Sir George Dunbar, Mr. Darling, Mr. Brown, Mr. Purves, and Mr. Calder, have devoted considerable attention to tup breeding; indeed, a great spirit of emulation exists in that county among breeders generally, and a very keen competition takes place annually, as previously mentioned, at their Agricultural show in July. The sheep there shewn are nearly all in very high condition, which is a clear proof that they thrive well in this northern, or any other county, provided the land is dry, and moderately good, and the elevation not too great. After the premiums are awarded, several lots of tups, the property of different breeders, are sold by public auction, for which there is a keen demand, and spirited bidding. The prices realised range from £3 to £10, according to

the demand. Turnips and artificial grasses are most essential for Leicesters, as they will fatten better on very middling land, if well stocked with clover and other artificial grasses, than on old soft land, although much richer in quality, provided they are enclosed and sheltered. Leicesters have also been introduced in the Orkney and Zetland islands, and done well there. Fatter Leicester sheep than those in Zetland, belonging to Mr. Fea, were never seen. He had the breed sent him by a friend in Yorkshire.

Hitherto, nothing has been advanced except in favour of this breed. Let us now look to the other side, and point out some of their faults, and endeavour to discover how little their flesh is now esteemed by the consumer comparatively with a former period. At one time, or within the last thirty years, sheep for most of the English markets could not be too fat, particularly for Morpeth, which then supplied Newcastle, Shields, Sunderland, and all the coal districts of Northumberland and Durham; and, to some extent, the manufacturers of Yorkshire. Colliers, and particularly keelmen, at that time consumed great quantities of fat mutton, but since the new method of loading ships from staiths or spouts, comparatively few keelmen are at present employed. Whether it be from the great quantity of Leicester sheep now bred, the change of taste of the hard-working population of Britain, or other causes, cannot be determined; but certain it is, that fat Leicesters and all other large breeds have of late become very unsaleable. While butchers can be supplied with good Cheviots, Southdowns, or half-breds, fat sheep are neglected in all well-supplied markets, and sold with difficulty at fully 1d. per lb. less. As a proof of this, a

dealer purchased in the Newcastle market, on the 15th of January 1850, eighty fat Leicester dinmongs, bred and fed near Durham, which weighed $21\frac{1}{2}$ lbs. per quarter, at 33s., while Cheviots, &c., of 17 and 18 lbs. per quarter, were realising as much money in the same market. The same party also purchased at the new Kelso market a lot of dinmongs from Mr. Dickinson, Magdalene Hall, weighing 23 lbs. per quarter, for the same money; while Southdowns in the same market, at 16 lbs. per quarter, sold for 29s. Nearly the same difference prevails in all English and Scottish markets. However much Leicester sheep are valued and prized for their exquisite points, symmetry, great aptitude to fatten, and mellow handling, their early maturity and heavy weights; and although they undoubtedly produce more mutton and wool for the food they consume than any other breed, still, their money value in the flesh market is low in comparison with other breeds. Another peculiarity is, that however fat they may become, they seldom or never prove full of tallow; and it is now pretty well known that the longer they are fed, in the same ratio the produce of tallow diminishes. When Leicester widders are fed for premiums on extra food, weighing above 40 lbs. per quarter, and with 5 or 6 inches deep of fat on the outside, they will, very frequently, not be covered on the kidneys, and produce not more than 8 or 9 lbs. of loose tallow. It will always be observed that a young Leicester dinmont or gimmer, of, say, 18 lbs. per quarter, will produce more tallow than an over-fed sheep of twice the age and weight. Although not so coarse grained as many of the other large breeds in England, Leicester sheep are not well proportioned, having too much fat and

too little lean, and this not well mixed. With all their good qualifications, they cannot now be called a profitable variety, either to the breeder, feeder, or butcher; and, except for tup breeding, should be given up, and only a certain number kept for that purpose. In their place may be substituted, on all good lands, some judicious Crosses, that would not only be good feeders, but attain to moderate weights at an early age on good keeping. Such Crosses as will be afterwards noticed, will not only be profitable to the breeder and feeder, but will sell more readily than Leicesters; and, from being full of lean and fat well mixed, will also please the palates of the consumer. The unprofitable character of Leicesters is simply attributable to the taste of the public, and not to any cause derogatory to the high qualifications of the breed, as regards their points or feeding properties; and it is to be regretted that it should be thought so little of, when exposed for sale by the butcher. If kept for feeding purposes, Leicesters must be sold young, say when not more than fifteen months old, to make them at all profitable; as experienced breeders and feeders must have found out, to their cost, that keeping them longer, and making them too fat, are unprofitable for other purposes. Great numbers of Leicesters may still be kept with profit, as the present unprecedented demand for Leicester tups for crossing is not likely to diminish. A number of farmers in the different arable districts, where the land and climate is suitable for rearing them, could carry on a tup-breeding trade with profit to themselves and usefulness to their neighbours; but on this subject full details will be found in another page.

Attempts were made about thirty years ago, by some

breeders in Northumberland, to improve the Leicesters by the Teeswaters; the object being to increase their size. The experiment was certainly so far successful: the size was greatly augmented; but the feeding properties of the Leicesters were spoiled, and they were found to be very unsaleable sheep. They were slow feeders, and consumed more food than the pure Leicesters. The breeders were not long in discovering the unprofitable character of the stock, and it cost them a great deal of trouble and expense to renew and renovate their stocks; and it is questionable whether they have got clear of the alloy to this day. This is another proof of failure in attempting to improve the Leicesters with other breeds; therefore it must be admitted that Leicester sheep can improve all other breeds, but none can improve them.

2. THE TEESWATER BREED.

In its original state, this was a very heavy breed of sheep; standing very high on the legs; with a large heavy head; strong bone; great carcase; long wiry wool; tolerably well formed, but not handling well; having a very thick pelt, which is a sure indication of a slow feeder. From the fine rich feeding qualities of the lands on the banks of the Tees, they attained great weights—some of the wedder sheep reaching upwards of 60 lbs. per quarter. For many years back the breed has been crossed so much with the Leicesters, that it may be considered all but extinct.

3. THE LINCOLNSHIRE BREED.

The old Lincoln is also a very large breed of sheep,

as might be supposed from the rich marshes in that county; but, like the Teeswaters, they are heavy, coarse-grained animals. They grow the longest wool in Britain; some of it measuring from ten to sixteen inches long, and the fleece weighing from 8 to 12 lbs., and in some instances as much as 15 lbs. From the large coarse bone and strong grain, the mutton is very unsaleable, and brings a low price in the London and other markets. A few pure-bred flocks are still to be seen in Lincolnshire; but the breed, generally, has been so crossed and improved by the Leicesters, that it is, in its normal state, almost extinct.

4. THE KENT OR ROMNEY-MARSH BREED.

This is another race of long-woolled sheep, somewhat like the Lincoln or Teeswater in appearance; but not so long in the wool, nor so large in the bone. They are also coarse-grained sheep, and sell at a middling price in the London market; but the breed has been much improved by crossing with the New Leicesters. The sheep in Kent are mostly grazed on the Romney Marshes. Those bred and fed on the higher grounds are a smaller and finer variety, and have been also much improved by the Leicesters.

5. THE GLOUCESTER OR COTSWOLD BREED.

This is another large breed, peculiar to the Wolds of Gloucestershire. They are finer boned, and not so long woolled as some of the before-mentioned breeds, and, on the whole, better formed, and their flesh not so coarse grained. The breeders of Gloucestershire have paid

great attention to the improvement of the Cotswolds, and, as a long-woolled breed, they stand next to the Leicesters—having many good points, but wanting in the fine mellow handling of this celebrated breed. In Oxfordshire they have got a new race of sheep, which is called “The New Oxfords,” a cross between the Leicester tup and Cotswold ewe, and a most judicious one it has proved. About sixteen or seventeen years ago Mr. Giblett, of the firm of Guerier and Giblett, salesmen, Smithfield, paid a business visit to Edinburgh and adjoining counties; and when in conversation with the farmers and breeders, strongly recommended the Cotswold sheep, not only as the best pure breed in England, but also as the best breed for crossing purposes; and he went so far as to say that the Cotswolds could improve the Leicesters, being larger in size, and fully equal in symmetry, points, handling, and propensity to fatten. Several breeders in Fife and the Lothians, consequently, gave Mr. Giblett orders for tups of the Cotswold breed, which he selected at high prices. The first the author had an opportunity of seeing were two sheared tups, bought by the late Mr. Hutchison of Bangholm; and certainly in point of size were remarkable—possessing fair symmetry, many good points, good quality of wool, and well covered. They wanted, however, the fine mellow touch of the Leicesters. Leicester ewes were put to these tups; but the produce, which was fed along with pure Leicesters, was far inferior in point of condition; which plainly shewed they wanted the aptitude to fatten. Those who crossed half-bred and Cheviot ewes with the Cotswolds were more successful, particularly for fat lambs. They may be pronounced a most useful sheep to cross Cheviot or half-

bred ewes, when the lambs are to be shewn in a keeping market. The first attempts made to improve the Leicesters by the Cotswold, having proved a failure, the experiment was not repeated. Mr. Giblett was evidently under a mistake in sending *tups*: had he sent Cotswold *ewes* to put to Leicesters, the experiment would no doubt have been more satisfactory; but he was wrong in supposing that the Cotswold would improve the Leicesters.

There are several other counties in England which once possessed distinct breeds of long-woolled sheep; such as those bred in Devon and Somerset, called "The Bampton" or "Natt's" breed. Long-woolled breeds, with distinguishing characteristics, were also found in Worcestershire, Wiltshire, and Yorkshire; but they have, together with the Teeswater, Lincolnshire, and Romney-Marsh breeds, been so much crossed with the Leicester, that they are almost extinct.

6. THE IRISH LONG-WOOLLED BREED.

The old Irish breed of long-woolled sheep, about fifty years ago, was supposed to be the largest and coarsest sheep in existence. A great bar to the improvement of it was, that a law existed prohibiting the importation of sheep into Ireland. Since the law was altered, Irish breeders have not been idle, as they have imported great numbers of Leicester *tups* for crossing: the Irish breed is now, consequently, like a new race. The author was in Dublin about twenty years ago, and attended the Smithfield market there, and saw some of the largest sheep exposed for sale: one lot particularly, of 100 wed-

ders, three years old, averaged fully 32 lbs. per quarter, some nearly 40 lbs.; but, like most of the sheep in that market, shewed something of the old race. After killing, their carcasses were large and unseemly, with great bones; and the mutton very coarse in the grain, fully as coarse as the old Lincolns. Since that period the breed has been very much improved by crossing with the Leicesters, and its aptitude to fatten increased. A great many are sent to the Liverpool and Manchester markets, but are not very saleable—realising fully 1d. less per pound than Cheviots and half-breeds generally. The improved Irish long-woolled sheep are, like many of the English breeds, too heavy and fat to please the tastes of the present mutton-eaters in England.

The foregoing remarks refer to the different long-woolled breeds of sheep in Great Britain and Ireland; but, for the last two or three years, some foreign sheep have been shewn in Newcastle, both in a lean and fat state, which might be classed with the long-woolled. These animals stand high on the legs, have a thin long narrow head and carcass, long pendant ears, and, when lean, have a very lanky appearance. They seem, however, to be tolerable good feeders, as the author saw some of them fat last year, weighing from 18 to 19 lbs. per quarter, which sold at 33s. each. The wool on some of them was eight to nine inches long: the outer portion rather rough, something like the old Blackfaced, but the inner or lower part was finer, and little inferior to the Leicester. They are very full of tallow, and the quality of the mutton seemed to be good, the fat and lean being well mixed, and grain rather fine. These sheep were shipped at Hamburgh, but of what breed is not known.

It is quite clear that the long-woolled breeds of sheep are in general useful; but as they are all considerably improved and mixed with the Leicesters, they incline too much to fat. From the tastes of all classes being greatly changed, they are not now saleable, and the continuation of these breeds cannot be recommended. Southdowns, Cheviots, Blackfaced, and Half-breeds, are now the favourites in all markets, both live and dead. When such numbers of sheep are bred and fed in Britain, and the public have so great a variety to choose from at all seasons, it is doubtful whether large fat mutton will be again much in demand. How different it was sixty or seventy years ago, when scarcely a fat sheep or a fat ox or cow could be found from New Year's day to Midsummer, so few turnips and artificial grasses being then grown! Draining, green cropping, liming, manuring, and other agencies in the improvement of agriculture, have caused these changes. Agriculturists have, by the removal of protective duties, got a check which may damp their energies to a certain extent; but it is to be hoped that this will only be temporary, and that farmers and all connected with the collateral branches of rural economy will soon recover from their depression, as, on the prosperity of Agriculture depends the prosperity of all other classes of the community. Sheep, however, have not been so much depressed in value as other agricultural produce; and therefore less fear may be entertained as to the results of that particular branch of farming. Neither breeders nor feeders of sheep have reason to complain at present of low prices, as fat sheep are realising 5d. to near 6d. per lb. for best qualities. Leicester lambs, and good Blackfaced three-year-old north-country wedders, sell at about much the same price—taking sales

of wedders at Inverness, and sales of Leicester lambs at St. Boswells—and half-bred lambs in proportion. Of late years, breeders have had the best of it—feeders, in too many instances, having been very ill paid—often getting little more than the wool and manure of the stock for their food and trouble.

7. THE SOUTHDOWN BREED.

This breed has for a very long period been the favourite in the London market; but its true merits as a breed are not so well known and appreciated in other markets. It is not only a good breed of itself, but also for crossing purposes. The downs of Sussex (in the south of England) is the principal district in which they are bred, and from this they have derived their name. They are without horns, with grey heads and legs, fine bone, and short thick fleeces of wool. Formerly their points were very irregular, having low fore-ends, and light fore-quarters; their middles pretty well formed in both ribs and loins; their legs or hams being full and compact. The meat is very fine in the grain, of a bright colour, and excellent quality, being full of lean as well as fat, and cutting up into very handsome joints. They are also very full of tallow, and feed readily. Of late years they have been much improved by those eminent breeders, the Messrs. Ellman, whose flocks are said to be the purest in England. Most of the breeding stocks in England and Scotland have been selected from them. A very high-bred flock is in the possession of Mr. Hugh Watson of Keillor, who procured them originally from Mr. Ellman of Biddingham, in Sussex. Under the care of the Messrs.

Ellman, the Southdowns have been vastly improved, and may, in fact, be called a new race. Not only are they improved in symmetry, but in size, wool, and feeding properties. The fore-ends of the present improved Southdowns are now high, full, and prominent, and their general outline level and compact. In weight they are from 2 to 3 lbs. per quarter heavier than the old breed, while the wool is longer, and retains its fine texture; while their aptitude to fatten is much increased, and they arrive sooner at maturity. The wool of wedders is now from three to four inches long; but it is yet too short for combing purposes.

Although a short-woolled soft-looking sheep, they have proved to be pretty hardy. Mr. Watson of Keillor, for instance, keeps his ewes on the north side of the Sidlaw Hills, near Coupar-Angus, and he has for many years bred them with great success, and produced splendid specimens as a pure breed, and also Crosses with the Leicester tup. Not only the carcass, but the wool is much improved by this Cross, which appears to be a most judicious one. Mr. Roy of Nenthorn has also been very successful with it. Mr. Bruce, Greenknowe, Berwickshire, keeps a very superior stock of Southdowns, and has sold some fine animals at his annual sales, both pure and Crosses. This stock was originally from Mr. Ellman. Leicester ewes, crossed with Southdown tups, produce good lambs. A ewe lamb of this Cross, killed in 1846, weighed 70 lbs.

Mr. Bruce has also tried them in crossing the Black-faced ewe, and although the produce was not very handsome, the flesh proved excellent, and those who purchased them once, eagerly purchased them again. This may

also be considered a judicious Cross, the wool being much improved. Some fat lambs of this Cross were shewn in the Edinburgh market in 1849, bred and fed by Mr. Skirving of Luffness, and others. They pleased the butchers well, being very full inside, which is a great point in fat lambs.

Southdown ewes have been crossed with Cotswold tups with great success; but both Leicester and Cotswold tups, with Southdown ewes, make fine sheep, and the fleeces of either Cross produce a valuable combing wool, the tup giving the length, and the ewe the fine texture. This Cross also comes to maturity at an early age—reaching great weights, and selling at from $\frac{1}{2}$ d. to $\frac{3}{4}$ d. per lb. more than pure Leicesters or Cotswolds.

The Southdowns have now been tried in most of the northern and eastern counties of Scotland, as far as Caithness, and have done well. There can be no doubt, therefore, of its being one of the most useful breeds in existence, not only in its pure state, but for crossing other breeds. Many breeders object to them from the shortness of the wool rendering it unfit for combing, and the fleece being lighter than most other breeds. This can be remedied by forming, as it were, a new breed of sheep, regarding which some observations will be made in another place.

8. THE CHEVIOT BREED.

This breed, it is well known, originated in the Cheviot mountains, in Northumberland—hence the name; but there is no precise account extant of its origin.

That it has been much improved within the last fifty years, admits of no doubt, as it is said that, previously to that time, the breed had grey faces and legs, from having been carelessly crossed with the old Blackfaced or Heath sheep, which then were kept in considerable flocks on the high lands of Yorkshire, Westmoreland, Cumberland, and Annandale. Through the exertions of several breeders on the Borders, and from proper selections of tups, gimmers, &c., all these marks of erroneous crossing have long been obliterated; and, from having been bred with so much care and attention for a long period, it is now the most useful and profitable mountain sheep in existence, not only as a pure breed, but for crossing purposes.

A well-bred Cheviot sheep has a fine long prominent head, of a bright white; eyes full and prominent; a bold, open lively countenance; a long carcase; full neck and shoulders; breast slightly prominent; back straight, but rather narrow; ribs not so well arched as in many other breeds; long hind quarters; fine, clean flat bone; and standing well on the legs. The pelt is covered with rather short wool, of fine quality, very little coarse being intermixed, but still not long enough for combing, unless from the produce of hogs which have been highly fed. It is then a most useful and valuable wool for the finer description of fabrics used for making ladies' dresses, as *de laines*. When fat, their appearance is much altered; and they handle and kill well, if what may be termed "ripe." Like the Southdowns, they are full of tallow. The best bred are rather good feeders, but inferior in this respect to the pure Leicesters. Their constitutions are hardy, and they are excellent travellers, able to

endure more cold and fatigue than almost any other breed, except the Blackfaced, and forage well in snow storms.

Previously to the beginning of the present century, this breed was chiefly confined to the Cheviot hills; but sheep-farmers, in many of the Border counties, finding it more profitable, substituted it in place of the Blackfaced. Cheviots are now almost the only breed in the high lands of the counties of Roxburgh, Peebles, Selkirk, and Berwick. The great fairs of Cheviot lambs, at St. Boswells, Lockerby, Melrose, &c., shew the increased numbers now kept. They are also pretty generally spread over the high districts in other parts of Scotland, including Sutherlandshire, where they were introduced, about fifty years ago, by some of the extensive sheep-breeders in Northumberland, who took leases of large farms, and tracts of land for the purpose. The native farmers and shepherds of this extensive pastoral district did not relish the intended intrusion, as they presumed it to be, of the southerners; and, from being strongly attached to old systems, a number of the inhabitants turned out, and met the South-country shepherds, with their sheep, at Bonar Bridge, and opposed their entrance into Sutherlandshire. A collision was the result, in which many of the shepherds and sheep were thrown into the river. The authorities, however, interfered, and quelled the disturbance, and the new comers took quiet possession of their northern farms. The native farmers seeing that this improved breed of sheep throve well, and suited the pastures and climate of Sutherland, were induced to change their sheep stocks; and at the present time, fully one half of the county is occupied by South-

country sheep-farmers, and the entire county stocked with Cheviot sheep. The extent and magnitude of the sheep-farms in Sutherland, and the large numbers and value of the sheep, is worthy of notice; and to those who are unacquainted with the district, a short account of the progress and success attending the introduction of Cheviot sheep may be somewhat interesting. The whole county is mountainous, bounded on the north by Caithness, on the south by Ross-shire, and stretching from the shores of the Moray Firth, on the east, to the Atlantic Ocean, on the west. Although the principal features of the county are high mountains, there are some fine tracts of arable land about Golspie and Dunrobin Castle, the noble seat of his grace the Duke of Sutherland. The extensive lawns and parks, surrounding the castle, are probably not surpassed, in extent and richness, by any in Scotland, and few in England. There are also wide spreading straths running up through the county, for a distance of from twenty to thirty miles, which afford fine green pastures, and are used for the ewe stocks; but, on the rising and higher latitudes, the land is coarser, and on the highest ranges there are very large tracts of moss land, on which the wedders are grazed. Some of the farms in Sutherlandshire are nearly thirty miles in extent (that, for instance, of Mr. Gabriel of Leeds'), and the general stocks of sheep on each farm will be from six and eight, to ten and twelve thousand, and upwards. Some of the most extensive farmers sell annually nearly 2000 wedders, and from 1000 to 1200 ewes. The Cheviot sheep stocks in Sutherlandshire were originally from the best stocks in Northumberland. They have not diminished, but have increased, both in

size and symmetry, and the ewes are fully as large as those on the Border; the widders larger. The latter, when they leave their native hills, are always fatter than the Border widders, although the land in Sutherland, where they are kept, is much higher and coarser than the Cheviot hills. The latter are nearly green to their summits, while the Sutherland hills are rough and mossy. One reason why the Sutherlandshire widders are fatter, and which may not be generally known, is, that they have very extensive tracts of mosses, which grow certain plants in great abundance; and as these plants spring in February and March, the sheep eagerly devour them. The widders are kept lower down in the beginning of winter, on the middle ranges of the hills; but when the moss plants begin to shoot forth afresh, the widders, particularly those which have been pastured on the same ground before, resort to the place where the favourite plant grows. This plant somewhat resembles a parsnip; the sheep bite off the top and reject it, eating only the root, which is said by the shepherds to be as nourishing as the turnip. The Sutherland sheep, consequently, are in pretty good condition before the grass on the Cheviots begins to grow.

The great mart for the sale of the sheep and wool of Sutherland is at the annual sheep and wool fair, held at Inverness, in July. The bargains are made on the characters of the flocks, which are well known to dealers. The sheep are delivered to the buyers about the end of August or beginning of September. Large droves are to be met at this season, on their way south, in very fine condition—many of the best lots weighing fully 16 and 17 lbs. per quarter, and fat enough for any market.

They, of course, lose condition on the road; but the first flocks reach their destination in better order than the last, having good clean grass at the stances, where they rest during the night. As the season advances, the grass at the stances gets poached and foul, from so many droves resting almost nightly on it, scarcely affording a bite to the tired animals. When carefully driven, it is wonderful how fresh and full of condition they are when shewn at Falkirk, after having travelled nearly 300 miles, and in some instances, nearly a month on the road.

There are also some extensive Cheviot sheep farms in the southern parts of Caithness, the principal of which are held by Mr. Horne of Langwell, Sir John Sinclair of Dunbeath, and Captain M'Donald of Sandside. The same breed is also to be found in most parts of Ross and Inverness shires. In these latter counties, however, it has been crossed with the Blackfaced. The number of sheep in these northern counties is estimated at from 180,000 to 200,000. If sold in May with the wool on, the average value would be fully £1 each—a considerable advance on what sheep would have been sold at fifty years ago before the introduction of the Cheviots. If the wool is sold at a fair price, it is at present of more value than the sheep and wool put together at any one time previous to that period.

Cheviot sheep are now more numerous in Scotland and Northumberland than any other breed except the Blackfaced; they have also been much improved in Peebles, Selkirk, Berwick, and Roxburgh shires. Some first-rate specimens are now shewn annually at Hawick, both for premiums and for sale; and nearly as high prices are paid for the best Cheviot tups as for the Leicesters.

The general symmetry and wool is so much altered by recent improvements, that some of the best look as if they had an infusion of Leicester blood. Disputes on this point are, therefore, common enough, especially when very superior stock are shewn for premiums; but the adulteration is firmly denied by breeders.

The general weight of well-bred three and four year old Cheviot widders is from 16 to 20 lbs. per quarter, and some exceed this, when fed on good land; while for premiums, 40 lbs. per quarter is not uncommon.

It is somewhat surprising to find, that, although the value of the Cheviots is universally acknowledged, a number of breeders are still satisfied with their inferior stock, grudging to pay a fair price for a good tup. To this class the markets are still indebted for those small-sized ill-shaped animals, with heads and bodies so short, as not to be three-fourths the length of a well-bred Cheviot sheep.

Cheviots are termed by shepherds *Long* sheep, and the Blackfaced *Short* sheep; and when Blackfaced are crossed with Cheviot tups, they are called *Half-Longs*. It is a great point in breeding Cheviot sheep, to preserve their length; as a Long sheep is generally a good weigher, and they are, like the Southdowns, full of tallow when properly fattened.

The Cheviots are well adapted for rearing lambs for the fat markets, as nearly all the cast ewes from the high districts are sold at four or five years old, and purchased by farmers who feed fat lambs. Many of these ewes are sent into Yorkshire, the Lothians, and other arable and feeding districts; and when crossed with well-bred full-sized Leicester tups, produce excellent fat lambs.

The ewes generally are well fed in winter, and supplied with turnips before lambing. The lambs from this Cross are good feeders, and are soon ready for market when allowed to suck their mothers on good grass-land. At two months old they weigh from 8 to 10 lbs. per quarter, at which age they may be considered fit for the London market. Many thousands are now sent there from Scotland, both alive and dead. Cheviot ewes for this purpose pay the farmer better than most bought-in stock, as the lambs generally sell at from 15s. to 20s. each. The fleece is worth about 2s. 6d., while the ewes, when fat, in August, September, October, and November, will realise fully the cost price. On an average, Cheviot ewes will pay a good feeder fully 20s. for ten months' keep, and, in some instances, when bought low, will realise 20s. each, without taking into consideration the circumstance of many having twin lambs: on the whole, therefore, they may be considered a safe and profitable stock to the feeder. The best description is always the safest to purchase, as a long-sided roomy Cheviot ewe will always produce a long-sided heavy lamb. Old ewes always produce good lambs; but four-year-old ewes are to be preferred to five-year-olds, as they begin to decay after five, and if they are bought five rising six, they are six rising seven when sold.

A few observations on the comparative merits of the Leicesters and Cheviots will now be made. The Leicesters have all along been fed on the richest pastures on the low and sheltered lands of England and Scotland; while the breeding stocks of Cheviots have never had so fair a chance to shew how they would pay, were they kept in a similar manner. The latter have hitherto been

kept on lands which were either considered at too high an altitude, or the pasture too coarse for Leicesters; while the wedders have been allowed to roam through high districts, and to forage for a subsistence on lands, which, at one time, were considered unfit for any kind of stock: such as the high, mountainous, and mossy districts of Sutherland, and other counties in the north of Scotland. In these localities, where they are exposed to many privations, and to severe snow-storms, their hardiness enables them to endure all without suffering much in condition. Cheviot wedders seldom enjoy good feeding till three years old, when they are brought to the Lowlands to be fattened. Breeding stocks of Cheviot ewes are never kept on rich land; the lambs therefore do not get a fair start with other stock to test their merits. Now, this naturally leads to a subject to which the attention of breeders should be directed; viz., to institute an experiment for the purpose of proving which would be the best paying sheep on the richest farms in Scotland. To give Cheviot sheep a fair trial, they should be placed on the same pastures as the Leicesters. For the sake of illustration, suppose an experiment to be made on the farm of East Barns, near Dunbar. The question as to which breed consumes the most food will be waived, assuming, for our present purpose, that each consumes equal quantities. Let 100 Leicester ewes of the best description be purchased at St. Ninian's fair, in Northumberland, on 27th September; but as few Cheviots are shewn at that market, let 100 of the Kilham Cheviot ewes be purchased, and the 200 drove home together, and put on good fresh pastures or rape, to make them tup equally. On the 20th October both lots should be

separated, and the best Leicester tups put to the Leicesters, and the best Cheviot tups to the Cheviots. As soon as tuppings season is over, the whole ewes to be again put together, and receive the same treatment till ready to lamb. Both lots of ewes and lambs should be promiscuously fed together till weaning time, and afterwards, and throughout, to be fed together on the best keep (corn and oil-cake excepted); so that both lots, at two years old, would be alike as to feeding. Comparison should then be made to test which lot is worth the most money per head. Most breeders and feeders would prophesy that the Leicesters will be by far the heaviest and fattest; indeed, almost any one conversant with both breeds, would conclude in favour of the Leicesters. The author's experience, however, has convinced him that the Cheviots will be the best paying sheep; at all events, they are the most saleable, while the value of both is about equal. To prove this, we will set down the Leicesters as weighing, on an average, 24 lbs., and the Cheviots 20 lbs. per quarter. Cheviots, as before mentioned, are worth 1d. per lb. more than Leicesters, when both are in equal condition, and fat. If, therefore, we take mutton at or near its present price, the relative value will be as follows;—

Leicester	dinmonts and gimmers,	24 lbs. per quarter,	at 5d.	£2	0	0	
Cheviot	do.	do.	20 lbs. per quarter,	at 6d.	2	0	0

This shews that the Cheviot sheep of 20 lbs. per quarter is worth as much as the Leicester of 24 lbs. per quarter. As two-thirds of the sheep shewn in the Edinburgh market are purchased by London salesmen, let us see how the case will stand, supposing the animals are sent to London after being slaughtered. In this case, the dif-

ference in price between the Cheviots and Leicesters will be set down at $\frac{3}{4}$ d. per lb. only. The accounts will stand thus:—

Leicester sheep, 12 st. London weight, at 3s. per stone	£1	16	0
Skin	0	5	6
Tallow, say 9 lbs., at $3\frac{1}{4}$ d.	0	2	$5\frac{1}{4}$
Head, Pluck, &c.	0	0	8
			<hr/>
			£2 4 $7\frac{1}{4}$
Carriage of 96 lbs. at 3s. per cwt.....	£0	2	7
Commission	0	0	10
			<hr/>
			0 3 5
			<hr/>
			£2 1 $2\frac{1}{4}$
Cheviot sheep, 10 st. London wt., at 3s. 6d.	£1	15	0
Skin	0	5	6
Tallow, say 11 lbs., at $5\frac{1}{4}$ d.	0	2	$11\frac{3}{4}$
Head, Pluck, &c.	0	0	8
			<hr/>
			£2 4 $1\frac{3}{4}$
Carriage of 80 lbs., at 3s. per cwt. £0	2	2	
Commission	0	0	10
			<hr/>
			0 3 0
			<hr/>
			2 1 $1\frac{3}{4}$
			<hr/>
			£0 0 $0\frac{3}{4}$
			<hr/> <hr/>

This shews a difference of $\frac{3}{4}$ d. only in favour of the Leicesters. With reference to the comparative value of the fleece the previous year, this may be set down as follows:—

Leicester fleece, 7 lbs., at 10d. per lb.	£0	5	10
Cheviot fleece, 6 lbs., at 1s. do.	0	6	0

These respective prices are assumed, because the Edinburgh skimmers will give fully as much for Cheviot hides,

if the sheep have been highly fed, as for Leicesters, from the wool being worth more per pound. As to tallow, it is safer to calculate 11 lbs. of loose tallow out of ripe Cheviots, than 9 lbs. out of Leicesters, although fed together; as Cheviot sheep, when ripe, are full of tallow; but the riper Leicesters are, the less tallow they produce.

Cheviot sheep, as previously mentioned, always meet a ready sale; but fat Leicesters are often unsaleable in full supplied markets. Supposing, therefore, twenty of each were sent in carcasses to the same salesman in London, the Cheviots would be sure to be at the top of the account, at, say, 3s. 8d., 3s. 6d., and 3s. 4d., as all sheep in the same lot are not alike in quality; the Leicesters would be under, at, say, 3s. 2d., 3s., and 2s. 10d., with some remarks by the salesman on the margin relative to them: as "too fat," "very fat," or "fat sheep are almost unsaleable," or "difficult to sell," &c.

The above may be considered strange; but the facts are too true, and clearly shew the changes which have taken place in the two breeds within the past forty years. If Mr. Culley had been told in his time that Cheviot sheep would pay as well on the Lowlands of Akeld, as Leicesters, when fed for the butcher, he would have declared it impossible. He had flocks of both kinds on his extensive farm on the borders of the Cheviot hills; but what value did he put on the one breed in comparison to the other? He cherished the Leicesters as the apple of his eye; while he thought little about the Cheviots, as they were at that time only considered fit for high lands, and, when fed, only in secondary request in the Morpeth market—Leicesters being at that period the sheep most in demand. In the foregoing calculations, it may be

said that the weight set down for the two-year-old Cheviots is too great; but the author has bought many Cheviot lambs at Yetholm, St. Boswells, and Melrose fairs, which, although lambled on high grounds, reached, when fed, 20 lbs. per quarter at two years old; particularly those bred about Yetholm, on the farms of Bloody-laws, Swinside, &c. He once bought a lot of lambs bred on the farm of Bangorknowe in Yarrow (afterwards called Mount Bangor, when in the occupation of the Ettrick Shepherd), which, at two years old, weighed about 26 lbs. per quarter, and realised 48s. each. In May 1849 he bought some two-year-old Cheviot sheep, fed on the farm of Hallyards, near Edinburgh, which were killed for London, and their average weight was $21\frac{1}{2}$ lbs. per quarter.

Having waived the point as to whether the Leicester or Cheviot sheep consume the most food, this question must be left to some practical breeder to solve by actual experiment on the large scale.

9. THE BLACKFACED BREED.

This breed of sheep has existed on either side the Border for so long a period, that a difference of opinion prevails as to whether it is a native of the English or Scottish mountains. A concurrence of circumstances leads to the conclusion that it originated north of the Tweed; although, at an early period, known to inhabit the Lancashire, Yorkshire, Westmoreland, and Cumberland hills. To this day there are several flocks on the English borders; but within the last sixty years, the

Blackfaced has been the principal breed in all the Highland districts of Scotland. Prior to that period the sheep of the old breed was wild-looking, with long spiral horns, an ungainly carcase; long, coarse, shaggy, wiry wool; rough mottled cheeks and forehead; and very hairy about the hips and legs. In hard frost the ice might be seen dangling about their legs, bellies, and hips; but such was their nature, that if they got sufficient food, even of the coarsest kind they could endure a great deal of cold. Not being very particular about the quality of their food in winter, they are good foragers, and can buffet the weather better than any other breed of sheep. From sheep-draining and reducing of cattle stocks on the Scottish hills and mountains, Cheviot sheep have, in a great measure, taken the place of Blackfaced; farmers finding the Cheviots to be equally hardy, and they invariably command from 4s. to 5s. a-head more in the English markets, and meet a readier sale.

The Blackfaced breed has been much improved of late years; and now approaches very near to the Leicester in point of symmetry. The first improvers were the Gillespies of Douglas Water, in Lanarkshire, who deserve nearly as much credit as the great Bakewell obtained for improving the Leicester. By their judicious selection of tups, drawing the ewe hogs properly, and by attention to the points and symmetry of the animals used for breeding, the old rough points were, by perseverance, got rid of; and the new race, or improved breed of Blackfaced, have now a different aspect to the old. In the first place, the head is of a finer form, with mottled clean cheeks, bright eyes, and long jaw-bone, fine round, or, what is

termed, wheel hams; the carcase of a barrel-like form, but rather short; ribs well arched; shoulders and back broad and straight; prominent breast. The new breed has also much finer wool, and free from kemps or hair, and without any mixture of black spots in the skin—a fault common in the old rough breed. A true-bred Blackfaced tup is a most formidable and noble-looking animal: the immense twisted horns, measuring from base to tip full three feet, and eager eye, giving him a very bold and determined aspect. Mr. Gillespie of Ardachy, near Fort-Augustus, was among the first who, about forty years since, introduced this new and improved breed to the Highlands; since which time the Blackfaced sheep have generally been much improved in the Highland districts. Those who have yearly visited the Falkirk markets, even within the last twenty or thirty years, must have noticed a decided change for the better in this breed. Its aptitude to fatten is superior to the Cheviot, and will thrive better on rougher pastures; but they like a full bite, although not over particular as to quality, and will get fat on rough lands if not overstocked. When put to turnips at three years old in good condition, they are fit for market in March or April, weighing at this time from 14 to 18 lbs. per quarter, and some of the best fully 20 lbs. The mutton of the latter weight is of the finest quality, equal, if not superior, to any Southdown. When well fed, however, although suitable for some of the Scottish, they are not good selling sheep in the London and other English markets, as they want plumpness. The fine grain and delicate flavour of the Blackfaced mutton is unrivalled; and it is well known that the Scot-

tish nobility and gentry, as well as all epicures, will eat no other, if they can get it. Gentlemen who kill their own mutton obtain an annual supply of three-year-old wedders from the hills, and feed them for two years on turnips, hay, and rich grass, when they generally weigh upwards of 20 lbs. per quarter, and in some instances, 25 to 30 lbs. When they get to the latter weights they are termed "cherry-ripe," and are in the highest state of perfection. At this age they are prized by the epicure for their fine qualities, and the rich claret-coloured gravy which flows from the joints when cut up. It is pretty certain, however, that a true-bred Blackfaced wedder can be made as ripe at three as at five years old, and the gravy as rich and high coloured. Like the Cheviots, they rarely enjoy luxuries of any kind when young, and, consequently, seldom have a fair chance; and it is only when a few are left over in a pet flock, on a good feeding farm, and when treated in the same manner as Leicesters or half-breds, that any experiments have been made to feed them at an early age. One instance of this kind came under the author's observation on the farm of Skate-raw, belonging to Mr. William Bogue, where some animals were sold and killed at two years old, and weighed, on an average, 27 lbs. per quarter, and proved as ripe and full of substance and gravy as any five-year-olds. Other corroborative instances might be adduced, but the preceding will suffice. On the 8th April 1850, this gentleman had in his possession four dinmotts, or two-year-old wedder hogs, which had been left over from his pet flocks of 1848 and 1849; these he weighed alive at the above date, and found them to be as follows:—

	lb.	st.	lb.
No. 1. Dinmont	187	or	13 5
2. Do.	183	or	13 1
3. Do.	179	or	12 11
4. Do.	155	or	11 1
5. Hog.....	137	or	9 11
6. Do.	129	or	9 3
7. Do.	117	or	8 5

The above will shew that these dinmonts will weigh fully 27 lbs. per quarter dead weight. Mr. Bogue also states that his sheep in 1849 beat Southdowns bred and fed along with them. This may be considered as a very favourable result in feeding Blackfaced sheep—27 lbs. per quarter being a fair weight for Leicester sheep of this age, even when extra fed. These animals were from the stock of Mr. James Darling of Priestlaw. By breeding widders from the hills at three years old in a fresh state (these widders, when hogs, being generally lean, or in middling condition), they lose their lamb lyre and natural juices, which can never be recovered by any subsequent feeding, however rich. From this it is evident that a Blackfaced sheep, fed regularly from its infancy, will be riper than a three-year-old widder brought from the hills, and fed two years, however fat it may be made by rich feeding. If a few gentlemen were to try the experiment by purchasing some well-bred Blackfaced ewes at lambing, and keep the widder-lambs on full feeding till three years old, they would find this statement correct. From many instances that could be adduced, it is plain that it is not age altogether that makes rich mutton, but proper feeding. This cannot, however, be said of the Leicester or other breeds.

These opinions are at variance, not only with the

generality of breeders, feeders, and butchers, but with the preconceived ideas of many consumers; as it is often remarked that mutton cannot be good at two or even three years old. Many sheep-farmers, although possessing good flocks of Blackfaced sheep on hilly districts, so overstock their lands, that they do not give them a fair chance. Were they to reduce their stocks one-third, they would be as well paid, besides having better sheep to dispose of, and at an earlier age. One-half of the sheep-farms in Scotland are over-stocked, particularly those under Blackfaced sheep. This is a most egregious error, but which every breeder can correct. Instances are not rare where the prices of Blackfaced widders have been augmented 4s. and 5s. a-head by lighter stocking, and ewes in proportion. The contrast between those who overstock and those who do not, is very obvious when the stocks are shewn in open market. Well-bred sheep in full condition will always find buyers in the worst of markets; while others, from bad condition or bad breeding, will be neglected, even when supplies are deficient, or sold at a reduced price—probably at not two-thirds the price of lots of the same age, kept on equally good but overstocked land.

Although this breed of sheep is greatly improved in most of the high districts of Scotland, there are still many ill-bred stocks sent to Falkirk, Doune, and other large markets. This is entirely owing to mismanagement, as all land in Scotland capable of keeping a bad flock of Blackfaced will as readily support one of the improved breed, which is equally hardy, and as easily kept.

The qualities of Blackfaced sheep are well known

and appreciated in Scotland; but in England the mutton is comparatively little esteemed, the Southdown being the favourite. This may be partly accounted for by the higher classes in the latter country not having an opportunity of supplying themselves with small lots of Black-faced. Being naturally wild, they are bad drivers, unless in very large flocks; but now, when lots of thirty or forty can be transmitted by steamboat or railway, they might be sent to all parts of England, where the delicious qualities of the mutton would soon be discovered, and an anxiety expressed to have regular supplies.

The principal markets where these sheep are exposed for sale are the Falkirk great Trysts, held on the second Mondays of September and October. From 70,000 to 80,000 are shewn there at a time—the larger number in October. Fully one-half of the number are three-year-old wedders—the remainder, two-year-old wedders, ewes, and tups. The principal supplies are from the North and West Highlands, and from Perthshire, the Ochil Hills, &c. Although some superior animals are brought there, inferior lots of the old rough breed are not uncommon. The Falkirk Trysts are followed by large markets held at Doune, in November and December. But, although the sheep exhibited here for sale are from the same districts, they are generally inferior to those at Falkirk, as the best lots are always brought out first. The sheep shewn here are almost exclusively of the Blackfaced breed. The numbers may average from 20,000 to 30,000 at each market. Those bred on the high lands on the south of Scotland, viz., in the counties of Lanark, Dumfries, Galloway, Ayr, Peebles, &c., are mostly exposed for sale at the markets of House of Muir,

on the first and second Mondays of April, for the sale of ewes at lambing—and at Linton, in June, for the sale of ewe and wedder hogs, dinmonts, and tups. At the latter may be seen the best flocks in Scotland of the improved breed of Blackfaced, as scarcely any of the old are there exposed for sale. A large market is held at Lanark for the sale of Blackfaced lambs, chiefly of the improved breed. At these markets breeders have a good opportunity of supplying themselves with ewe hogs or ewe lambs of the improved breed. Several markets are held at Glendevon, near Dollar, for the sale of the stocks from the Ochil Hills, and where very superior sheep are often shewn. Most of the animals exposed here for sale are fat, and are principally bought for the supply of Edinburgh, Glasgow, and other large cities. An important market is held at Culloo, near Kirriemuir, in Forfarshire, where from 50,000 to 60,000 are generally collected for sale. This market is now considered the best in Scotland for Blackfaced sheep. The principal market is held in October, when the largest numbers are generally on the ground, a large proportion being three and four year old widders. The best lots are from Glenesk, Clova, Braedownie, &c., and many are bought-in hogs and lambs, from Linton and Lanark, in good condition, and quite fat enough for any market. Fully one-half of the widders is fat for the butcher, and suitable for London, or any other market. In Perthshire, markets are held at Alyth, Killin, Coshieville, &c. In Aberdeenshire there are periodic markets at Slateford, Spittal of Glenshee, Castleton of Braemar, &c. Markets are held at Inverness in July, for the sale of sheep, lambs, and wool. This is the most important one in the North of

Scotland, and is attended by all the sheep-farmers in the locality, and by great numbers of buyers (both of sheep and wool) from England and the south of Scotland. No sheep are shewn here, the sales being made from the character borne by the stocks, which is generally well known to buyers. The sale of Blackfaced sheep here is not, however, so extensive as that of Cheviots and Crosses. At this market, as well as Falkirk, Doune, &c., sheep are all sold by the "clad score" of twenty-one. This completes the list; from which some idea may be formed of the principal markets for Blackfaced sheep.

Many small lots of Blackfaced sheep, which have been extra fed at various times for premiums, at the annual competitions of the Highland and Agricultural Society of Scotland, have been pronounced complete models of the improved breed, being quite equal to Leicesters in point of symmetry, handling, and fat; and when slaughtered have given satisfaction to the butcher and consumer. Wedders so extra fed, have weighed from 30 to 35 lbs. per quarter, and in some instances more; but there is no doubt that a great deal of waste is occasioned by making sheep of any breed too fat, as they get oily. About 20 lbs. per quarter may be pronounced a good weight. In 1849 Messrs. Plummer and Laidlaw of Edinburgh slaughtered about 200 Blackfaced wedders, four years old, partly fed by Mr. John Archbold, on his high farm of Greengelt, on the Lamermuir hills, and partly by Mr. John Finnie, Swanston, near Edinburgh. This was undoubtedly the best lot of sheep ever slaughtered in Edinburgh, which had not

been fed for premiums: the average weight was about 25 lbs. per quarter, and some near 30 lbs.

From the foregoing, a conclusion will be arrived at, that the Blackfaced is a useful breed for high districts; and that the mutton is a great favourite with epicures.

10. THE DORSET BREED.

This is a breed which can be much improved by the Leicesters; but as there is a very peculiar point about it which makes the breed in its pure state useful, it may probably be as well to allow it to remain pure. They are, in one respect, like the Merinos, as they bear young at all seasons, and it is from this breed that lambs are produced in England to supply London, &c., with Christmas, or what is termed "house lamb:" for this purpose, therefore, they are valuable. Almost all other breeds have their seasons, but the Dorset will take the tup and conceive while suckling their lambs, and sometimes bear twice a-year. Their principal lambing season is in November and December; and the lambs are fed in the house. They are confined in small cribs, and allowed to suckle their mothers at stated hours only; and, from having nothing except milk, and kept dry and clean, the flesh is very white and delicate. The ewes are well fed with all sorts of green food, grain, and oil-cake, and every attention paid them. In point of size, this breed resembles the Cheviots, with nearly the same quality of wool, but with larger and stronger bone. They are white faced, with fine wheel-turned horns, and are pretty good feeders. At one time it was asserted that this peculiarity in having lambs at all seasons was from some

particular grasses indigenous to Dorsetshire; but as they have produced young in the same way in many parts of England, as well as Scotland, it shews that it is the peculiar nature of the sheep. A few have been tried in Scotland which produced excellent early lambs.

II. THE OLD NORFOLK BREED.

This is another curious breed, but now nearly extinct. They are all black faced, and have black legs, with large bones, and long lean-looking carcasses, with fine short wool. The mutton is fine grained and well flavoured—something like the Blackfaced. They are wild and very restless, and, from their long lanky frames, are great eaters. They were at one time much used for the purpose of folding the land; but, not being found profitable, were neglected; and the breed is now nearly extinct, Leicesters and Southdowns being substituted.

12. THE BORDER MUGS

Another old race once existed in Northumberland and Border counties, called Mugs. They were a long-woolled short-legged sheep, very "muffy" about the head and legs, but pretty good feeders. Many of the present flocks of Leicesters were originally from this breed; but from being so long crossed with the new Leicesters, scarcely a trace of the old Mugs is left.

The other short-woolled breeds in the United King-

dom, although widely scattered, seem almost to be the same races, viz., the Welsh, the Ryeland, the Old Shropshire, and the Herdwick, in England; the Kerry, the Wicklow, and the Galway, in Ireland; and the old breeds, including those of Orkney and Zetland, in Scotland. These are all short-woolled sheep, and most of them very diminutive and useless breeds, generally wild, being, no doubt, the originals of these mountainous and hilly districts. The wool of all these breeds is nearly alike—part of the fleece being extremely fine, and part coarse and kempy.

13. THE WELSH BREED.

This breed, inhabiting the mountains, is very small, but the mutton is sweet and delicious, and is much prized in London, selling higher than any other. The widders are generally from 8 to 10 lbs. per quarter, and if five years old and fat, a little more. The ewes only weigh from 6 to 8 lbs. per quarter. The Welsh mountains are still inhabited by these small sheep, although capable of keeping in many places Cheviots and Blackfaced. Some of the Welsh breeders have adopted the Cheviots. On many of the low grounds the Leicesters have also been introduced, and done well.

14 AND 15. THE RYELAND AND OLD SHROPSHIRE BREEDS.

These are now nearly extinct, as the fine quality of their wool was the only inducement to breeders retaining

them ; but they were unprofitable on the whole, and from the country getting improved, other and more profitable breeds have taken their place.

16. THE HERDWICK BREED.

These are to be found on the Cumberland and Westmoreland hills in great numbers ; but it is evident so diminutive a breed cannot be a profitable one. It is said to be originally from Scotland, a ship having been wrecked off Whitehaven with some sheep on board which sailed from some part of the Highlands, a few of which were saved, and got on to the Cumberland hills, where the breed was perpetuated. This, however, seems doubtful, as they are so small as only to weigh from 10 lbs. to 11 lbs. per quarter at four and five years old. Their wool is generally fine and short, but mixed with a kemp or hair. Although not profitable, breeders persevere with them, and indeed prize the breed so much that they will allow no mixture, and have even of late established annual shows for premiums for pure Herdwicks. These shows are held at Edderly Bridge, and sometimes nearly 100 lots will compete for premiums.

17. THE KERRY BREED.

The Kerrys are famed for lambing early. Most of the early lambs for the supply of the Cork and Dublin markets are the produce of this breed. They are very small, but the flesh is of fine quality, contrasting favourably with the large coarse breeds in Ireland.

18. THE WICKLOW MOUNTAIN BREED.

With respect to these sheep, they are larger than the Kerrys, although partaking many of their characteristics. About forty years ago, when there was a great demand for fine clothing wools in Great Britain and Ireland, the quantity then imported from foreign countries being inadequate for our home manufactures, great exertions were made by the British Wool Society, patronised by George the Third, and a great many noblemen and gentlemen, to introduce Merinos and other fine breeds, for the improvement of the growth of fine wools. The same spirit was caught by the Irish breeders, and the Farmer's Society of Ireland used every means to improve the Irish breed, by crossing with the Southdown and Merino. Their attention was principally turned to the improvement of the native sheep on the Wicklow mountains, and the Society not only gave liberal premiums for the best Crosses from the Southdown and Wicklow, but they also imported a great number of tups of the former breed from the Duke of Bedford, Mr. Ellman of Glynd, and others, and gave these tups to the different tenants as presents, to encourage the crossing. The result is seen in the present state of the sheep of these mountains, which are almost like a new race. From the pasturage on these mountains being fine, and the land dry, the Crosses thrive well, and have continued to do so, while both the carcase and wool have been much improved. Every encouragement was then given by the proprietors in the county of Wicklow to improve

their mountain stocks by crossing; among the more prominent of whom may be specified the Earls Fitzwilliam, Farnham, Meath, and Charleville; Lords Powiscount, Lismore, Cahar, Claremont, Carberry, and Doneraile; Sir Geogre Hill; Colonels Keating and Hardy; the Reverend James Syme, and others. The latter reverend gentleman, who was among the most zealous to promote the growth of fine wools, procured a number of Merinos, part of which he purchased at liberal prices from Lord Somerville, at his sale in 1811. One ewe, for instance, cost him 43 guineas, while for two others, and a tup lamb, he paid 51 guineas each. A tup at this sale was sold for 145 guineas, and a ewe at 68 guineas. Mr. Syme received a present of five ewes and a tup from George the Third, from a flock of Merinos presented to his Majesty by Sir Joseph Banks. He also procured 80 Southdown ewes, and one tup from the Duke of Bedford's flock, and then tried crossing with the Merino tup and Southdown ewe, which does not appear to have succeeded, neither did the Merinos in a pure state, while the Southdowns succeeded admirably, not only as a breed by themselves, but as a cross with the Wicklow mountain sheep. Mr. Syme obtained for his Southdown wool, at the Farmers' Society's annual sales of wool, at Dublin, in 1811, 8s. 5d. per lb. and 8s. 8d. per lb. for his Merino fleeces. The latter he soon afterwards gave up, but continued the Southdown and Crosses of this breed with the Wicklow. The Right Honourable Colonel Burton Coningham of Slane imported some Merinos into Ireland so far back as 1794, but not finding them profitable, made presents of them to his

friends. It appears from the foregoing and other instances that the Merinos will not succeed in any part of the United Kingdom, while the Southdowns seem to thrive almost everywhere, if the pasture is tolerably good, and the elevation not too great. Mr. Critchley of Grangebegg, who has land partly in the counties of Dublin, Kildare, and Wicklow, was the first to introduce sheep of the Southdown breed into Ireland, and he gained the Irish Farming Society's premium of £40 for the best pair of Cross ewes in 1807, and sold the wool of this Cross at 3s. 6d. per lb., and his Southdown wool at 6s. 7d. per lb. The Irish Farmers' Society presented him with a number of Southdown tups, and he used no less than fifty of them in 1810. So eager was he to establish and encourage the breeding of sheep, that he presented twenty Southdown tups to his tenantry, and gave them, besides, one guinea each, if they preserved the tups in good and clean condition at the end of winter. He also tried the Leicesters at that time; but the rage being then at its height for fine clothing wools, he gave them up, and stuck to the Southdown and Crosses. This spirited breeder had upwards of 2000 sheep on his estate—Southdowns and Crosses. He must have had good shepherds, as his stock was managed most judiciously. It is said of one of them, that on 100 ewes being put into one pen, and their lambs into another, the man picked out and matched every lamb with its mother. This is a feat that few of our Scottish or English shepherds could have accomplished.

19. THE OLD SCOTTISH BREED.

At one time many of the high districts of Scotland were inhabited by sheep of the same description as the Herdwicks, which were then called the *dim-faced breed*, of a very small size, and rather fine wool. This breed has been extinct in the mainland of Scotland for many years, but is still found in the isles of Orkney and Zetland, where there are many thousands. Of late years the numbers have diminished from two causes—the division of commons, and from better and improved varieties, being introduced. The new and improved breeds are, however, yet limited in comparison to the old stocks; but the fact is, the improved breeds would not live by the treatment and food on which the old breed subsists. Cheviots and Leicesters have succeeded well in Orkney, where climate and soil are both suitable, and some very well bred Leicesters are now to be found there; but notwithstanding, there cannot be less than from 30,000 to 40,000 of the old small breed remaining, and fully as many in the Zetland Islands; as from 500 to 1000 sheep will frequently be seen grazing on a common in one parish, principally belonging to small tenants, some having four or five, others ten, twenty, or thirty. All have their own marks, some of the sheep being cut or pierced in the ears, while others are distinguished by pieces of coloured cloth, sewed into the wool, on different parts of the body. The animals are only gathered two or three times a year—once at the clipping, or what is called “rueing” time, when the tup lambs are cut, and again, perhaps once or

twice, at the fall of the year, when every one removes his cast of ewes or wedders, either for home use or for sale. The wool is generally manufactured by the inhabitants for their own use, partly into a kind of twilled cloth called "wheeling," which is principally used for blankets, while the remainder is woven into plaidings, which is warm and durable for the wear of country people. The sheep are various colours, as white, black, tawny or brown, grey, mottled, &c. The black, grey, and brown wools are made into stockings.

These sheep have singular habits, from being kept on headlands and uninhabited islands, to which they adapt themselves very readily. Having little or no grass, they live upon and devour the sea-weed greedily, and may be seen watching the receding of the tide, and flying again as the waves advance. The flesh of these Orkney sheep, fed on sea-ware, is of a dingy colour, although sweet and delicious to the taste, like all others of the small breeds, and is very similar to the Welsh mutton. The general weights of the wedders, at three and four years old, is from 9 to 12 lbs. per quarter; ewes from 7 to 9 lbs.

The most northerly island of Orkney is North Ronaldshay, the interior of which is a fine fertile turnip and bere or barley soil; but on the outskirts there are several patches or points which cannot be cultivated. The proprietor, William Traill, Esq. of Woodwick, arranged with the tenantry to form a stone wall, which was accordingly built round the island, which is about four miles long, and one broad. This wall is sufficiently high to keep the sheep from the arable lands. From 1000 to 1200 sheep are kept on the shores, belonging to the various

tenants; but the grass is not sufficient to support one-half the number—the animals, consequently, depend for the greater part of their food on the sea-ware. These sheep are very useful to the inhabitants of the island, as their wool is nearly all manufactured into clothing, blankets, plaidings, and stockings for their own use. A North Ronaldshay farmer may be seen at kirk and market decently dressed in his home-made clothes, even to the coverings for his feet, which are of peculiar construction, called “revellings,” made from small cow or ox hides, preserved in some manner with the hair on. These are fitted to the feet with the hair outside, and laced over the top of the foot with very narrow strips of leather cut from the hide. The same description of shoes is also pretty general on the adjacent island of Sanday.

The number of sheep in the Zetland islands is fully more than those in Orkney; but, if any difference, they are rather smaller, and have finer wool; but both breeds have a mixture of hair or kemp. The Orkney people generally manufacture their wool as it is sheared, while the Zetlanders pursue a different system. A great many of the Zetland sheep grow remarkably fine wool, mixed with a kind of kemp; but the system of separating it is very ingeniously managed, whatever may be said of its humanity. The sheep are not clipt, the fine wool being pulled off carefully by the hand, while the hair, termed “scadder,” is left on the sheep, which wears off as the new wool grows. Some of the wool is so fine as almost to resemble silk, and none in the world is of such fine texture—the fineness of the yarns when shewn being truly astonishing, and when manufactured into hosiery,

is not to be equalled. So fine are some of their stockings, that a pair (men's size) will pass through a lady's gold ring, and is sold at 30s. Shawls and other articles of dress for ladies, are also made in Zetland, of exquisite fineness and fabric, so as to excel all similar articles manufactured in Britain, or elsewhere. The celebrity of the Zetland hosiery is widely spread, and affords a considerable deal of employment to the poor people in these islands—in fact they have been driven to it by necessity; but they are, like the silk weavers of Spitalfields, not well remunerated. From 5d. to 6d. per day is as much as they can make in knitting these fine articles of dress, and for the coarse hosiery, &c., even less. There are several establishments, both in Edinburgh and London, for the sale of Zetland hosiery.

Cheviot sheep have been introduced into Zetland, but if this Cross is persevered in, the wool for fine hosiery purposes will be deteriorated. No question can, therefore, arise as to the propriety of keeping the present breed quite pure.

20. THE SPANISH OR MERINO BREED.

From trials which have been already made of the Merino sheep, it is very problematical whether they can ever be successfully reared in this country. George III., Lord Somerville, Sir John Sinclair, and others, attempted it; but although every care was taken, and great expense incurred in their management, a failure was the result. His Majesty's flock was then under the charge of Sir Joseph Banks, the eminent naturalist, who spared

no expense in its management; but it was all to no purpose, the climate of Britain proving too severe. Excepting the fineness of the wool, they have few good properties to recommend them; while the expense of support and attendance, is more than double that of any other breed. A considerable flock was kept about thirty years ago on the Marquis of Breadalbane's Langton estate, under the care of the late Mr. David Cowison, who understood their nature. The writer had frequent opportunities of seeing this flock, and purchased from it. Mr. Cowison paid great attention to it, as well as the shepherd, who was a practical and careful man. The sheep were housed and kept under temporary sheds, when the other breeds were exposed to the weather; and yet, with all this attention, and good keeping on turnips, hay, new grass, &c., they were never what they ought to have been, with such care and feeding. The three-year-old widders seldom exceeded 16 lbs. per quarter; but when killed were very ripe, and remarkably full of tallow, some producing no less than 18 lbs. Leicesters, or half-bred sheep of the same ages, with similar food, would, however, have been nearly double the weight.

Crossing with the Leicester improved their fattening properties wonderfully, but destroyed the principal object in keeping them—the wool; although it was said that the value of the wool was increased, in consequence of the fleece being heavier, with a longer staple, and fit for combing.

Mr. Cowison often complained, and said they were a very unprofitable stock, and was happy when he received orders to sell them off. The breeding of Merinos

is now entirely given up in this country. The wool is very thick and close, and possesses so much yoke or grease, that no sheep can repel the water better. The reason they do not thrive in this country must be entirely owing to their weakly constitutions. There is another bad property which attends the Merinos, viz.—the foot-rot, which, it is generally believed, they introduced into many parts of Britain. If ever they are again introduced, the tups should only be used for crossing Blackfaced ewes. Probably a useful sheep might be produced from this Cross, of hardy constitution, and producing a fine quality of wool.

CHAPTER IX.

ON CROSSING THE VARIOUS BREEDS OF SHEEP.

1. BLACKFACED EWES WITH LEICESTER TUPS.

THIS was a Cross very little known thirty years ago, and only to be seen previously to that time, in a farmer's pet flock. It was quite common for two farmers, bearing the expense in equal proportions, to buy twenty Blackfaced ewes in October, and have them tupped with a Leicester. The following year, when the lambs were fat, they killed one a-week alternately, and divided it; so that in hot weather they never had an over-supply of meat. When the ewes were fat, they killed or divided the remainder of their little flock. The lambs sometimes weighed 16 and 17 lbs. per quarter. Beyond this, the Cross at that time was scarcely known, and the lambs being generally all killed, little opportunity was given to prove the Cross as fat sheep, except when a lamb or two was left over by chance. The author once purchased a Cross hog of this kind from the late Mr. Thomson of Laws, which was kept until it had attained the age of three and a-half years. When slaughtered, it weighed $39\frac{1}{2}$ lbs. per quarter; while the annual weight of the fleece was 12 lbs. of washed wool, nearly as fine as that produced from the Leicester. One year this fleece realised 1s. 3d. per lb. At the time

of slaughtering, mutton was 7d. per lb.: the net produce of this animal was, therefore, nearly £5! In 1822, the author had a considerable stock of well-bred Black-faced ewes on the farms of Langtonlees and Blackrigg, on the Langton estate on the Lammermuirs; and, although it was the opinion of the sheep farmers in the neighbourhood, that on their farms, as well as others similarly situated, no other sheep but the Blackfaced could be kept, half a-dozen Leicester tups were procured for crossing. It was generally supposed that the lambs would never survive the spring, being too delicate to stand the cold of that part of the country; but although the lambing time proved rather unfavourable, the Crosses braved the weather as well as the pure Blackfaced, and very few deaths occurred. A first-rate feeder was prevailed on to make a trial of these Cross lambs; and he purchased 100 of the wedders, in order to prove their feeding qualities. From the cold backward spring, they were not in very good condition at weaning time; but when they obtained proper food they thrived admirably, and at two years old, made splendid fat sheep, weighing 22 lbs. per quarter. The author repurchased them afterwards at 52s. each, and sold them at a profit. Next year, all the Blackfaced ewes in the same flock were tupped with Leicesters; the same feeder again bought them, and at the same age they were fully better in condition than the former lot, and sold at 51s. each. This proved the feeding qualities of this Cross. They produced fleeces of wool fully as heavy as the Leicester, as proper care was taken, in selecting the tups, to have a good covering of wool on every point, knowing that the produce had some trials to undergo. The feeder was afraid that the manu-

facturer who had purchased his wool formerly (a shawl weaver near Alloa) would find fault with the quality of that from the Cross sheep, but he took no notice of it the first year, and, as proof that he was not dissatisfied, he purchased it the second year, which proved the wool of this Cross to be useful for the manufacture of shawls. Both tups and ewes were well bred of their kinds. The ewes were purchased from some of the first breeders in Lanarkshire, &c., and the tups were got by a sheep hired from Mr. Smith of Marledown, at a high price for the season. Other sheep farmers on the Lammermuirs, seeing these favourable results, followed the example thus set; and in a few years a great many of the Blackfaced ewes in the district were crossed with Leicesters with most favourable results, and the practice has since been continued with spirit.

Several low-country farmers in Berwickshire, &c., have taken farms on the Lammermuirs, where they keep a pure Blackfaced stock of ewes which they cross with Leicester tups. The Cross lambs, wedders and ewes, are taken to the low farms to feed at weaning time, where they are kept till 20 or 22 months old. Their general weight at this age, when fed on good land, is about 20 lbs. per quarter, and sometimes more. This system answers very well, as it saves the expense of keeping breeding ewes on the low farms, always a heavy stock, and gives the Cross lambs an excellent chance, as they get all the new, as well as the entire, grass of these farms; whereas, if a ewe stock was kept, the ewes with the double lambs would get the best of the young grass. From the hogs faring so well, they are in good condition at 20 or 21 months old, and fit for any market in the kingdom.

This system of crossing is now carried on throughout all the hill-side districts of Scotland where Blackfaced sheep are kept. The general system adopted by many breeders is, to keep the entire stock of Blackfaced ewes pure, and to purchase every year a fourth part of the number of either ewe hogs, or ewe lambs, at Lanark or Linton, of the improved breeds, to fill up the place of the cast ewes sold at four years old. While, however, the ewe stock is kept free from admixture with other breeds, the whole lambs produced on the farm are Crosses from the Leicester, but never go farther than the first Cross. Many opinions prevail as to the propriety of proceeding farther than the first—some breeders thinking that the second and succeeding Crosses are not so good as the first, while others are of opinion that they can be improved by successive Crosses, and that the farther they are crossed, the better.

The system of crossing Blackfaced ewes with Leicester tups, has proved successful from the Mull of Galloway even to Dunnet Head, in Caithness (the latter being farther north than John o' Groat's, and a high bare headland, the property of George Traill, Esq., M.P. for Caithness). On this headland the author has seen Blackfaced ewes crossed with Leicesters taken with their lambs to Mr. Traill's low grounds at Castlehill at weaning time, and the following year they have been shewn at George-mas market good fat sheep.*

The value of this Cross is now so generally acknowledged and so extensively carried on throughout Scotland, that in almost every fat and keeping market they

The author's notes do not throw any light on the obscurity of this sentence, which has therefore been allowed to remain as originally printed.—ED.

are now to be seen, and no sheep finds a readier sale. When fat they are well liked by butchers, and also please the consumer; and from being good feeders, are eagerly bought for feeding purposes. To those who occupy both a high breeding farm and a low feeding farm, they are a most useful stock. A farmer having two farms of this description, may, under a well-regulated system, such as has been indicated, save the expense of keeping a heavy stock of breeding ewes on his low farm, and from buying in a mixed lot of lambs if he is not a breeder—a practice carried to some extent by many farmers.

By this system, as before observed, the entire stock of ewes on the high farm is Blackfaced; as, by annually purchasing a certain number of lambs of this breed, the ewe flock is thus kept pure, and, by crossing the whole with Leicester tups, the entire cast of lambs is Leicester Crosses. The whole fat produce is therefore uniform. Although the stock is crossed every year, yet it is never changed, the ewes being all Blackfaced and the lambs all first Cross from Leicesters.

The majority of arable farms ranging from 200 to 1000 acres and upwards, it may be a question what is the best size of such high and low farms, in order to work well together. Supposing a low farm to consist of 500 acres of good dry turnip and grass land, then, what extent should be the high farm to produce lambs equivalent to supply the low farm with feeding stock? This will in a great measure depend on the rotation of crops; and as too close cropping not only deteriorates the land, but is also unprofitable in the end, such a farm should be worked under the eight-shift course of husbandry. The high farm should be a good grassy hill-side, capable of

keeping 640 Blackfaced breeding ewes; and calculating the rent at the rate of 7s. 6d. each per annum, it should not exceed £250. Forty acres of the best should be kept in tillage, to produce turnips for the ewes, both before and after lambing. The land thus set apart, would, under a four-shift course, produce 9 acres of turnips, and 1 acre of potatoes and tares; and could be easily wrought with one pair of middle-sized horses, or breeding mares.

The receipts and expenditure of such a farm would stand about thus:—

RECEIPTS.

640 lambs at 10s. each	£320	0	0
800 fleeces of unladen wool at 2s.	80	0	0
Sell yearly 160 ewes at 12s.	£96	0	0
Buy yearly 200 ewe lambs at 8s.....	80	0	0
		16	0
Sell yearly 40 qrs. of oats at 15s.	30	0	0
		£446	0
		0	0

EXPENDITURE.

Rent	£250	0	0
Use of 10 tups, say	15	0	0
Shepherd's wages, coals, &c.	8	0	0
Occasional assistant	5	0	0
Ploughman	8	0	0
Boy	6	0	0
Cutting and thrashing crop	10	0	0
Working turnips and hay	5	0	0
Tear and wear, and other expenses...	25	0	0
Seeds, say.....	4	0	0
		£336	0
		0	0
Profit	£110	0	0

By the above calculation it will be observed, 40 extra lambs are allowed for deaths, &c., and should the twin

lambs not be sufficient, the extra value of the eild ewes would buy lambs of the same kind to make up the number. Allowing the corn crop after lea and turnips to be all oats:—

	Qrs.
Say 20 acres oats at 5 qrs. per acre	100
Keep for seed	15
For servants, horses, &c.	45
	— 60
	<u>40 to sell.</u>

By giving the shepherd and ploughman an extra cow each, and an extra quantity of meal and potatoes to maintain and victual the two assistants on the farm, this will include the whole expenditure; and by having only 40 acres under crop, the ploughman and boy will have time to do all the other jobs on the farm.

The rent, and probable expenditure and income on the low farm has next to be estimated. Suppose 20 acres out of the 500 are set aside to be wrought separately, on a four-shift course, for potatoes, wheat, and oats, for farmer's use, and new grass for soiling horses, &c., the breaks on the rest of the farm will be 480 acres, under an eight-shift course, 60 acres each, and will stand thus:—

	Acres.
Turnips.....	60
Oats	60
Barley	60
New grass.....	60
One, two, three, four, and five year old grass	240
	— 480

Allow three pairs of good horses to work the farm, with

an odd one, and one for the farmer; and say that only five cows and a bull are kept; rear, say, ten calves, by getting five from servants' cows, allowing each one; three for ploughman, one for shepherd, and one for grieve. The number of cattle and horses would, therefore, be—

Horses	9
Cows and bull	11
One-year-olds	10
Calves.....	10
	<hr/>
	40
	<hr/>

Allowing 40 acres of grass for horses, cows, &c., and 20 acres of the new grass for hay, the quantity of grass left for sheep will be 240 acres, which should be ample to graze the 640 dinmonts and gimmers in summer, and the lambs from weaning time till put to turnips. Even then, there should be some grass to spare, which the 160 cast ewes from the high farm could be brought down to eat. When it is considered that there will be 1280 sheep and lambs for a few months, or from weaning till turnip time, the extra grass will not be worth much, at least profit from it can scarcely be calculated on. With regard to the turnip crop, the sheep and cattle will require the whole.

	Acres
Allowing for hogs	25
For fat sheep, from end of September till February or March	18
For 10 two-year-old cattle	8
For 10 one-year-olds	5
For cows, &c.....	4
	<hr/>
	60
	<hr/>

This shews that the calculated stock will eat all the

turnips. As to the grass crop, there will be, after five-year-old grass—

	Qrs.
In oats, 60 acres, at, say, 60 qrs. per acre	360
Three ploughmen, each	8 = 24
Shepherd	8
Grieve	8
Meal, for house and servants	30
Seed	45
Horses	45
	— 160
To sell...	<u>200</u>

	Qrs.
Barley after turnips, 60 acres, at, say, 6 qrs.	360
Ploughman, grieve, and shepherd	20
House meal	10
Seed	30
	— 60
To sell ...	<u>300</u>

According to careful calculations, the annual produce and expenditure of the farm (allowing 40 sheep for deaths from the time the lambs are brought to the low farm till sold), should stand nearly thus:—

Fat sheep calculated at 21 lbs. per quarter.

At 5d. per lb., 600 at 35s.....	£1050	0	0
Wool, 600 fleeces, at 5s.....	150	0	0
Barley, 300 qrs., at 20s.	300	0	0
Oats, 200 qrs., at 18s.....	180	0	0
Cattle, 10, say 50 stone each, at 5s.	125	0	0
	<u>£1805</u>	<u>0</u>	<u>0</u>
Deduct cost of 640 lambs	320	0	0
Carry over ...	<u>£1485</u>	<u>0</u>	<u>0</u>

Income brought over ... £1485 0 0

EXPENDITURE.

Rent, say, 500 acres, at 32s.....	£800	0	0	
Three ploughmen's wages, shepherd, and grieve, with coal, &c.....	40	0	0	
Two lads and one boy	25	0	0	
Two servant girls	15	0	0	
Cutting crop, say 8s. per acre	40	0	0	
Turnip, hay, and other work on the farm, to be done by daily workmen..	50	0	0	
Seeds.....	30	0	0	
Guano	40	0	0	
Tradesmen's accounts.....	30	0	0	
Tear and wear of implements.....	20	0	0	
Tear and wear of horses	20	0	0	
Taxes, poor rates, and other burdens...	30	0	0	
Insurance of stock and crop, and other incidental expenses, keeping up fences, &c.	80	0	0	
Interest on £1500, at 5 per cent.....	75	0	0	
				1295 0 0
				<hr/>
Profit on low farm	£190	0	0	
Profit on high farm.....	110	0	0	
				<hr/>
				<u>£300 0 0</u>

These calculations are made at the present price of land, although probably it may have been worth 40s. per acre previously. At this calculation it shews no more than a fair remunerating profit; but supposing that the rent was actually 40s., the profit then would only be £100. This would be a poor sum certainly to keep up the establishment of a respectable farmer, and in clothing and educating a family; for even at £300, a farmer will not save much money at the end of a nineteen years' lease. Some may argue that these estimated prices are

too low, but, under present circumstances, no one will be justified in calculating at higher prices than

20s.	per quarter for barley.
18s.	do. for oats.
5s.	per stone for beef.
5d.	per pound for mutton.
10d.	per pound for hog wool.

It may, also, be urged that a low-country farm would pay better under a five-shift course; but this is doubtful. Such a course would admit of more land being under barley, oats, and turnips, but the expense will be greater in comparison with the eight-shift course. Another argument against the five-shift course on such a farm where so many sheep are to be kept is, that, under it, the grass will be reduced from 300 to 192 acres, which will be quite inadequate to graze the calculated number of sheep. The eight-shift course is, therefore, to be preferred, as yielding a better subsistence for the sheep, on which the farmer must place his dependence for the greater part of his rent. In reply to another objection, that too heavy a weight has been calculated for the fat sheep, it is to be remembered that these sheep will have a very fair chance, from there being no ewes on the farm, which generally come in for the best share of the new grass. The hogs would of course get this; and as it would amount to forty acres, it should, if at all well sown down, keep five sheep per acre; but say four only, as the year-old cattle should be grazed on the young grass to make them in good condition.

The farmer should select out of his hogs 150 or 160 of the worst about April, and put them on the new grass and hay foggage, which should make them as fat as the

others before turnip time; for it is a great point, when fat sheep from any one farm are offered for sale that they should be sent in equal condition, particularly when shewn in a fat market. Farmers commit great mistakes by sending unequal lots of sheep to market. It would be better for them to draw out the worst, as the "tops" would bring a higher price, although the "shots" might be sold for considerably less. On this system of working a high and a low farm in connexion, a farmer might still live comfortably, but only at reduced rents; which, from present prospects, landlords must sooner or later submit to.

Although the system here proposed may be called good farming, it will scarcely reach the standard of such high farming men as Messrs. Caird, M'Culloch, and others; but it would be more safe and regular than flying from one system to another, as recommended by the former gentleman. The author would even go a little further, although at first there would be an increased outlay; but from the low farm being under an eight-shift course of husbandry, and grazed five years with sheep, it should be in first-rate condition when again broken up for oats. In order still further to increase the fertility of that part of the farm intended for oats the following year, viz. sixty acres, it should, in February, have a liberal top-dressing of guano, at the rate of at least five cwt. per acre. This would cause the grass to spring very fast in March and April, and it would stand a great deal of eating with sheep. On the first of May the sheep should be taken off. From the effects of the guano, the grass would still grow fast, and by the middle of July would produce a good crop of hay, say 150 stones per acre, or 9000 stones in all. By the end of August the

effects of the guano would raise a fine foggage, or aftermath, which would be most beneficial to the lambs. The effects of the guano would cause as much grass to grow in March and April, and after the hay was cut, as the land would have done without taking the hay crop; so that the 9000 stones of hay are saved by this method. The cost of the guano will probably be £140, but as £40 of this is allowed in the preceding calculations, there are only £100 extra. The guano would increase the productiveness of each succeeding crop in the rotation; but allowing for an increase of 100 quarters only on the sixty acres under oats, this will nearly cover the additional outlay, even leaving out of view the extra quantity of turnips after the oats. The more turnips to be eaten on the land by sheep, the more barley after it; so that with this hay, and the clover hay, there would be 12,000 stones at least on the farm, which would be of great use in the feeding of the horses, cattle, and sheep, besides the extra manure.

This system may be termed high farming, in the true sense of the word. As such a farm would be in a fresh and fertile state at the end of a lease, stipulations should be made with the landlord, either to give the tenant a chance of renewing his lease on certain terms, or by allowing him to revert to the four or five shift course for the last four or five years of the term, or to be paid for unexhausted improvements. When a farm is managed in this way, the lease should be at least for 25 years—in fact, landlords should let their lands on moderate terms to men who will undertake to farm under such rotations and management; such a system being for the reciprocal benefit of both landlord and

tenant. Another great benefit would be, to have the different breaks as equal as possible, and the lands properly subdivided, and the fences put in a thorough and complete state of repair at the landlord's expense, and be kept up at the mutual expense of landlord and tenant during the currency of the lease.

But to return to the subject of crossing with Leicester tups. Vast numbers are now used in crossing, not only Blackfaced and Cheviots, but other breeds, throughout the north of England and Scotland; so that, from a rough calculation, it would take about 15,000 pure-bred Leicester ewes to breed tups for crossing purposes. Although many breeders may give up Leicesters from the reasons already stated, (getting too fat, and their mutton being so little used for general consumption), still, this magnificent and highly-valued breed must be kept up pure and select for tup-breeding purposes. It is much to be regretted that injudicious crossing is still carried on in this age of improvement, when it is in the power of every breeder, large or small, to select well-bred and well-formed tups at a moderate price. We have only to look to the different markets, either for fat or keeping stock, to observe the numbers of mongrels offered for sale.

2. BLACKFACED EWES WITH CHEVIOT TUPS.

This Cross was not known to any extent in the Highlands of Scotland till about thirty years ago. It was first tried by the Messrs. Laidlaw of Knockfine, in Ross-shire, and some other sheep farmers in that district. The two breeds are both hardy mountain sheep, with good constitutions, and fine qualities of mutton. This

Cross has succeeded well in all the Highland districts where it has been tried. Those who possessed Blackfaced stocks, seeing the favourable results, were induced to follow the example of the Laidlaws, and many of the original Blackfaced stocks in the Highlands have now been so long crossed, as to appear almost like Cheviots, retaining scarcely any trace of the Blackfaced. The first Cross has rather a rough outline, is grey-faced, and most of them have horns of irregular sizes. The outer surface of the fleece has a rough appearance; but the inner part is much refined by the first Cross. The animals are longer, and stand higher on the legs, but want the fine form of the true Blackfaced breed. From the results of comparative trials, they have proved to be good feeders; and when slaughtered, produce a good carcase, the fat and lean being duly proportioned. They cut up full of substance and juices, and please butchers' customers—the flesh being quite in accordance with the tastes of the present time. If proper Cheviot tups are yearly selected, the successive Crosses are much improved, and produce a fuller and heavier fleece than Cheviots, rather longer in the staple, although a little coarser. Widders of this Cross generally sell from 3s. to 4s. a stone, while the ewes realize from 2s. to 3s. This system of crossing is now carried on throughout nearly all the high districts in Scotland, and, by their feeding to heavier weights, and producing much finer wool, are found to be more profitable than the pure Blackfaced. The Cheviot sheep, as before noticed, are termed by shepherds the "Long" sheep, and the Blackfaced the "Short" sheep; the first Cross is called "Half-longs," but it would be difficult to find a proper term for them after the first Cross. When

crossed twenty years or more, it takes a good judge to distinguish them. It is, therefore, quite obvious that breeders who have pursued this system of crossing, have not only improved their stocks, but their pockets also. There are, however, numbers of inferior Crosses of these breeds to be seen. This is attributable to those who, seeing others succeeding, commence with bad-bred Blackfaced ewes, and, in place of selecting proper well-bred Cheviot tups, buy any sort of mongrel sheep that have the least appearance of Cheviots, which they get for little money. Consequently, by commencing with bad-bred ewes, and probably worse tups, the result need not be told. Breeders of sheep should be very careful when they commence any new system of crossing—selecting only good-bred ewes and tups, pure of their kind. It often happens that inferior ewes, if put to well-bred tups, will produce good lambs; but it is much safer to have both good of their kind. If the tup is pure bred, his stamp is strongly imprinted on the produce; the head and legs a light grey, while the wool resembles the Leicester, although coarser.

Cheviot tups, to be used for crossing Blackfaced ewes, should possess the best points that can be found in that breed; standing rather high on the legs, with a bold head, prominent forend, and long carcase. In fact, length is requisite in all breeds—a fact which should be strictly kept in view by breeders, as a Long sheep is always a good weigher, and seldom deceives the butcher; while a Short one seldom realises the estimated weight. A good sheep is to be compared to a ship, for sailors will say, such a ship is too short, she does not sail well, but such another ship sails fast, she has a good rake fore and

aft, and carries a good cargo, having a thick waist: so is it with sheep; for, if they have a good rake fore and aft, and long quarters, with a thick waist, they are sure to weigh well. The same holds good with all animals used for food, length being a great property in all. In selecting the tup, due regard should be had to the following points:—the head should be bold and prominent, with full eyes, wide nostrils, and thin and pricked ears, and to appear firmly set on; he should be long from the waist forward, with a full neck, and shoulders sloping well backwards, and to be deep and round behind the shoulders; well-turned ribs; full loins; straight back; long hind quarters from hook to rump-bone; the tail should be well set on, dropping perpendicularly outside the hocks; the hips well filled outside and inside, and full flanks; the bone flat, and full of muscle above the knee; and standing rather wide on the legs. It may not be easy to select tups with all these requisites, but the more of them they possess the better. The whole body should be as well covered as possible, with a fine thick set staple of wool, both on the back and belly; while the pelt should be thin. These remarks will apply to the selection of tups of all breeds.

In the island of the Lews, on the extensive grazing farms occupied by Mr. Walter Scott, there is a very fine flock of Cheviot and Blackfaced Crosses. The Cross wedders from this stock are fed yearly, in East Lothian, on turnips. The author has frequently seen these sheep in the Newcastle market, averaging fully 20 lbs. per quarter, and which, when slaughtered, were remarkably full of tallow, and the mutton equal to the best Southdowns in point of quality. Some very superior

lots of fat lambs were fed in 1849 on the farms of East Barns and Skateraw, near Dunbar, from Mr. Walter Scott's ewes, which generally brought nearly the top price in the Edinburgh market.

This breed of Cross sheep answers well for making fat lambs when crossed with Leicesters—the ewes being good milkers, and the lambs getting very fat upon good land.

3. CHEVIOT EWES WITH LEICESTER TUPS.

The crossing of Cheviot ewes with Leicester tups is so well understood, from being so long and extensively carried on, that little comment is necessary; but as it is a system that is still gaining ground, there is yet something to be said on the subject. We have only to look to the different breeding lamb markets of St. Boswells, Lockerby, Melrose, &c., to obtain some idea of the numbers of this Cross in comparison to what there were twenty or twenty-five years ago, particularly at the two last named places. Before that time the greater number of the lambs shewn at these markets were Cheviots; now more than one-half or nearly two-thirds are Crosses. On a great many sheep farms, on which nothing but Cheviots were formerly kept, crossing with the Leicesters now predominates, especially with the oldest ewes—the younger ones being kept pure to breed ewe lambs to keep up the flocks. Both wedder and ewe lambs of the Crosses are sold, for which are now obtained 3s. to 5s. more per head than for pure Cheviots. The farmers are considerable gainers by crossing about one-half of their Cheviot ewes with Leicesters, which makes a difference of nearly £100 a-year to some. From the recent

improvements on sheep farms, half-breds have been substituted altogether for Cheviots, so that out of say, 100,000 lambs shewn at Melrose and Lockerby, probably 60,000 will be Crosses of different stages. Allowing 60 ewes to a tup, it will take 1000 Leicester tups for these lots alone. As the occupiers of hill-side farms can both breed and feed from the extra quantity of turnips now raised on such farms, crossing with Cheviot ewes and Leicester tups is encouraged, the produce being not only good feeders, but reaching greater weights, and are sooner fattened than pure Cheviots. The produce of wool is much larger, and nearly as valuable as long grown Cheviots, and, from being finer than the Leicester, is well adapted for combing purposes. Crosses of this kind, although much fatter than some Cheviots, are not too much so for the market, the fat and lean being well proportioned. They also sell readily in all fat markets, both in England and Scotland, and are well liked by butchers; and unless they are over-fed, or too far crossed, cut up well, and please the general taste of consumers.

Sheep descended originally from Cheviot ewes, and crossed with Leicesters, assimilate, after many successive Crosses, to the latter, but still retain more lean than pure Leicesters, and generally produce more tallow. In carrying on successive crossing, the Leicester tups should be well bred, and of good size and symmetry. This system of crossing being judicious, breeders cannot err in following it for many years, provided their land and situation be suitable, and the tups properly selected. If lambs or hogs are to be shewn in a keeping market, tups standing rather high on the legs should be used, with prominent head, full neck, shoulders, and breast.

A great number of half-bred and further crossed sheep is now bred and fed in the Lothians, Fifeshire, Forfarshire, &c., but many are bought-in lambs at St. Boswells Melrose, and other markets. In fact, taking all the counties on the east and north-east of Scotland, this system of crossing is now carried on to a great extent, not only in the higher districts, but on the lower arable farms, for feeding fat lambs, &c. In no county, however, has the system progressed with more rapidity and success than in Caithness. It has already been noticed that, thirty years ago, not a Leicester or judiciously crossed sheep could be found in that county. A few years previously to that time a trial was made by that great friend of agriculture, the late worthy and philanthropic Sir John Sinclair, to introduce the Merino sheep into Caithness, principally having in view the valuable qualities of its wool, which he, no doubt, thought would be attended with great benefit to his native county; but Sir John was not sufficiently acquainted with the habits and constitutions of the Merinos, otherwise he never would have tried them so far north, as, unfortunately, they proved a failure, and he soon had to give them up—their habits and constitutions not suiting the climate. This must have been a matter of regret to Sir John and his friends, besides the loss sustained in the trial, which was to him, however, but a secondary consideration, as he thought little of pecuniary losses—the interest of his country being his constant study, and the whole of his valuable life and talents, as also much of his means, being spent in projecting schemes and measures for the benefit of his fellow creatures. The advancement of agriculture was his constant aim and study, and he was

very properly called, the "Father of Agriculture." He was the founder of that national institution, the Board of Agriculture, of which he was President, and conducted its affairs with a great deal of talent and disinterested zeal. He was ever active in planning improvements for the good of his country, and afforded every encouragement to new discoveries in the arts and sciences; but the agricultural interest claimed more of his attention than other matters, and his time, talents, energies, and money, were considered by him no sacrifices, when he could in any way benefit this great interest. Many of the improvements in agriculture which have taken place within the last seventy years were through his suggestions. He was also among the founders of the Highland and Agricultural Society of Scotland—and it is well known how he distinguished himself as a member, and one of the principal leaders, of that great and patriotic institution—the published Transactions of which have been of incalculable service to this as well as all other nations, and have created a greater spirit of emulation among breeders and feeders than ever before existed, more especially since so much of the Society's funds was appropriated as premiums for the breeding and feeding of live stock. Sir John Sinclair was the principal mover in establishing the grand annual exhibitions of stock, under the auspices of the Society, which have been attended with results of a very gratifying character. He spent upwards of sixty years of his valuable life in promoting every interest which he thought would benefit his fellow men. In fact, a man with such noble and patriotic feelings, and goodness of intention, never appeared in Britain. It would not be much exaggeration

to say, that, during his long and useful career, from 1775 till 1835, he spent nearly a quarter of a million of money carrying out his great and grand projects, in which he had little or no personal interest. After having represented his native county in Parliament for thirty years, and doing more, and sacrificing more, for all the great objects he had in view, than any other man in the British dominions, why is there no monument, no statue, or other memorial, to commemorate the deeds of such departed worth? This is surely not as it ought to be; many monuments have been raised to the memories of men less deserving than Sir John. The neglect of such a worthy object must have been unintentional; is it yet too late?

But to return. The first Leicester sheep were introduced into Caithness by Mr. Horne in 1821, and in 1825 he had a flock of Leicester and half-breds amounting to about 500; but, from the wet and undrained state of the lands in Caithness, they nearly all rotted, only a few of the Leicesters being saved. By new importations of tups, however, they again, under the judicious management of Mr. Darling, rapidly increased. Mr. Purves took the management of the late Mr. James Horne's property of Wester Watten in 1825, and in 1827 imported forty Leicester ewe lambs and two tups, and no wool was ever before this time exported from Caithness. The produce of the above—about ten stone—was exported in 1828. From this time till 1831, the only parties who cultivated sheep stocks were Mr. Darling and Mr. Purves. When the latter, in 1831, took the management of the late Mr. Traill of Ratter's estates, Mr. Purves found seventy pairs of horses on the property, under the

superintendence of sixteen grieves; but the growing of turnips was so limited at that time, that on the whole of Mr. Traill's extensive farms, there were, in 1831, only thirty-five acres of turnips. The following year, 1832, Mr. Purves laid down 400 acres of turnips on the same property; he then had not a single sheep on the estate, but purchased 400 Cheviot ewes, and some ewe lambs, from Sutherlandshire, and commenced sheep-farming extensively. To shew the rapid progress, and increased value of the sheep and cattle on that property, will not be uninteresting to those who value agricultural improvements. The cattle in 1831 consisted of 300 of various ages, valued at an average of 50s. each, or £750. At the present time there are 800 Short-horned and cross-bred cattle on Mr. Traill's property, which may safely be valued at £7000, and upwards of 5000 Leicesters and half-bred sheep, which may be set down at the same amount, making the total value £14,000; or an increase of £13,350 in nineteen years. At present 300 cattle are annually sold at a full average of £10 each, or £3000, together with 3000 sheep, which will realise £4000, and about 1000 stones of wool, fully worth £1000. Upwards of 1000 acres of turnips are now grown, in place of 35 acres in 1831. This relates to one property only in Caithness; but many others could also be instanced as having been improved in the same ratio. It is to be observed that, previously to 1831, Caithness was, generally, in a very wet undrained state, uninclosed, and destitute of shelter; consequently, very unfit for sheep breeding or feeding. The climate was cold, bleak, and exposed; and no improvements short of thorough draining, inclosing, and shelter, could ever have made it

capable of breeding or feeding Leicesters or half-breds. There were some improving proprietors in Caithness before the date alluded to, as Sir John Sinclair, Mr. Traill, and Mr. Horne; but their attention was not turned towards sheep of improved breeds, as Leicesters, &c.; and, therefore, these animals had then a poor chance of succeeding. This may be one reason why the introduction of Merinos by Sir John Sinclair was unsuccessful; but as they did not thrive in any other place in Scotland, no wonder they proved a failure in this northern county. The breeding of Leicester and half-bred sheep has kept pace with the rapid improvement of the land; and although the breeders find Leicesters to suit the district, and thrive well on all improved lands, yet, from the fact of Cross sheep selling more readily, particularly to south-country feeders, than the pure Leicesters, only a limited number of pure flocks are kept, principally to breed tups for crossing purposes.

Many of the sheep stocks in Caithness have been crossed for a number of years; but breeders are very cautious lest they go too far, and frequently throw in a lot of well-bred Cheviot ewes, to prevent this error, if it may be called one. On highly improved farms the sheep are fed and sent to Edinburgh or Newcastle about fifteen or sixteen months old, at which age they weigh from 16 lbs. to 18 lbs. per quarter, and in some instances fully the latter weight. The sheep farmers, however, prefer selling them at home to feeders from the south; and for facilitating this, have established a large sheep market, which is held at the Georgemas Hill, on the Wick and Thurso road (fifteen miles from the former, and six from the latter), on the Monday after the great

sheep and wool market at Inverness, so that buyers proceed from the one to the other. The principal buyers of late years have been Mr. Pagan, from near Liverpool; Mr. Culbertson, East Lothian; Mr. Wilson, Berwickshire; Mr. Dudgeon, Almond Hill, near Edinburgh, and occasionally a few Morayshire feeders. The latter county has now become a great feeding district, being a fine, dry, kindly, turnip soil. At this annual market, from 6000 to 8000 Leicester and half-bred sheep are exposed for sale, and the buyers stipulate in their bargains for a few weeks' keep, as they are almost all sent by steam to Granton. From the end of July to the end of September, about 1000 sheep are shipped weekly at Wick by steamer. Sometimes the freight is paid by the buyers, sometimes by the sellers, the latter delivering them at Granton. On several occasions, Messrs. Pagan and Culbertson have purchased large lots from Mr. Purves, belonging to himself or George Traill, Esq., M.P. for Caithness, to be delivered at Granton, and weighed alive on the arrival of the steamer, at so much per pound, live weight: A novel way, it must be admitted, of selling sheep! About $3\frac{1}{4}$ d. per lb. is the general price. This new market stance, the Georgemas, has rather an imposing appearance, being inclosed with a high stone wall on a gently sloping piece of ground, capable of containing about 10,000 sheep, and 3000 to 4000 head of cattle. Within the inclosure is a commodious building erected by the Caithness Agricultural Society for their meetings, capable of dining about 100 persons. There is a strange contrast outside this inclosure, where, probably, 1000 to 1200 sheep are also shewn, but of a different class, belonging principally to the smaller tenantry of the county,

and mostly of the old rough breeds — hairy-looking animals. They are, however, generally speaking, better than they look, as many of the small farms on which they are fed are equally as good as the larger, on which the better and improved breeds are kept. Most of these old tenants keep up the ancient system, and never think of buying a good tup to improve their stock; but the spirit of improvement is now abroad. The Agricultural Society being liberal in their premiums to tenants paying under £50 of yearly rent, a great stimulus has been given to the improvement of their stock. The general quality of the sheep at this market would do credit to any southern county.

A large market is also held here in August, principally for the sale of lambs, mostly Crosses, and shewn by the holders of middle sized farms, and purchased by the larger farmers, to make up their stocks of hogs. The Caithness sheep are excellent feeders, as Messrs. Pagan, Culbertson, Wilson, and Dudgeon have for several years proved them to be. Mr. Culbertson fed 2000 in the winter of 1849, and had them all slaughtered on his own account, and sent to London by railway, in carcasses, at the rate of 200 a-week. The Caithness sheep are very suitable for feeders who want to have their turnips eaten early, as they fatten more readily than Cheviots or Blackfaced. Sheep-breeding and feeding in Caithness have now become the principal dependence of the farmers for paying their rents; and although the prices of sheep are lower than usual, yet they are much more remunerating than those obtained for either cattle or grain, and a much safer trade to pursue. A lot of very fine sheep was sold in March 1850 in the Edinburgh market, by

Mr. Flockhart, bred and fed by James Henderson, Esq. of Bilbster, near Wick, which brought about the top price of the market—35s. each.

When corn is low-priced, it may profitably be given to sheep, for the purpose of making them sooner fat, and 2 lbs. to 3 lbs. per quarter heavier. The following calculation will prove this: Suppose the value of oats, of 40 lbs. per bushel, to be 14s. per quarter, or 1s. 9d. per bushel, and that every hog be allowed $\frac{3}{4}$ lb. per day. Two bushels will last from 1st February till 10th May, the cost of which is 3s. 6d. The animal thus fed will weigh at least 11 lbs. additional: say 10 lbs. of mutton at $4\frac{1}{2}$ d. per lb.—3s. 9d.; and 1 lb. of tallow at $3\frac{1}{4}$ d., total 4s. $0\frac{1}{4}$ d.; calculating nothing on the weight of the wool, which will also be improved, both in quantity and quality. This shews a profit on the oats consumed of 6d. each sheep, besides getting the animal fattened, and ready for sale early in the season, when advantage can be taken of the fat market; but even if sold to feeders, they are all the better of the additional weight and condition, which is valued accordingly. Besides, it will be a ready market for the oats, and save a great deal of trouble in sending them to market, as the sheep will carry them there in the shape of mutton, without extra freight.

As sheep are undoubtedly paying the north-country farmers better than grain, it will be advisable to alter the rotation of cropping, and to keep more land in grass, which will effect a great saving in horses, ploughmen, and other workers, besides securing a lighter expenditure in tradesmen's accounts. By resting the land longer under sheep, it will produce heavier crops of corn and turnips; and although sheep-farming has increased most

rapidly in Caithness within the last thirty years, it can still be extended ; as it is quite evident that the county is better adapted for producing mutton than corn. The cultivation of whatever produce pays best must always be studied by the farmer, especially when it is in accordance with the rules of good husbandry and judicious management. The longer land is grazed with sheep the better.

4. CHEVIOT EWES WITH SOUTHDOWN TUPS, AND THE PRODUCE WITH LEICESTER TUPS.

This novel Cross is proposed with the view of forming a new breed by the amalgamation of three old ones, viz., the Cheviot, the Southdown, and the Leicester. The breeder must make a proper selection of some of the best bred Cheviot ewes he can find, either from the Cheviot mountains, or elsewhere, and procure the best bred and best formed Southdown tups, taking care that the *wool* of both breeds is of the best description—these breeds being nearly equal as to quality of flesh. The wool of the Cheviots, although longer than the Southdowns, is not so fine nor so close in the texture : this Cross, therefore, will produce wool longer than the latter breed, and a heavier fleece, while the feeding qualities will be nearly alike, the breed not much altered in appearance,—and the weights and size being much the same. The principal alterations will doubtless be the colour of the head and legs, which will be of a lighter grey than in pure Southdowns ; but this is a non-essential point. In order to render this system of crossing complete, the breeder must next select high-bred Leicester tups to put to the Cross ewes, the

produce of the Cheviots and Southdowns. These tups must be chosen with a due regard to their fine points, with wool of the finest and softest quality that can be procured. This trio of crosses would, in the first place, produce a quality of wool fit for the best combing purposes, in making fine fabrics, and fully equal to the best quality of Cheviot, which is considered much more valuable than Leicester wool, when long enough to comb; but it is only from high feeding that it grows long enough for this purpose. The wool produced by these Crosses would be a medium length between the two, combining the delicate texture of the Southdown with the length of the Leicester, while the weight would be little short of pure Leicester, and be more valuable by at least 2d. per lb. The greater aptitude of the new breed to fatten will be imparted to it by the Leicester; while the fine qualities of the Southdown and Cheviot, in respect to the fine grain of the mutton, and fulness of fat and lean, will be retained, as well as the large production of tallow. Finally, they will not only feed to great weights, but come to maturity at an early age; proving alike profitable to breeder, feeder, and butcher, and pleasing all sorts of customers.

After the breed is formed, there may be some difficulty in preserving and maintaining it; but it will be quite correct to go on with the Leicesters. The wool will still retain its fineness, and, yearly, get longer. The only risk will be, that the successive Crosses will get too fat; but there can be no doubt they will to a great extent retain the fine qualities of both the Southdown and Cheviot mutton. This tendency to fatten may be checked by throwing into the flock yearly a few Cheviot ewes, and

cross with the Southdown as at first. The true end of breeding sheep is the acquirement of the greatest quantity of mutton, wool, and tallow, of the best quality, at the least possible outlay for food; but such objects can only be attained by the exercise of great judgment and experience, and cannot be accomplished at random. Few breeders pay proper attention to the principles of judicious crossing, and the produce of many good ewes are spoiled by a bad selection of tups, arising from two causes, namely, penuriousness in the purchase of good tups, and from want of knowledge. The latter is excusable, but the former is not; for by buying cheap tups, and saving £1 at starting, the loss exceeds £5 in the end.

Another great advantage of this trio of Crosses will be their hardiness; as it is well known that the Cheviots are a hardy race. The Southdowns are also pretty hardy—in proof of which may be instanced Mr. Watson of Keillor's ewe flock, which is kept on a high and exposed situation—the north side of the Sidlaw hills—on rather rough pasture, and exposed to the northern blasts. Those which have been tried in Caithness have also done well in the hands of Mr. Davidson of Stanstil. Leicesters, if well covered with close-set wool, will thrive well, and get fat on high poor soils, if dry and in good condition; but many of them have weak constitutions, from breeding in-and-in, and other causes, and cannot stand the cold. Care must, consequently, be taken in selecting tups for this kind of crossing, that they be hardy and of good constitution; strong, bold, and healthy-looking, with a quick and lively countenance, prominent head, full neck, shoulders, breast, and forend. These are true indications of a good constitution.

Before leaving the subject of Crossing, it may be mentioned, as a well-known fact, that several almost new breeds have been formed by crossing. A great many such trials have succeeded admirably, and have tended to improve both mutton and wool. Some breeders have had the one object in view, and some the other; but when both objects can be gained, the result proves highly beneficial in a national point of view. The improvement of the wool has in most cases claimed the attention of the different national societies, and experiments have been made by patriotic noblemen and gentlemen, some of which have proved highly satisfactory, while others have proved failures. The Duke of Bedford, and Lord Western, made some successful trials, the latter nobleman having expressed a wish to establish a breed of sheep with a Leicester carcass, to be covered with Merino wool.

The foregoing suggestions on Crossing have been restricted to the four breeds which are generally considered the most suitable, profitable, and best adapted for feeding purposes, where the soil and climate are favourable. By amalgamating these breeds, sheep will be produced to answer good feeding districts, and be alike profitable to all parties through whose hands they may pass. Of these four breeds, three are English, viz. the Leicester, Southdown, and Cheviot, all valuable, and worthy of particular notice. Of the Scotch breeds, the Blackfaced is the best; but it is deserving of little notice in its original rough state, except for the delicious flavour of the mutton.

In Rob Roy's time, about 100 years ago, sheep were

little thought of in Scotland, cattle being the principal stock kept, particularly on the hilly districts. The value of sheep and wool at that time must have been comparatively trifling. Contrast that period with the present, in the county of Sutherland and highlands of Caithness, for instance, where the wool of the sheep now bred is of more value than sheep and wool together at the former date. The same may be said of all the other counties in Scotland. So few turnips or artificial grasses were grown, even seventy or eighty years ago, that not a fat sheep or beast could be found from January till June or July, and the people were then doomed to eat salt provisions all winter and spring, particularly in the latter season. Our winter and spring supplies of fat stock are now much superior to what our summer supplies were. Within the last thirty years 500 sheep were more than sufficient to supply the Edinburgh market; but now nearly as many thousands find buyers. At that time from 150 to 200 was the regular weekly supply of fat cattle; now there are often from 700 to 800 shewn, which all find buyers; indeed the supply seems to be regulated in the ratio of increase in the breadth of turnips grown.

CHAPTER X.

ON THE BREEDING OF LEICESTER TUPS.

WHEN treating of Short-horned cattle, the attention of breeders was directed to the importance of carrying on as a separate trade that of breeding and rearing young bulls. The same arguments there urged apply with equal force when considering the propriety of establishing a farm for the sole object of breeding Leicester tups. In commencing an undertaking of this kind, the primary object is the proper selection of the breeding stock. The ewes, besides being pure bred, must possess all the requisite points of a first-rate Leicester; while the tups should be most carefully and judiciously selected from the best stocks. Some breeders prefer large sheep and others small, or sheep which stand high or low on their legs; but a middling-sized animal is to be preferred, extremes being avoided. The tup should have a fine head; from eyes to nose rather wide; wide and expanded nostrils; full, bold, quick eyes; thin pricked ears; head altogether prominent and well covered; full neck, sloping gently back to the shoulders and firmly set on; the shoulders broad, full, and compact; the breast should also be broad, full, and prominent, joining full up to the

neck; the forearm full of muscle, and a fine flat clean bone and leg below the knee; ribs round and well arched to the back, and full of mutton up to the shoulder; the chine, from the shoulders backwards, strong; the back straight and wide; loins wide; hind quarters long, wide, and well formed; tail well set on, nearly in line with the top of the shoulder; belly nearly straight, shewing little offal; ham or leg full and well filled to the hind hough, both inside and out; standing rather wide on the hind legs, so as to correspond with the fore. In fact, the whole carcase should be so compact as to look like a cylinder with four pins stuck into it, particularly from the fore part of the shoulders backwards; and if the head and neck are all right, the animal will have a bold and graceful appearance. The wool should be a proper length, fine, bright, and soft, rather close set, with a thin pelt. If a tup possesses all the foregoing requisite points, he will feel and handle mellow, the fingers in handling sinking into the back from shoulders to tail, which is a true indication of the purity of the blood.

These are the qualifications and points which a Leicester flock should have to be fit for breeding. Therefore, those beginning the trade must either have or select such as here described, and without defects; as it too frequently happens that wrong points appear in sheep which cannot be accounted for. To procure a breeding stock of this kind may be expensive; but it is of no use beginning the trade without; as, unless able to compete with the most eminent breeders of the day, top prices cannot be expected, and the trade, unless at these prices, will not be profitable. It is possible, however, for a first-ratc

breeding stock to be procured at a reasonable cost by a man who is a good judge; for by taking time and trouble in the selection, and by setting about it quietly, say in July, he would have three months before tupping time to accomplish his object at a reasonable cost. It is actually necessary for tup breeders to select their flocks with the utmost discrimination and judgment, as no trade in the world requires more care and attention; for if the points in the tups are in any way deficient, it will soon tell on the produce, or if the blood is not pure, the alloy will be quickly developed. The great point of having a tup-breeding flock pure, and with high-toned blood, is that, although at shewing time the shearling tups are not equal in point of symmetry and handling, the worst-looking sheep, from being equally well bred, will get as good stock as the most symmetrical. The writer once heard an eminent breeder remark, in reference to a Short-horned bull, that if he was as crooked as the letter S he would breed from him, if he knew his blood to be pure.

On a tup-breeding farm, the whole rent and profit of the farmer should be drawn from his sheep; but without first-rate management, and proper attention on the part of both master and shepherd, it will not answer. The size of the farm—the quality of the land—the number of breeding ewes to be kept—the probable produce and prices which such breeding stock will realise—the rent of the farm, and probable profit to be derived from a given number of ewes—shewing as near as possible the expenditure and income: these are all necessary calculations to be made.

A farm of about 200 acres of good substantial turnip and grass land, at, say £2 per acre, would be of conve-

nient size for our purpose. It should be a good, deep, dry, sharp, loam, with an open bottom, and, if possible, a southern exposure—the land gently sloping, and a good climate. On such land the farmer would not be dependent on his grain crops. Supposing it to be farmed under the ten-shift course of husbandry, there should be ten fields, of 20 acres each. Under this course of management, the greater part of the farm would be in grass, or 140 acres, which would be 20 acres new grass for the tup hogs, and 120 acres, of from one to six year old grass, for the ewes and gimmers. The fallow break of 20 acres would be, say, 18 acres in turnips, 1 in potatoes, and 1 of tares for horses. Calculating the ewe stock at 140, they should produce 180 lambs, allowing 40 to have twins. The stock to be wintered would, therefore, be 320; and as the turnips on such good land, and under such management, will be a full crop, twelve acres may be allowed to the hogs, five to the ewes, and one for three cows, which should be the whole cattle stock on the farm, with one pair of horses, and an odd one. One ploughman, and two lads will be sufficient for all the work, except what is regularly done by women and daily workers. The expense of working the farm would consequently not be great; and if the land be well laid down with perennial rye-grass, clovers, and other seeds, it will be fully sufficient to keep the stock. Should there be any surplus grass, it can be eaten by bought-in stock when required.

Allowing twenty for deaths and other casualties, eighty shearling tups and eighty cast ewes and gimmers should be annually sold. The produce of such a flock will stand about thus:—

INCOME.

80 Shearling tups, at £5 each	£400	0	0
80 Cast ewes and gimmers, at £2.....	160	0	0
300 Fleeces of wool, at 6s.	90	0	0
	<u>£650</u>	<u>0</u>	<u>0</u>

EXPENDITURE.

Rent	£400	0	0
Purchase of high bred tups, yearly £20	0	0	0
Sell one bought the previous year	8	0	0
	<u>12</u>	<u>0</u>	<u>0</u>
Shepherd's wages, besides his allowance of corn, sheep, and cow	10	0	0
Nets, and other incidental expenses attend- ing the sheep, say.....	28	0	0
	<u>450</u>	<u>0</u>	<u>0</u>
Profit on sheep, after paying rent, &c.....	£200	0	0

The next consideration is, will the grain raised on the farm, after keeping house, servants, horses, seed, and tup hogs, pay the other expenses? Allowing twenty acres to be under oats, and twenty under barley, the proceeds will approximate as follows:—

20 acres of oats, at, say, 7 qrs. per acre	Qrs.	140
Say for tup hogs	Qrs.	30
„ Seed	12	
„ House and servants	30	
„ Horses, besides light grain	18	
	<u>90</u>	
To sell.....	<u>50</u>	qrs.

Barley, 20 acres, say 6 qrs. per acre	Qrs.	120
Seed, say	Qrs.	10
Servants, &c.		10
	—	20
		<hr/>
To sell.....		<u>100 qrs.</u>
50 Qrs. oats, at 18s.....	£45	0 0
100 Qrs. barley, at 21s.	105	0 0
		<hr/>
	£150	0 0

PROBABLE EXPENSES ATTENDING THE TILLAGE LAND.

Ploughman, lad, and boy	£20	0 0
Servant girl	6	0 0
Cutting crop, and other expenses attend- ing it, say.....	20	0 0
Daily workers, &c.	10	0 0
Tear and wear of horses, implements, tradesmen's accounts, &c., say	20	0 0
Seeds, say.....	10	0 0
Public burdens, insurance of stock, and other incidental expenses, say	34	0 0
Interest of capital.....	30	0 0
		<hr/>
		<u>£150 0 0</u>

In addition to the above, the ploughman and shepherd must each have a cow ; but there should be sufficient grass in summer, and abundance of straw in winter, to keep them.

The above calculation, if correct, shews that the grain crop will pay the expenses of the tillage land, and also, that the rent and profit are derived solely from the sheep ; and in these times, £200 on a 200 acre farm, should satisfy the farmer, and keep him respectably—as he would

have from his farm, milk, meal, potatoes, pork, poultry, and he could also feed his own lamb, mutton, and beef, and have, besides, the produce of his garden.

Some farmers may think this a trifling concern, and not enough to occupy their time; but if such a farm produces and brings up annually 80 high-bred shearling tups in fit condition for sale, they should be content. Generally speaking, it would be as well if farmers were to devote more attention to one particular branch of farming, and manage it with skill and attention, so as to make it profitable, in place of having too much in hand.

As to the management of such a farm, the new grass should be set apart for the tup hogs. An objection may be raised to this, on the ground that it should be kept for the ewes with twin lambs, and so probably it should; but as the tup hogs must get extra feeding, the ewes must be provided for in another way. Say that forty ewes having twin lambs were to have two fields, of two and three year old grass, saved for them all the winter till lambing time, and not eaten too bare; and as no sheep or other stock will be kept on these fields all winter, they would be in a very fresh state to receive the ewes with twin lambs in March; while the foggage will keep the lambs warm, and with a few cut Swedes they should do well. The other 100 acres of grass will be sufficient for the ewes with single lambs and ewe hogs till May, when a heavier stock could be added with the ewes and twin lambs. As there should be plenty of grass by the 1st of May, the field intended for oats the following year, being six-year-old grass, must be closed, and a stolen crop of hay taken from it, which will make fine sheep-hay for the following winter, the

foggage being left for the tup lambs, which, after getting a run over the clover stubbles, should be put to turnips by the end of September, along with a few old sheep to learn them to eat this food. Probably it would be better to keep them for the first month, or during October, in the foggage or other field saved for them; for this is a very important month for the tup hogs to be well fed, to prepare them for colder weather. As the land is presumed to be dry, they may be netted on the turnips on a well-sheltered part of the field; but in case of very wet weather, they should be removed to a grass field as near as possible to the turnips; or a temporary shed may be erected, sufficiently large to hold the tup hogs under cover. As there will be plenty of straw on the farm, from being so few cattle and horses, they could be bedded daily, so that they would always be dry and comfortable at night, or in wet weather. After 1st of January they should get yellow turnips, cut, in boxes; while care should be taken to have a sufficient quantity stored in case of frost. After the 1st of February Swedes should be supplied, with 1 lb. of oats to each hog per day. Throughout the winter they should have a small quantity of hay in racks in the shed. The sheep may be continued on the turnips, hay, and oats, till 1st April, when they may be removed to the new grass; but the temporary shed and oats should be continued till 1st May, when the animals will be ready for shearing. The shed will be of great benefit to them in cold nights after being shorn.

The ewe hogs should be put to cut turnips in October or November, and will require no extra keep. After casting their teeth, the ewes should be supplied with

turnips for six weeks prior to lambing, and cut Swedes in boxes should be provided during parturition, until the middle of April, or later, if they can be spared. By such management, and by keeping the shearling tups on the new grass during the summer, they will be in excellent condition for shewing in August and September.

CHAPTER XI.

ON THE FEEDING OF SHEEP.

THE arable farms on which Leicester stocks are kept are generally of some extent, because if small, the services of a regular shepherd cannot be afforded, without which the sheep can never be properly attended to. These farms must also be managed under a six or seven shift course; otherwise there is not sufficient grass land for a breeding stock. On a farm of 420 acres of dry turnip and grass land under a six-shift course, there will be annually under grass 70 acres of new, and 140 of two and three year old grass. Such a farm, if good land, is worth, at the present time, 35s. per acre. This will keep 200 Leicester ewes.

In endeavouring to point out the best mode of feeding, we shall commence with the tuppung season, which is generally from the 10th to the 15th of October. At this important period the ewes should be always put into fresh pastures, to facilitate a regular season, and also to make them produce twins. Many farmers grow rape for this purpose, which never fails to increase the number of lambs. The ewes are kept on the pastures during the winter, or till about the 1st of February, when they

should be provided with turnips, either on the grass, or netted on the land; but the latter is preferable, as it relieves the pastures for about six weeks. When the lambing season approaches, they must be kept on the best sheltered pastures, a fresh field being selected for the purpose, in which temporary sheds should be erected for protecting the young lambs. Other fields should be set apart for receiving the ewes with single lambs, a few days after lambing, in which also temporary sheds should be put up. The ewes with double or twin lambs should be put on the new grass, on which temporary sheds should also be erected. The whole flock, from lambing-time to the middle or end of April, should have cut turnips, in boxes, or spread in the fields, unless the grass is forward, when they may do without. During lambing time the shepherd must have an assistant, as the ewes should never be left alone.

The middle of July is the general time for weaning Leicester lambs; they should then have fresh, but not too rich pastures for a few weeks.

Two hundred Leicester ewes will produce about 260 lambs. From 50 to 55 of the best ewe lambs should be selected to keep as breeders. They may be placed on middling pastures, as they are apt to get too fat for breeding if highly fed. The remainder of the ewes, and all the wedder lambs, should have clover foggage, clover stubbles, or the best keep on the farm, till the middle of September, when turnips on the grass should be provided for a month, and a few old sheep put among the lambs to learn them to eat this food. Before the end of October they should be netted on the land, still keeping a few old sheep among them. They are now termed

hogs, and, presuming they have been well fed from lambing, they will be in very high condition, say 12 lbs. per quarter.

In order to get them early to market, in May, or as soon as they are shorn, no attention or care must be spared during the winter months. The farmer should keep in view that he must make them 20 lbs. per quarter about the middle of May or 1st of June; therefore, not a day must be lost in their feeding. As it is always the case on those farms where a breeding stock of cattle is also kept, the turnips are generally stript, four or six drills taken, and the same number left, or less or more, according to circumstances. The driest and best sheltered part of the turnip field should be chosen for the first break, and it would be better that a portion of it should be altogether removed, to give to the hogs a layer. It may not at first be possible to know the exact quantity of turnips to give them at one time, but when the shepherd ascertains this, he should never give more than four or five days' supply at once; and when the bulbs are half eaten, to shift the nets, picking up the half-eaten bulbs, which the sheep will fly back to and readily devour—the bottom of the turnip, or what grows under ground, being sweeter than the top. It is a great point, in feeding sheep, not to give them too many turnips at once. Shepherds should also be very careful not to shift them, or give them a fresh break on a frosty morning, or after white or hoar frosts particularly, as numbers of deaths happen from this cause. In fact, farmers put too much value on turnip-shaws or tops, while they are almost of no value for feeding, but do much mischief, especially to young stock, being very laxative—

frequently causing the scour in hogs, and even in old sheep. Some farmers now top their turnips for cattle on the field, and spread them over the land, finding that they are more valuable as manure than for feeding stock, although others are of a different opinion. If hogs, fat sheep, or any other feeding animals, were never to taste turnip-tops, they would fatten much faster, particularly hogs or calves. It would be as well, therefore, to provide the shepherd with a sharp instrument, such as a turnip hoe, and direct him, two days before shifting his nets, to go over the break intended to be given, and cut off the tops close to the bulb. This will allow time for the turnip-tops to decay before the sheep come over them. They should also be spread on the turnip land which has been stript for cattle, or if not stript, to be laid in the middle of the drills. If this was attended to, fewer deaths would ensue, and the hogs would feed faster.

It is best to begin with white turnips, which may be continued till about Christmas, after which they should have yellow; and, to provide a supply in case of severe frosts, a quantity should always be stored on the field. It would be better that all the turnips were cut after the New Year, both yellow and Swedish, as the teeth of high fed hogs begin to loosen very early. When this is the case, the animals take a long time to satisfy their appetite, even in fresh weather. Swedish turnips should be given them for about two months before being put to grass; and as they will have then lost their teeth, the bulbs should be sliced very thin. During these two months every hog should have about $\frac{3}{4}$ lb. of oats per day, which, on an average of seasons, will cost little more

than 2s. for each ; and, during winter, from 1 lb. to $1\frac{1}{2}$ lb. of hay daily. By this mode of feeding, and with proper attention, they should come to grass, about the 10th of April, in very good condition. About the middle of May they must be clipt and sent to market. The draught four-year-old ewes can be sold perfectly fat, 20 lbs. per quarter, in September or October. The cast of such a farm will be about 250 fat sheep, at, say, 30s. each, or £375, and about 450 fleeces of wool, at, say, 5s. This will be nearly the number such a farm can breed and feed. The stock should always pay the rent and any grain they may consume, and produce sufficient manure for all ordinary purposes.

Shelter-sheds, of proper construction, materially facilitate the feeding of sheep, but they are seldom constructed as they ought to be, or sufficiently strong to withstand the stormy winds of winter. These sheds should be of good materials, and so made as to be taken down at pleasure, for the purpose of being shifted, from field to field, as wanted. If strongly made, a shed will last during the currency of a lease. A shed capable of holding 300 sheep without crowding, (open in front of course, so that the animals can go in and out at pleasure,) must be 100 feet long, 15 feet wide, 6 feet high at the back, and $4\frac{1}{2}$ feet in front. The lower part of the shed to be laid on a frame 6 inches square. The two ends of the frame being 15 feet, may be divided into two lengths of $7\frac{1}{2}$ feet each, and the back and front into 16 lengths of 6 feet 4 inches, and all made so as to fit neatly into each other. The upright posts should be 4 inches square. In order to form the back of the shed, it should be in 16 lengths, of 6 feet 4 inches, with one-inch boards firmly

put together, 6 feet the other way, so as to form the height of the back of the shed, and either to be hung on crooks, or otherwise firmly fixed, so that no wind can move them. The length of the ends will be $7\frac{1}{2}$ feet, with one post in the centre of each. It will also require 10 stretchers from back to front, to which the roof may be fixed, and the same number of posts in front, $4\frac{1}{2}$ feet high. It will also require a top frame of four-inch battons to support the posts and fix the roof. The floor to be laid with one-inch boards, with openings of about an inch, to allow the urine or moisture to pass through. The roof to be of felt, which is now much used for this purpose, and to be made into such convenient lengths as to cover the whole, and fastened down with strong buttons or catches, so that no wind can overturn or move it; in fact, to be so strong and substantial as not to be affected by any wind which might blow. The only risk will be a snow storm blowing right into it; or a heavy gust of wind getting under it. This may be remedied by having some strong coarse canvas in front, on small pulleys, to let down when the shepherd saw danger, or to prevent snow filling the shed when drifting. Small racks could be hung all round the shed for hay, while the floor must be bedded with straw. About four inches of dry earth, sand, sawdust, ashes, chaff, or any dry material, should be put below to absorb the urine. The cost of such a shed will be about £35, materials and making included. If the wood was painted or coated with some preparation, such an erection would last many years. It would be, undoubtedly, heavy and bulky to remove; but this would be seldom necessary, and, even when required, a few

carts and the farm servants could effect it in a few hours. The shed should be placed so as to have a southern exposure. Besides its use in winter, it will be found of service in summer, to protect the sheep from violent heat. The interest of the outlay will be £1:15s., and, say, £3:5s. for the tear and wear, the yearly cost will be £5, or 4d. per sheep—an amount that would be more than repaid by the manure below the shed, which should be removed frequently; in fact, this will be necessary to keep the shed sweet.

The turnips grown on the farm will be more than adequate to keep the breeding stock. In addition to the 200 hogs, the farmer might purchase 100 half-bred sheep to make up a lot of 300. The hogs would be the better of them, particularly at first, to teach them to eat turnips; and, in fact, during the whole season, as they would break the skin of the turnips, which the hogs have some difficulty in doing when shedding their teeth. The ewe hogs could either be netted on part of a turnip field by themselves, or kept in a grass field, and a few turnips given them; but they will require no hay, corn, or extra keeping for breeders.

Shed or yard feeding is now much practised, and with considerable advantage when extra feeding is to be given; but the system requires a great deal of attention. For the accommodation of 100 sheep, a shed sixty feet long must be provided. This may be constructed as follows:—A wall 6 feet high, and 60 feet long, must be built, on which is placed a single roof 8 feet wide, supported by strong posts in front, 4½ feet high—the yard in front to extend 20 feet outward, inclosed with a stone wall 4 feet high. The yard and sheds should be di-

vided by a railing 4 feet high, into five compartments, so as to separate the sheep into lots of twenty. A feeding trough for turnips, 20 feet long, to be placed on each side of the yard, so that ten sheep can have access to it at a time. Hay racks, and boxes, for corn, oil-cake, or any other dry food, to be fitted up round the inside of the shed. The floor of the shed should be laid with shifting boards, with one-inch openings, as previously recommended for the portable sheds, and for the same object. The yard to be regularly bedded with dry straw, to prevent foot-rot—a grave objection to yard feeding; but which, with ordinary care, may easily be prevented. In an incipient stage, this troublesome disease may instantly be checked, by paring the feet, and using a little butter of antimony.

A flock of 100 sheep fed in a yard will occupy a man's whole time, as the turnips must be all cut, and carried to the sheep troughs. No more turnips should be given at once than what is considered sufficient for a meal; rather keep a few short, and, as it were, hand-feed them, as they would soon get so familiar with the feeder as not to be the least alarmed when he approached. As soon as done feeding, the troughs should be swept clean, and put up to dry, so as to be perfectly sweet at the next feeding time. The food should always be given at stated hours. The allowance of grain or oil-cake should be 1 lb. per day, which has been ascertained, by Mr. Finnie of Swanston and others, to be a sufficient quantity. If more is given, it has been found to be injurious—clogging their stomachs, and producing surfeit. Half the allowance to be given in the morning, at six o'clock; and while they are eating it, the keeper

should be filling the troughs with cut turnips; and during the time they are eating these, he should clean out the sheds. When the turnips are eaten, the troughs may be cleaned, after which the yard must be immediately shut up, and the animals left in quietness till next feeding time, which should be about twelve o'clock. The second $\frac{1}{2}$ lb. of cake or grain should now be given, and turnips to follow—adopting the same process as in the morning. They should be again fed at four o'clock with turnips, and a little good hay given them in the racks; after this, the yard must be closed for the night. Each yard should have a close-boarded door, in order that the sheep may not at any time be disturbed from the outside; in fact, no person should be allowed to go near them, except the keeper and master. The keeper on no account to have a dog. Quiet and rest are the two grand requisites in yard feeding, with regularity and cleanliness.

The practice of feeding sheep, netted or flaked on the land, and feeding on lea or grass land with turnips, has been much discussed of late, particularly by the Ayrshire farmers. They seem all to agree that feeding with turnips on grass land is not only the best, but most economical system. This may be the case in Ayrshire, where the climate is in general wet and moist, and much of the soil rather close bottomed and retentive. They also take the merit of feeding sheep better than the feeders in Forfarshire—affirming that their widders of the same appearance fetch 2s. a-head more in the Glasgow market than those fed in the latter county. This is not generally understood, even by the Glasgow fleshers, as few counties can beat Forfarshire in this particular; but

fat sheep, like many other good things, often come out of places from whence they are least expected. At one time, East Lothian and the Border counties were the only districts in Scotland famed for feeding sheep; but now almost every locality puts in its claim. Generally speaking, the preference is still to be awarded to East Lothian, particularly near Dunbar—the land in that neighbourhood being open bottomed, resting on a strata of red sandstone.

Sheep will feed faster netted on the turnip land, than when the turnips are laid on grass land. All East Lothian feeders are agreed on this point. The great point in feeding sheep with turnips, either hogs or old sheep, is to commence as early as possible, say about the middle of September, or at all events before the 1st of October. The turnips should be given on fresh pastures for the first month, and afterwards treated as already mentioned. When feeding Leicester hogs, the turnip tops should be removed, as previously recommended, which will prevent many deaths. Regular shifting every four or five days, or not longer than a week, must also be attended to; and a supply of stored turnips always kept at hand to give the sheep, in case of severe frosts, more especially when feeding on grass land.

In very extreme frosts, sheep must be supplied with stored turnips, or fed on grain, cake, or hay; for although more expensive, it greatly facilitates the process of feeding, while the land is enriched by the extra strength of the manure.

Although summer does not require the same attention as winter feeding, yet much care is necessary in shifting sheep from field to field, and giving them *fresh* pasture,

which is of great importance when on grass. This can be easily managed by having some of the fields always clear of stock, were it only for from twelve to fourteen days, for during that time fresh grass springs, and the land becomes cleaned; but when sheep are never shifted, the grass gets foul, particularly if the weather is moist and the land at all wet, or if on close-bottomed retentive soils. The shepherd should, however, be quite awake to the shifting of his sheep, according to weather, situation, and circumstances, as by so doing, many diseases are prevented, and lives saved, more especially if the autumn be wet.

Lambs after being weaned require to be often shifted to fresh pastures, which strengthens their constitutions, and prevents many diseases in winter. Some farmers who have plenty of grass delay putting their sheep on turnips by way of saving; but this practice is not to be commended, as it is always seen that sheep, or stock of any kind, when put early to turnips, thrive best when the winter sets in. Stock, on the contrary, if long kept off turnips, take double the time to recover the first effects of turnips, which generally makes them look worse for a few weeks. Even if the farmer has plenty of grass in September or October, he should not delay commencing as soon as his turnips are ready; but they may be given more sparingly at first; as it will be found that stock will improve more in September, if they obtain a good supply of turnips in a clover or other good field, than they will in November, with the same full quantity of both.

Rape, as before mentioned, is often given to ewes during tugging time. No green food will fatten so fast as this—a fact that farmers should bear in mind; for if a

few of the worst hogs or sheep be picked out, and put on rape early in September, they will overtake the others in two months, although lighter by 2 lbs. per quarter when put on. By this means the stock will be brought in more equal condition to market, which is a great point in feeding.

If sheep are to remain on turnips till March or April, they should have white to begin with, on which they do well, and without cutting, till December. They should next have yellows, which should be cut, and given in boxes, and after 1st February, Swedes. If, however, they are fed too long on these, they are apt to dry up in the bellies, and pine away; therefore, to begin with the softer, and end with the harder varieties, will be found the best method to pursue.

In feeding sheep in winter, the principal care on the part of the farmer is to keep clean pastures, and change frequently, and to see that the shepherds use their dogs as little as possible; for quietness is an essential element in the process of feeding, and it is a common practice with shepherds, in order to save themselves a little extra trouble, to call in the aid of their dog much more often than necessity requires.

CHAPTER XII.

ON THE GROWTH AND MANAGEMENT OF WOOL.

THE growth and management of wool are subjects of great importance, not only to the farmer, but the country generally. Were a calculation made of the annual value of wool produced from fleeces and skins in Great Britain and Ireland, the total would be startling; as, from a recent estimate, it has been pretty correctly ascertained that, in 1849, the value of wool produced in Scotland alone, from fleeces and skins, exceeded £200,000. Now, assuming the produce in England to be double this amount, and taking Ireland at the same as Scotland, the total will amount to about £800,000. The real value of wool depends on the fineness of the texture and strength of staple, to suit the various demands of the manufacturer, both for the home and foreign trade. In producing this article, much depends on the feeding of the sheep. It is a well-known fact, that sheep fed on bare, hard, and scanty pastures, produce the finest quality of wool; but it is not so generally known, that although the texture is finer, such wool wants the strength of that grown on better-fed sheep. The manufacturer may make

cloth of such wools, which will have a fine glossy appearance; but it cannot be expected to have the durability of cloth made from wool of a stronger pile: therefore, the better sheep are fed, the better the quality of the wool, at least to the consumer. These remarks apply more particularly to clothing wools; but as a large portion of the wools grown in Britain is now used for combing purposes, in making dresses for ladies, and other fine fabrics, to which short and tender wools cannot be applied, every care should be taken by farmers and feeders that their sheep be not neglected for a single day, as this neglect will undoubtedly tell on the price of the wool, probably to the amount of no less than 3d. per lb. Wool buyers or staplers soon detect inferior wool, by taking a staple from the fleece, and trying its strength; when that from well-fed animals will stand a considerable tug or pull, while the other will give way at every part of the fleece where the growth was retarded by starvation or shortness of food. This often occurs with careless feeders, if the sheep are not supplied with fresh pitted turnips, or other food, during very severe frosts, or when casting their teeth, or at any period when they are retrograding in condition. This shews the necessity of never allowing sheep to fall off, as it affects both wool and carcase, and, most important of all, the pockets of the farmer. Wool staplers and manufacturers are seldom deceived as to the quality of wool; and although they may be anxious to purchase, they will only buy tender combing wools with reluctance, and much under the value of well-grown sound staples.

Within the last forty or fifty years the production of wool has much increased, and the systems of manufac-

turing greatly altered. In place of a large demand for clothing wools, as at the beginning of the present century (particularly when such strenuous exertions were made to introduce the Spanish or Merino sheep into Great Britain), the principal demand is now for combing purposes. Although the consumption for clothing wools of fine texture may not be diminished, yet the supplies from foreign countries have so much increased, that there is not now that necessity for growing these fine wools at home.

CHAPTER XIII.

ON THE ROT.

A STATEMENT was recently current, that the late Mr. Smith of Deanston had discovered a process whereby the fleece of the living sheep is rendered repellent of water—a process represented to be both simple and cheap, and at not more than one third the cost of tar and butter or other smearing materials—the growth and quality of the wool being thereby improved. It was also reported, that the effects of this water-proofing had been tested on some of the most exposed sheep-walks in Scotland with singular success, and that Mr. Smith had secured patents for the invention for the United Kingdom and the Colonies.* From this discovery, emanating from such a practical man, there should be little doubt of its efficiency; and the invention must be considered as a great boon to sheep farmers, particularly in the north and west of Scotland, when the process has been fully tested and found to be completely successful. It will also prove beneficial to flocks in the most sheltered and low situations; and further, it will go far to prevent or mitigate the Rot—a disease alleged to be brought on entirely by dysentery, from a continuance of

* Although the late Mr. Smith was understood, by several of his friends, to be in possession of this discovery, he never made it known to the public generally, and no steps were taken for securing a patent.—ED.

wet weather, whereby the fleece of the sheep becomes soaked, and produces the same effect on the animal as wet clothing on a human being. In these observations, however, the writer does not coincide. There can be no doubt that a long continuance of wet weather, and the consequent soaking of the fleece for a length of time, cause dysentery, and that Rot sometimes ensues; but dysentery is not the cause, neither is the Rot always preceded by dysentery. Many animals die by dysentery, scour, grass-ill, and braxy; all of which diseases are brought on by the animals eating wet or foul grasses, turnip-tops, clover, or other succulent green foods, after white or hoar frosts in the latter part of the season, whereby the intestines become relaxed, and, in general, inflammation supervenes, which terminates in immediate death. Animals so affected, however, will be quite free from Rot, which is of a lingering nature. In a former chapter (page 98) it was mentioned that Messrs. Bakewell, Culley, and others, in order to monopolise the breeding of Leicesters, caused their ewes, after a certain age, to acquire the Rot, and thus prevent them continuing their species. This was accomplished in dry weather by flooding a piece of low, undrained, marshy, retentive-bottomed, spongy land, which, after being so flooded, threw up a great quantity of rough foul grasses, on which the ewes were put in a sound state, and in a very short time they became tainted, or the seat of the disease affected, viz., the liver. The effects of the disease are not perceptible outwardly for some time, and the animals will go on feeding for weeks after being tainted. It is only when the disease gets to a certain stage that the sheep are observed to decay. On opening a sheep newly tainted

with Rot, and cutting up the liver, numbers of small living organisms will be found, somewhat in the form of a fluke. The gall ducts, or other vessels of the liver, will be completely filled with them. In the first stage they are very small, but as the disease increases they grow in size to fully larger than a sixpence. During their growth they evidently must feed on the blood. For if sheep are killed in different stages of the disease, the quantity of blood in the system will be in the inverse ratio to the time the animal has been affected; and when these flukes are nearly full grown, the blood will be found, on examination, to be nearly exhausted, and the flesh, both fat and lean, quite rotten, giving way with the least touch of the finger. If allowed to die, the blood is entirely gone, and only a watery serum, slightly coloured, found in its place. It is asserted that there are some kinds of animalcula among these foul grasses, which the sheep swallow, and which are said to produce the fluke. This is doubtful; but as there is much ignorance in the matter, it would be very satisfactory to have it solved, as there can be no question that flukes are the destroying agents in cases of Rot; but the mystery is how they find their way to the liver. To prove that it does not proceed from outward effects, the writer once divided a lot of ewes in September; a part was kept on a dry and sound field, and the rest put into a field rather wet and spongy, or what might be considered unsound land. A continuance of wet weather followed, and those on the unsound land got the Rot, while the others remained healthy. When the diseased animals were slaughtered, their livers were found full of flukes. The others were kept till the following year, and remained quite healthy, and free of flukes.

When the disease first manifested itself, both lots were exposed to the same climate, and shared equally in the soaking rains for some weeks.

The Highland and Agricultural Society of Scotland, and other bodies, have of late established periodical meetings for the discussion of matters connected with agriculture, on which different opinions prevail. It would be satisfactory if these societies would examine the different opinions prevalent on the causes of Rot. Much has been written relative to it, and divers opinions adduced; but as these have led to no definite conclusions, more discussion would, doubtless, elicit some valuable results. A long dissertation was written some years ago by Mr. Edward King of Hammersmith, respecting the cause of the flukes found in the livers of sheep. He attributes it to the sheep swallowing fluke eggs on marshy or meadow land after being flooded, or after a long continuance of wet. He makes out that such land is dangerous in spring, summer, and autumn; but it is doubtful if the Rot is ever caught in either spring or summer. He also says that the sheep swallow fluke eggs from the roots of the grasses, or from drinking stagnant water; but how come these fluke eggs to be among the grass or water? There must, certainly, be a parent fluke to produce these eggs, but of which Mr. King takes no notice. Although Mr. King asserts that he has collected them, and that they will be swallowed and pass through one sheep and afterwards be taken in by others, and yet their vitality not destroyed, the grand question to be solved is—how are these animalcula, or fluke eggs, as they are termed, produced? and how do they find their way into the gall vessels of the liver?

and how are they generated in the liver? Mr. King says that one or two flukes getting into the gall vessels of the liver will produce innumerable flukes; but this is questionable, as, however they are produced in the liver, they are all generated at or near the same time, and they grow apace, and feed on the blood till all is consumed, and consequently, for want of blood, the sheep dies. He also says that certain medicinal plants may be found effective in destroying the eggs or young flukes in the stomach; which is tantamount to saying that the fluke generates in the stomach. If so, how do they work their way into the liver? This dissertation on the Rot by Mr. King is ably and well written, but he confesses that many of his opinions are but probable assumptions and conjectures. The best advice he gives on the subject is to *drain the land*.

ON PIGS.

CHAPTER XIV.

ON THE VARIOUS BREEDS IN THE UNITED KINGDOM.

THE breeding and feeding of these animals are of more importance to a greater number of persons than any other description of live stock; for on them the majority of the smaller tenants, cottars, and others, depend, to assist in paying their rents, and meeting other necessary payments. Pigs cost little when young, and their food is, generally speaking, often such as would otherwise go to waste. Before the failure of the potato crop, pigs paid the rent of three-fourths of the small farms in Ireland, and, in many instances, something more. At this period, the number of pigs bred and fed in that country was beyond all calculation; and, even yet, it is very great. A scarcity of potatoes acted in a twofold manner in decreasing the stock of pigs. In the first place, the animals themselves were deprived of their food; and, secondly, the people, for lack of potatoes, were compelled to eat their pigs—hence resulted dire

distress and misery among the lower classes in that unfortunate country.

The pigs of Ireland are generally of a large breed—a well-fed one selling for £5 or £6, and sometimes more; so that the want of the means of feeding must have been severely felt by the smaller and poorer tenants; not only in Ireland, but in a great many places both in Scotland and England, where pigs are the chief means by which cottagers and others are enabled to pay their little rents. The writer has frequently bought £10 worth of pigs from a tenant in Scotland, bred by himself, in one year, whose rent was only £6. In the neighbourhood of large towns, a large class of persons make their rents, and more, by feeding pigs—the food consisting of offal, which is procured from hotels, and other places, for a trifle. Many thousands are fed about distilleries, mills, starch works, &c., on refuse that would otherwise go to waste. Even in farm-yards, they are useful as well as profitable stock, as they pick up spilt grain, small pieces of turnips, and many things that would otherwise be lost.

Pig-feeding is, however, carried on to a greater extent in England than in Scotland. Pigs of from three to six months old, called “stores,” are bought during summer, which are generally soiled in the yard, with clover, tares, or other green food, with a little bruised grain or meal mixed with water. This kind of food keeps them in a growing state; and as the pork season advances, in October, they are supplied with more substantial food, and in a few weeks are ready for the London market. This has reference to the counties within 100 or 150 miles of London, but in those more distant, as York-

shire, they are fed to a larger size, principally for bacon pigs, which are much in demand in the manufacturing districts.

If well bred and properly attended to, either as stores, or when feeding, pigs will pay the farmer as well as most other stock; for no animal will accumulate so much flesh in a given time according to its size, and for the weight of food consumed. It has been ascertained that a pig, if well fed, will lay on 1 lb. of flesh per day.

An experiment was tried by the writer a few years ago on two pigs in a half-fattened state. They were fed for six weeks on rye-meal, oat-meal, and boiled potatoes. When put up to fatten they were estimated to weigh 100 lbs. each, but when killed they had increased to 154 lbs. and 145 lbs. respectively, the increase being 8 lbs. per week. It has further been ascertained, by experiments, that a pig will make 1 lb. per day from the time it is littered; and, allowing pork to be 4d. per lb., this will amount to 2s. 4d. per week, independently of the dung, which is very valuable, as it contains more ammonia than any other manure. These facts corroborate Mr. Huxtable's statement regarding the feeding of pigs. In some of the manufacturing districts, the keep of a pig is more than repaid by its dung, which is valuable for dyeing, or some other process in print works.

For feeding properly, sheds and yards must be provided, with boilers to prepare turnips, potatoes, &c., which, if mixed with bruised beans or other grain meal, will be found very nourishing food. The animals must likewise have plenty of straw, and be kept dry and warm, as many are destroyed by wet and cold, which causes cramp in the legs.

There are a great variety of breeds, many of a coarse and inferior description, although all have been much improved of late years. In Ireland the improvement within the past thirty years, has been very marked. Previously to that time, they were in general a very rough race of animals—colour white, standing very high on the legs, with long narrow carcass, thick coarse bone, rough bristles, long nose, and hanging ears. In fact, they were very disgusting to look at when in a poor lean state. When well fed, however, they made pretty good pork; and when extra fed, and long kept, very good bacon—a commodity for which Ireland has been long famed. They were also well adapted for ship pork, and supplied most of the navy contracts. Immense quantities were cured in Cork as “barrelled pork,” which principally found its way, for ships’ stores, to London, Liverpool, and other large shipping ports.

In Belfast, and other places in Ireland further north, a trade to a large extent is carried on in curing pork, making hams, dried bacon, &c. For hams in particular, Belfast has long been celebrated. The old breed was not very suitable for the ham trade, as the hind quarters were light and not well filled in the thighs. Within the last thirty years, great numbers of small English boars have been imported for crossing the old breeds and a most decided improvement has been the result; so much so, indeed, that they are now like a new race. The rough outline has nearly disappeared; the symmetry improved, with wide straight back, well filled hams, smaller bone, and finer hair; while their aptitude to fatten is much increased. The boars used for crossing have been principally the white breeds of England; with a few of the

Berkshire and Hampshire varieties, the produce from the latter being larger than those from the white breeds. A few have also been crossed by the Chinese and Neapolitan breeds, numbers of which Cross are shewn in Newcastle and other markets, generally black and white, or sheeted. They answer pretty well for pork.

There are several distinct breeds in England, the principal of which are the Suffolk, the Bedfordshire, the Essex, the Berkshire, the Cumberland, the Hampshire, and the Yorkshire, and a few others of little value.

The *Suffolk* breed is white, with fine pricked ears, good symmetry, smooth points, short hair, and small bone; with a rather long carcass, straight and full back, full hams, and feeding very fast. This may be said to be the most useful, and best-bred race in England.

His Royal Highness Prince Albert, who is a great breeder of pigs, has gained many premiums for his animals at the great Smithfield Club Cattle Show—the pigs being a cross between the Suffolk and Bedford breeds. The Prince's stock is a very fine one.

The *Bedford* is also a very high-bred pig. Many have been sent to Scotland, where they have done a great deal of good, particularly those from the stock of his Grace the Duke of Bedford at Woburn. Mr. Tod, late factor for his Grace, sent several to his brother, Mr. Tod, Whitelaw, Berwickshire, who distributed them to the neighbouring farmers, among whom was the late Mr. Thomson of Laws. This breed was mostly white, although a jet black was occasionally to be found. The writer once got a young black sow of this breed from the latter gentleman, which was sold to the late Mr. John Rennie of Phantassie. This sow turned out a

splendid animal, and carried all the East Lothian premiums in her day, and also that for the best sow at the Highland Society's Show in Edinburgh. Although she stood low on the legs, she had a very long carcass, and fine symmetry and points; in fact, she was a perfect model of what a sow should be. Many of the pigs in East Lothian are descended from this sow. A white cut hog of Mr. Thomson's stock was also in the writer's possession, which was fed till twenty months old, when it weighed twenty-nine stones, and cut eleven inches deep on the back. The animal was perfectly blind for many months, his head being overgrown with fat. When cut off, the circumference of it was so great, that it was sent to Edinburgh, where it was purchased by Dr. Munro, who preserved it, and presented it to the Edinburgh Museum. Altogether, the Bedford is a very superior breed.

The *Berkshire* is a very different breed to the last, being of larger size, and generally spotted. Although a well-shaped pig, it is inferior as to symmetry and points to many of the other breeds, but is well adapted for bacon.

The *Essex* pigs are small, with shorter carcass, having many of the fine points of the Suffolk, and also feed fast, many getting too fat. They have very fat heads and cheeks, and cut deep on the back. The only fault of this breed is, that it is rather short, and gets too fat when young, while it never arrives at a great weight. Some breeders in Essex have been improving by crossing, and a new breed is now to be found called the "Improved Essex." W. H. Hobbs, Esq., Marks Hall, near Kelvedon, is in possession of some fine specimens, and has gained several of the premiums at the great Christmas Shows in London.

The *Cumberland* is a very fine breed, but how they were bred originally is not very well known, as they are not natives of this country. The Cumberland breeders pay more attention to their pigs when young than any others. Great numbers are sold in the Newcastle market, at from two to six months old. At the former age they are plump, fat, and well grown; while at from four to six months old, they are fine, plump, porkers, but rather too fat for the general trade of butchers. The writer has bought several lots of them at Newcastle, and although the quality was unexceptionable, they never weighed according to their appearance; no doubt from having been too rapidly fed on soft food, and flushed up, as it were, on slops. At from nine to twelve months old they are very ripe and fat. Most of the larger pigs are made into bacon; a considerable quantity of which is cured and sent to the Newcastle market, where it meets a ready sale.

The *Hampshire* is a large white breed, somewhat similar to the *Berkshire*, but with better symmetry, and more compact. They make fine bacon—the county of Hampshire being famed for that article, always commanding the highest prices in the London markets. A few years ago a very splendid sow of this breed was shewn by Mr. Paterson of Skinnet, in Caithness, at the Georgemas Agricultural Show, where it gained the highest premium. Its weight was little short of forty imperial stones.

The *Yorkshire* breed is a most useful one, being, as to size, medium between the large and small kinds. Colour white, long carcase, straight full back, full hams, rather hanging ears, and very thin hair—in fact almost

naked when young. They answer well for the fresh-pork market, and, when middle sized, for pickling. Large and full-fed animals make splendid bacon. The principal recommendation of this breed is the equal distribution of the fat and lean through the carcase. In this respect they resemble the Southdown sheep.

In Scotland there are very few distinct breeds. The old Scotch White, of large size, but rather coarse, is perhaps the most valuable, as they feed fast and get to great weights, and may therefore be termed a good pig for a poor man. The greatest numbers of this old breed are to be found in Dumfries and Galloway shires; but, generally speaking, the breed is being superseded by finer animals in the other counties of Scotland. They make excellent bacon; and as Dumfriesshire is famed for curing, they answer well enough in this district. Crossing with the English breeds is now practised, which produces a fatter quality; but it is questionable if the bacon is improved, as the old breed is quite fat enough. In the north of Scotland, and in some of the Highland districts, they have a small and half wild kind of breed, very narrow, with long hair on the shoulders, and thin short noses. This breed is often seen running nearly wild; but, when aged and well fed, makes delicious pork.

Great improvements have taken place in the breeding of pigs, in the east and north-east counties of Scotland, within the last twenty years. A considerable number of curers for the London markets are now located in these districts. The pork is cured in kits of from one to one-and-a-half cwt. each, cut in a particular way to suit the markets. For this trade, pigs from 50

to 80 lbs. are reckoned "best" qualities; from 80 to 100 lbs. "second;" and from 100 to 120 lbs. "third" qualities. When above this weight, they do not suit the London trade for pickled pork. This system of curing pork was first commenced in Berwick, where a great trade was for some time carried on, but it is nearly abandoned now—the greater part of the cured pork coming from the more northern districts. The breeding of pigs is, however, still carried on at Berwick and the border counties, but the animals are sent alive to the southern markets, Newcastle, Leeds, &c.

The improvements in Scotland have been principally effected by crossing the old Scotch with the small English breeds—the boar of the latter being used, as the large sows of the former are more prolific and better milkers. The small breeds, generally speaking, are not only very unproductive, but bad milkers. The Berkshires were at one time in great repute in many of the northern counties of Scotland for improving the native breeds; but the Suffolk or Bedford appear to be far superior for crossing purposes; even the Yorkshire makes an excellent cross.

In Caithness and the Orkney Islands, a great number of pigs are fed. Breeders in the former county have for some time been improving their stocks, by importations from Berwickshire, and other places; and large lots of fine well-fed animals are now to be found of a very superior quality. Some are cured in the country, but the greater part are sent alive by steam, either to Edinburgh or Newcastle. In Orkney, also, a very great improvement has taken place by crossing. Mr. Laing and others introduced the Berkshires some years ago, which much improved the native breed; but the greatest change

for the better has been effected by crossing with the Suffolk, Bedford, and Cumberland breeds. Throughout the Orkney Islands immense numbers are bred by the smaller tenants, who, like the Irish, pay their little rents by pigs. There are several curers of bacon in Orkney; but although their pigs are good, and well fed, yet their method of curing is slovenly, and devoid of the proper care and appliances requisite for curing bacon. The trade, generally speaking, is carried on by small merchants, who take the pigs in exchange for goods, and who do not themselves understand the curing process; consequently, the pork does not bring near the top price at Leith and other markets. Numbers, also, of the Orkney pigs are bought by parties who take them to Peterhead; others are sent alive to Aberdeen, Leith, Newcastle, and London, by steamers, and the prices have, in consequence of this new method of transit, advanced considerably. Orkney is well adapted for a pig-feeding and breeding county, from its growing large quantities of potatoes, and where the failure has been less felt than in most other places.

In Zetland very few pigs are either fed or bred, and these only of an inferior description, somewhat resembling the old Irish.

The first part of the paper is devoted to a general
 introduction of the subject. It is shown that the
 theory of the differential equations of the second
 order is a very important part of the theory of
 the differential equations of the first order.
 The second part of the paper is devoted to a
 detailed study of the theory of the differential
 equations of the second order. It is shown that
 the theory of the differential equations of the
 second order is a very important part of the
 theory of the differential equations of the first
 order. The third part of the paper is devoted
 to a study of the theory of the differential
 equations of the second order. It is shown that
 the theory of the differential equations of the
 second order is a very important part of the
 theory of the differential equations of the first
 order. The fourth part of the paper is devoted
 to a study of the theory of the differential
 equations of the second order. It is shown that
 the theory of the differential equations of the
 second order is a very important part of the
 theory of the differential equations of the first
 order.

The fifth part of the paper is devoted to a
 study of the theory of the differential
 equations of the second order. It is shown that
 the theory of the differential equations of the
 second order is a very important part of the
 theory of the differential equations of the first
 order. The sixth part of the paper is devoted
 to a study of the theory of the differential
 equations of the second order. It is shown that
 the theory of the differential equations of the
 second order is a very important part of the
 theory of the differential equations of the first
 order. The seventh part of the paper is devoted
 to a study of the theory of the differential
 equations of the second order. It is shown that
 the theory of the differential equations of the
 second order is a very important part of the
 theory of the differential equations of the first
 order. The eighth part of the paper is devoted
 to a study of the theory of the differential
 equations of the second order. It is shown that
 the theory of the differential equations of the
 second order is a very important part of the
 theory of the differential equations of the first
 order.



X

