



Front.

PARIAN DUCHESS (Yorkshire Large Breed).

THE PIG.

BY WILLIAM YOUATT, V.S.

ENLARGED AND RE-WRITTEN

BY

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EDITOR OF THE "ILLUSTRATED EDITION OF BARRY'S HORSE-TAMING,"
ETC. ETC.

COMPRISING

MODERN PIGS.
BREEDING.
FEEDING.

ANCIENT HISTORY.
NATURAL HISTORY.
MEDICAL INFORMATION.

WITH NUMEROUS ILLUSTRATIONS.

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INTRODUCTION TO THE SECOND EDITION.

THE following work, although nominally a new edition, is substantially a new book, describing the breeds and giving directions for breeding and feeding English pigs. Fourteen years ago, Mr. Youatt, in his very modest preface, described his work as "prepared rather from a desire to extend the view of medical science generally, and to draw the attention of agriculturists to a too much neglected and undervalued class of animals, than from the hope of materially increasing the amount of knowledge already possessed on the subject." Before his manuscript was through the press he died, deeply regretted by all those who had an opportunity of appreciating his zeal, his industry, and his intelligence.

It is scarcely an exaggeration to assert, that since his death, the breeds of pigs in this country have been almost reconstructed; many have been extinguished; the best have been widely spread; all worth notice have been materially improved. The breeding of "stud" pigs is no longer confined to amateurs, but has been taken up by farmers bent on profit. When, therefore, I undertook the task of preparing a new

edition of "Youatt's Pig," I began by addressing a series of questions to my numerous friends among the members of the Central Farmers' Club and the Royal Agricultural Society, and to all the principal pig-breeders of England. The result was a long correspondence and a mass of information from farmers actually engaged in breeding and feeding swine, which it has been my endeavour to condense and present, under suitable heads, as much as possible in the original words of the writers. I have divided the work into two parts: in Part I., containing twelve chapters, scarcely six pages have been retained of the original edition; Part II., containing the Ancient History and Natural History of the Hog, and chapters on Veterinary Art, has been abridged from the first edition, with very slight additions. It seemed a good plan to commence with practical information as to the bacon-making prize-winning breeds, and leave the medical and historical departments for the later consideration of the inquiring reader.

The new illustrations are taken from the best specimens that could be obtained of the breeds worth cultivating; if they are not entirely satisfactory, it is hoped that allowance will be made for the difficulties in the way of photographing a pig. "My boar," writes an enthusiastic breeder, "seems to have no regard for his personal appearance, and will neither lie nor stand when required." The illustrations retained from the first edition show what the breeds were at that time.

A good deal of the information on pigsties and pig-

feeding is new, but it has been taken from the plans and practices of men who have been many years breeding and feeding on a large scale with undoubted success, and not from the pig-kitchens and the pig-palaces of the peers and squires, to whom, fortunately for agricultural progress, the cost of experiments is of no manner of importance. I do not undervalue the breeding operations and agricultural experiments of noble and wealthy amateurs, but do not think it wise to hold them up for imitation, without sound evidence of their pecuniary success.

There is no question that, for the improvement of pigs, like that of all our best live stock, we were originally indebted to our hereditary landed aristocracy. The Earl of Carlisle and Lord Wenlock in Yorkshire, Lord Western in Essex, and Lord Barrington in Berkshire, and other peers and squires, prepared the way for the successes of the rent-paying farmers; but at the present day the character of each particular breed is generally better maintained on farms where pleasure and prize-winning glory are combined with profit. In this respect the pig differs from the more aristocratic Short-Horn and Devon, because he requires constant personal attention to guard him from degenerating into an unhealthy lump of fat: in the one case you may keep a fiddler, but in the other it is safer to fiddle yourself.

I have particularly to acknowledge the valuable information I have received from Mr. Fisher, the bailiff of Mr. W. B. Wainman, Carhead Farm, Leeds; Mr. G. Mangles, Givendale, Ripon; Mr. W. Sadler, of

Calcutt, Wilts; Mr. Fisher Hobbes, of Boxted Lodge, Essex; and many others who have taken the trouble to answer my tiresome cross-examinations.

I cannot hope to have escaped both errors and omissions, but shall be happy, if afforded the necessary means, to correct and supply them in future editions.

After a good deal of consideration, my "Part" of this book has been written in the first person, because, although it increases my responsibility and assumes somewhat the appearance of vanity, it places me in a position to obtain more direct communications and corrections from the pig-breeding interest. Experience has shown me that plain farmers will write to the plain "I" more freely than to the mysterious "We."

It must be distinctly understood that neither in this book nor in any other of my agricultural writings, do I undertake to "teach farmers how to conduct their business." My task is, and always has been, "*to assist farmers to teach each other,*" by collecting and arranging the experience and the practices of different parts of the kingdom, and summing up the evidence brought before me rather in the spirit of a judge than of an advocate.

S. SIDNEY.

CENTRAL FARMERS' CLUB,
LONDON, June, 1860.

CONTENTS.

PART THE FIRST.

CHAPTER I.

Origin of the Domestic Hog—Not the Wild Boar—Description of Wild Boar—Influence of Chinese and Neapolitan Breeds—The Old English Hog—The Craonnaise—Division of Districts among White Pigs and Black Pigs—Few real Distinctions between Breeds—How to Improve Local Breed—Practical Distinctions—White Pigs: viz., Yorkshire, Cumberland, Leicester—Black Pigs: viz., Berkshire, Essex, Tamworth—Large Breed—Small Breed—Middle Breed—Neapolitan Origin of all Black Pig Improvement—Value of Red Tamworth Breed—Explanation of Large, Middle, and Small Breeds Page 1

CHAPTER II.

Yorkshire Large Breed, Origin of—The Leicester Cross—Good Result—Castle Howard Breed—Valley of the Aire Breeding-place of Large Yorkshires—Pedigrees preserved—The Pig Shows—The Female Exhibitor of the Sow "Lady Kate"—Enthusiasm of Cottagers—Description of Large Sows—Weights and Dimensions of Large Breeds—Northallerton—Chester Show—"Duchess" and "Lady Havelock"—Cumberland Large Breed—Cheshire Large Breed—Anecdote of Manchester and Lancashire Large Breed—Yorkshire Middle Breed, Origin of—"Miss Emily" (*see Portrait*)—Description of Middle Breed—Illustration of Yorkshires—White Leicesters, Mr. Williams's account of—The Small Cumberlands and Small Yorkshires—Description of Yorkshire—The Cumberland Cross: its effect—Feeding Value of York-Cumberland—Weights of—Description of Cumberland—Profits of Lord Ducie's sow—Pedigrees, showing close relation of York, Cumberland, Leicester, Earls of Carlisle, Ducie, Colleshill, and Windsor Breeds 9

CHAPTER III.

Black Pig Counties: Berks, Hants, Wilts, Dorset, Devon, Sussex, Essex—Account of Berkshire—Lord Barrington's Herd—Mr. Sadler—Mr. Owen—A Norfolk farmer—Mr. W. Hewer—Cross with Essex—The Sussex Breed: its good qualities—The Essex Breed once Black and White—Neapolitan imported by Lord Western—Mr. Fisher Hobbes' Improved Essex—Value as Jointers—As a Cross—Both Small and Large—Description and Dimensions of Boar (*see Portrait*)—Breeds crossed with Improved Essex—Improved Oxforda, Origin of—Marquis of Blandford's Neapolitan Boars—Mr. Druce's Berkshire Cross—Result more Lean Meat than Essex—Better Feeders than Berkshire—Birmingham and Tamworth Breeds—Black Devon—Improved Dorsets bred from Neapolitan-Chinese, Dorset, and Improved Essex..... 24

CHAPTER IV.

Hampshire Breed—Lincolnshire and Suffolk, Norfolk, Shropshire, Welsh, Cheshire Crosses—Fancy Breeds explained—The Windsor Breed, Origin of—List of Prizes—The Colehill—The Middlesex .. 38

CHAPTER V.

Chinese—From Canton chiefly—Description and Portrait—Good Foragers—Prolific—Early Mature—Want Lean and Size—Early History, Guesses at—Bewick's Account of Black Chinese—Hint for an Imaginative Monogram on the Chinese Pig—The Neapolitan—Description of—Mr. Brandreth Gibbs's Account—Lord Western's Importation—Earl of Harborough's Cross—Mr. Buckley's Pigs—Correspondence in "Journal d'Agriculture Pratique"—Mons. Allier's Piggery—Mons. Chomel Adams—Hints for Improving the Peasant's Pigs—Mistake in our Royal Agricultural Prize System..... 44

CHAPTER VI.

The Boar's Sty—Breeding-shed—Norfolk Breeder's Letter—Importance of Dry Foundation—Feeding-troughs under Cover—Old-fashioned Pig-sty bad—Windows in Pig-sheds—Piggeries for fattening Pigs—Completely-covered Buildings most Profitable—Mr. Jackson's Dairy Piggeries described (*see Illustrations*)—A positive Pleasure to feed a hundred Pigs on this Arrangement—Mr. Mangles' Plan of Covered Piggery (*see Illustrations*)—Details of Woodwork and Description of Arrangements—Other Suggestions..... 51

CHAPTER VII.

Sow to be larger than the Boar—Boar's Influence on Future Litters—Disease Hereditary—Points a Boar should possess—Sows fit to Breed at Seven Months—Twelve Months the Best Age—Period of Gestation—Two Litters a Year—Not a Good Breeder with less than Eight at a Litter—To Farrow not earlier than March: except Prize Pigs—Treatment of Sows during Pregnancy, and while Suckling—The Carhead Advice—Piglings lost by over-care—Dead Pigs to be removed—Food after Farrowing—Constipation, Remedy for—Directions for Breeding-house and Attendance—Mr. Sadler on Management of Berkshire Sows—Care of New-born Piglings essential in Cold Weather—Food of Sow—Management of Young while Suckling—Weaning, Treatment before—Age, from Eight to Ten Weeks—Loss of Tail—Mr. Mangles' Plan of treating Tails 58

CHAPTER VIII.

On Dairy Farms—On Arable Farms—On Purchased Food—Pig-feeding pays in Manufacturing Districts—Letter from a Yorkshire Feeder—Directions for Feeding Young Pigs—The Secret of Profit—Mangles recommends Potatoes pulped—Grazing—Slops a Deception—Barley—Indian Corn, crushed and boiled—Cooking Food—Berkshire Breeder's System of Feeding on a Dairy Farm—Cheshire Dairyman's System—How much Barley makes a Pound of Pork—Gain per Week in Feeding—How to gain Weight most quickly—How to make the Most of Food—Super-phosphate good for Pigs in a Sty—Mr. Tyrrell's (Devonshire) System of Feeding—To cure Pigs infested with Vermin—Value of Pig Offal and Manure—Indian Corn and Bran—Professor Voelcker's Estimate of, and Recipe for Food—Ground Wheat used in Yorkshire—Cheddar Cheese Farm System—Workhouse Wash: its Value—Account of Pig Management at Workhouse School—How to apply Juvenile Labour to Pig-feeding on Roots 72

CHAPTER IX.

The Chemistry of Pig-feeding (abridged from an Essay by J. B. Lawes, Esq.; with a Table of Value of Various Kinds of Food, compiled by G. M.) 83

CHAPTER X.

Cottager's Pig—Squire Sturt's Opinion—Mr. Chadwick's Objection to the Poor Man's Pig—Picture for Sturt, Kingsley, and S. G. O.—

The Peasants' <i>Conversazione</i> at the Pig-sty—A Subject for Frith and Ansdel—Rules of the Yorkshire Society for the Cottagers' Pig Class—Advice on Choice of a Pig—Cobbett on Pig-feeding—Killing, Singeing, and Salting Bacon—Smoking—Summary	89
--	----

CHAPTER XI.

Berkshires—Large Yorkshires—Prizes to Small Breeds—Names of Breeders—Mistake in R.A.S.'s Pig Classes—Tyrrell's Opinion—Yorkshire Advice on "Pens of Three Sows"—Arrangement of Yard—Berkshires to have a Separate Class	97
---	----

CHAPTER XII.

Meat of the Pig—Sucking-Pigs—Killing—Preparing Dead—Cutting up—To Cure Bacon and Hams—Yorkshire—Hampshire—Berkshire—Buckinghamshire—Kent—Somerset—Wiltshire—Westmoreland—Scotland—Westphalia—Pickling Pork—Hamburg Pickle	103
---	-----

PART THE SECOND.

CHAPTER I.

Zoological Definition of the Pig—The Order Pachydermata—Derivation of the Term "Hog"—The Hog was greatly esteemed by the Romans—Worshipped by some of the Ancients—Swines' Flesh prohibited by the Law of Moses—By that of Mohammed—Despised by the Egyptians.....	119
--	-----

CHAPTER II.

The Early History of Swine—Legendary and authentic Records respecting the keeping of them in England—Ancient Welsh Laws relative to Swine—The Forests of England—Swineherds: their Mode of managing their Herds—Calabrian Swineherds—Horn used to	
---	--

assemble the Grunting Troop—The Schwein-General—Herds of Swine kept in France—Value of Pigs—Some Vindication of them—Anecdotes proving their Teachability—Sagacity of a Pig—Some Demonstrations of Memory in one—Attachment to Individuals—Swine not innately filthy Animals—They are possessed of more Docility than they usually have credit for—Their exquisite Sense of Smell—Pigs said to foretell Rain and Wind 124

CHAPTER III.

The Wild Boar—Description of him—Characteristics—The Female and her Young—Hunting the Wild Boar—Homer's Description of a Boar-hunt—Roman Festivals and Games—The Wild Boar in England and Scotland—In France—In Germany—Mode of Hunting the Boar in Germany—Wild-Boar Park of the Emperor of Austria—Present Wild Breed in Germany—In Hungary—In the Styrian Alps—In Russia and Sweden—In the East—Habits of the Wild Hog in India—Wild-Hog-hunting in India—The Wild Breed in America—Fearful Conflict with a Wild Herd in Columbia—The Wild Boar the Parent Stock of all Domesticated Breeds—Resemblances between—Alterations produced by Domestication—Resumption of Old Habits on again becoming Free from Control of Man..... 153

CHAPTER IV.

Swine in America—In large Towns—Original Breed—Improved Breeds—Hebrides—In the South-Sea Islands—Swine in Asia—In China and Japan—Ceylon—Hindustan—Turkey and Arabia—In Malta—In Italy—In Germany—In Hungary—In Russia—In Sweden—In France 170

CHAPTER V.

The Skeleton of the Hog—Skull and Snout—Teeth—Brain—Apoplexy—Inflammation of the Brain—Phrenitis—The Spinal Cord—Epilepsy—Palsy and Paralysis—Tetanus—Rabies—Nasal Catarrh—The Larynx—The Pharynx—The Os Hyoides—Strangles and Quinsy—The Chest—Diseased Valves of the Heart—The Bronchial Tubes—Inflammation of the Lungs, or Rising of the Lights—Pleuro-Pneumonia—Epidemics 181

CHAPTER VI.

Anatomy of the Stomach—Gullet—Intestines—Duodenum—Jejunum—Ileum—Cæcum and Colon: Diseases to which these parts

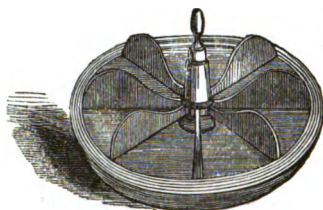
are liable—Enteritis—Colic—Diarrhœa—Garget of the Maw—
 Anatomy of the Liver and Spleen : Splenitis—Rupture of the Spleen
 —Absorption of the Spleen—Peritoneum—Worms—The Bladder and
 its Diseases—Protrusion of the Rectum 219

CHAPTER VII.

The Skin and its Diseases—Gangrenous Erysipelas—Lice—Leprosy
 —Mange—Measles—Desquamation of the Skin..... 234

CHAPTER VIII.

Operations : Bleeding—Castration—Catching and Holding—Drench-
 ing—Ringing: 244

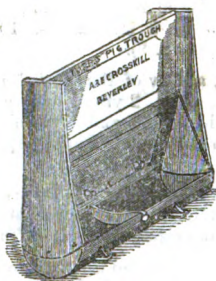


DESCRIPTION OF ILLUSTRATIONS,

With Directions to Binder.

- No. 1.—**PARIAN DUCHESS**, a Sow of the Large Yorkshire breed ; bred by W. F. Wainman, Esq. Length, 5 ft. 10 in. ; girth, 6 ft. 1 in. ; height, 2 ft. 10 in. ; 1 yr. 9 mos. Photographed from life—(*To face Title-page*).
- No. 2.—**Two Wild Boars**—(*To face p. 1*).
- No. 3.—**French Craonnais Boar**. From a photograph—(*To face p. 4*).
- No. 4.—**SIR ROGER DE COVERLEY**, a Boar of the Yorkshire large breed, bred by W. F. Wainman, Esq., Carhead, near Leeds. 6 ft. 2 in. long from nose to ham ; girth, 6 ft. 4 in. ; height at shoulder, 3 ft. 2 in. ; 2 yrs. 10 mos. Photographed from life—(*To face p. 9*).
- No. 5.—**GOLDEN DAYS**, a Sow of the Yorkshire large breed, from the Carhead stud. Age, 2 yrs. Had weaned her third litter, reared thirty-three pigs, and taken nine prizes before she was twenty-two months old. Photographed from life—(*To face p. 16*).
- No. 6.—**MISS EMILY**, a Sow of the middle breed. From the Carhead stud. 2 yrs. 6 mos. Has won nine prizes, and never been beaten. Photographed from life—(*To face p. 19*).
- No. 7.—**White Leicester Boar and Sow**. From a picture in the possession of the breeder, J. V. Williams, Esq., Haygrove, Bridgewater—(*To face p. 20*).
- No. 8.—**A Cumberland-York Boar (small breed)**. Prize-winning not working condition—(*To face p. 21*).
- No. 9.—**A Fat Berkshire Sow**, bred by William Sadler, Esq., of Benthams, near Cricklade. Length, 6 ft. 4 in. ; girth, 7 ft. 6 in. From a picture in the possession of the breeder—(*To face p. 25*).
- No. 10.—**A Berkshire Boar (middle breed)**. From a French photograph—(*To face p. 27*).

- No. 11.—EMPEROR, an improved Essex Boar. 8 yrs. Bred by W. Fisher Hobbes, Esq., of Boxted, Essex. From a drawing in the possession of the breeder—(*To face p. 32*).
- No. 12.—Chinese Sow and Lord Western's Essex Boar. Drawn for Mr. Youatt's Edition—(*To face p. 174*).
- No. 13.—Wild Boar and Old English Hog. Drawn for Mr. Youatt's Edition—(*To face p. 119*).
- No. 14.—Ground-plan of Piggeries at Tattenhall Dairy Farm, and View of Covered Food-house—(*To face p. 51*).
- No. 15.—Covered Shed for Fattening Pigs, and Ground-plan of same, at Givendale—(*To face p. 53*).
- No. 16.—Internal Arrangements of Givendale Piggery—(*To face p. 55*).



PART I.

MODERN PIGS: BREEDING AND FEEDING.



WILD BOARS.

THE FISCAL

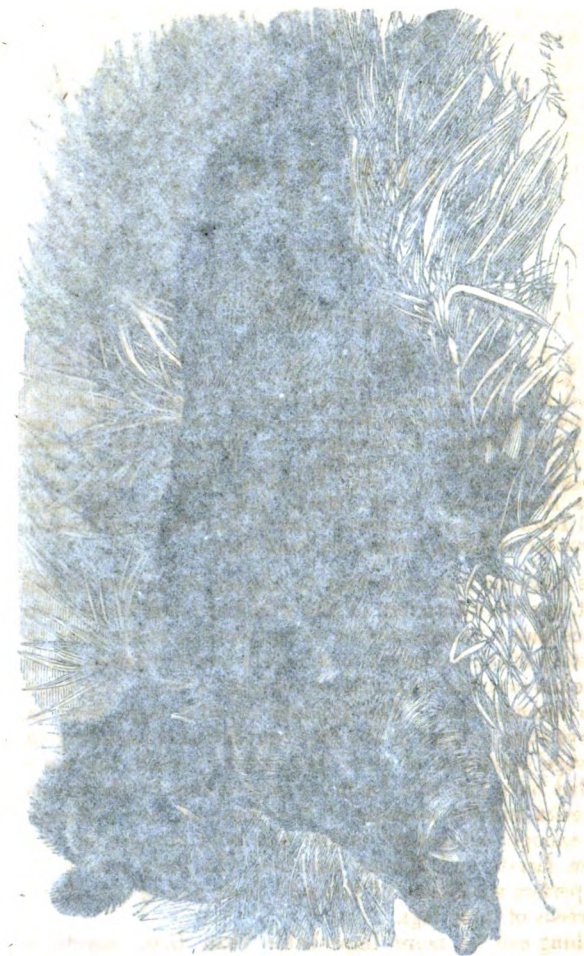
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There is a domestic hog, according to almost all writers on the subject, is a tamed variety of the wild hog; but there is no doubt that a transformation so complete as to convert the wild hog into a domestic hog is a transformation of shape and organization. No one has ever known a wild hog become a domestic hog or become wild. The produce of a wild hog in a domestic state, those at the first conversion, according to the prevailing condition of their progenitors, will therefore have run wild for many generations in the woods of America and the swamps of New Zealand, and indeed, and enough, together make the wild hogs of America, Europe and Rarotonga islands. They run wild and perfect specimens of the wild hog and of the best breeds of domestic hogs.

Nothing can be more improbable than that the five nations of British, or Saxon, or Celtic origin should see enough to select, reclaim, and bestow a language which no Latin tract has defiled the ears of the persevering



THE PIG.



CHAPTER I.

Origin of the Domestic Hog—Not the Wild Boar—Description of Wild Boar—Influence of Chinese and Neapolitan Breeds—The Old English Hog (*with Illustration*)—The Craonnaise (*with Illustration*)—Division of Districts among White Pigs and Black Pigs—Few real Distinctions between Breeds—How to Improve Local Breed—Practical Distinctions—White Pigs; viz., Yorkshire, Cumberland, Leicester—Black Pigs; viz., Berkshire, Essex, Tamworth—Large Breed—Small Breed—Middle Breed—Neapolitan Origin of all Black Pig Improvement—Value of Red Tamworth Breed—Explanation of Large, Middle, and Small Breeds.

THE domestic hog, according to almost all writers on the subject, is a tamed variety of the wild hog; but there is no evidence that a transformation so complete or so contrary to the history of other domestic quadrupeds has ever taken place. No one has ever known a wild hog to become tame, or a tame hog to become wild. The produce of wild hogs, bred in a captive state, relapse at the first convenient opportunity to the savage condition of their progenitors; while the tame hogs that have run wild for many generations in the woods of America and the swamps of New Zealand, are, although timid enough, altogether unlike the wild savages of the German forests and Roman marshes. In Italy are to be found perfect specimens of the wild boar, and of one of the best breeds of tame pigs.

Nothing can be more improbable than that successive generations of British, or Saxon, or Gallic peasants devoted pains enough to select, reclaim, and breed a wild beast which in modern times has defied the efforts of our persevering

naturalists. Wild swine may be tamed, just as wolves, or bears, or foxes, may be temporarily tamed; and that is all.

This question is only worth attention, in a practical essay on domestic pigs, because some amateurs have recommended a resort to the wild breed to restore constitution to an enfeebled race. No advice could be more unwise; for, except in vigorous constitutions, the wild boar is everything that a pig bred for profit should not be,—unprolific, slow in reaching maturity, deficient in hams and loin, thick of skin, coarse in hair,—in a word, only good for hunting and hair-brushes. Even the flesh of the wild animal—much praised, but rarely eaten—is as inferior in flavour to a well-fed hog as unfattened red-deer is to a well-fed Southdown.

Ruricola (a Norfolk man, I believe), in his book on “Dairy Farming,” published in 1856, states that “great benefit has been derived by breeders of Berkshire from a ‘hark back’ to the wild boar;” but this is probably only some story he read in a book of natural history, for on careful inquiry among the most eminent and successful pig-breeders, I cannot find a single instance of a successful cross of the kind, although many experiments have been made at the Zoological Gardens, London.

A wild-boar cross entirely ruins a sow for breeding purposes; her future litters by other boars bear the stamp of the unprofitable beast, and it would take twenty years to get rid of its ill effects on the produce. The crosses produced at the Zoological Gardens have been in the highest degree unsatisfactory to the best judges, the prize breeders and pork-butchers.

It is probable that when wild swine existed in the forests of England (they were extinct before Charles I. came to the throne), the domestic swine, then fed during the autumnal months on acorns and beechmast, were occasionally crossed with the wild boar; but until attention was paid to breeding, the farm-yard hog of the Northern and Midland counties was in colour and character altogether unlike the true wild boar. The variations in colour of modern pigs may easily be accounted for without any such alliance. The

Chinese and Neapolitans are both prick-eared and black, sometimes red.

An eminent French hunting authority of the last century describes the wild boar as having "larger tusks, a stronger snout, a longer head than the domestic pig; smaller ears, pointed and upright; in colour, when full-grown, always black." "Until six months old, grey and blackish stripes mark his body lengthwise, from the head to the tail. The rest of his body is a mixture of white, yellow, and brown. At six months he acquires a uniform colour; up to two years old, the piglings keep with the sow; between two and three, when able to defend himself, the boar lives alone.

"The wild boar differs from the tame hog in putting his hind feet into the marks of the fore feet. The cloven feet of the tame hog divide as he walks; the wild boar, when he is walking without suspecting danger, keeps his claws close together. The wild hog buries his snout deep, rooting the earth up in a straight line before him; the tame hog turns it up right and left, here and there. The wild boar grows for four or five years, and lives twenty or thirty. The sow breeds once a year only, receives the boar in January or February, litters in May or June—five, six, sometimes eight or ten, rarely more,—suckles them for three or four months, and does not allow them to leave her until two or three years old."

It may safely be affirmed, that although twenty or thirty years ago an immense improvement was produced in almost all our established breeds of swine, by crosses, of the black and the white Chinese and the black or brown Neapolitan, both being in every essential particular the reverse of the wild-boar breed, at the present time we have within the range of England every variety we require in size, shape, and constitution, for producing a perfect pig, either black, or white, or particoloured; a bacon hog, a porker, or a sucker;—everything, in fact, except the raw material for saddles and hair-brushes; and the pig breeder who requires constitution can always obtain it by resorting to boars of the colour and size that he prefers, but of a different and more vigorous tribe.

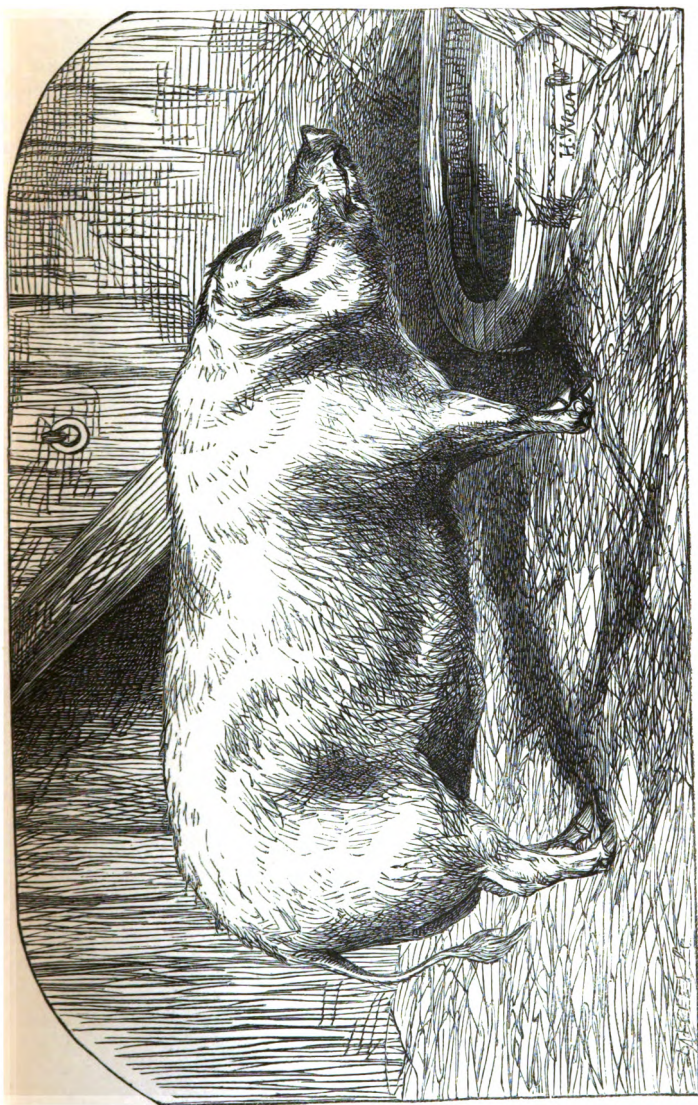
The old English hog (*see* picture), generally of a yellow

white, sometimes spotted with black, is the stem of all our large and many of our smaller white breeds; Yorkshire was his stronghold, but he was also found throughout our midland counties, and especially in Warwickshire, Worcestershire, and Gloucestershire. This breed, which has been almost extinguished by crosses and rival importations, had the merit of being hardy and prolific: sometimes favourable specimens fattened to great weight; in every other respect it was the reverse of what a profitable hog should be.

The improved large white Yorkshire breed (*see frontispiece*) has retained the merits, and almost obliterated the defects, of the old farm-yard favourite. Very good likenesses of the old British hog, as gaunt, as long, as tall, as wiry-haired, as slow to fatten, and as unprofitable, are to be found in great numbers in France and Germany. In French and German agricultural periodicals, we find letters from farmers of the old school expressing the same prejudices against foreign crosses, and the same fears of the decline of the large, hardy, bacon-making pig, that less than twenty years ago were penned by English agricultural writers, and received with hearty cheers at English market dinners. Our farmers have grown wiser since the era of railroads and agricultural shows. The French peasant and German *bauer* have little money or time for reading or travelling, so it will take a good many years of government dry-nursing to convince them of the profit of well-bred pigs. The state of public opinion in France, on the subject of pig-breeding, may be judged from the fact that the picture at page 5, represents a white Craonnaise boar, which was considered worthy of a prize at a French agricultural show in 1856. But we have no right to be conceited on that ground, for it is very probable that in 1820 the same boar if native-born, would have received a prize in some districts of England.

The northern and midland counties of England had a white breed from time immemorial. Until very recently, black pigs were unknown in Yorkshire and Cumberland. The West Sussex, Hampshire, Berkshire, Dorset, Shropshire, and Wales, had indigenous black or red-and-black breeds of swine; and between the whites, the blacks, and the reds, the particolours were produced which have since in a

THE UNIVERSITY OF CHICAGO



FRENCH PRIZE BOAR (Craonnais White Breed).

great degree disappeared under the influence of prizes, generally awarded to pure breeds of single colours.

The old-fashioned pigs made very good weights when over two years old, and very good bacon too ; but time was of less importance and waste inferior food was of less value, than in these fast days. We learn from Parson Adams's adventures, that somewhere about 1745, Parson Trulliber's pigs weighed twenty score,—a very respectable weight. Unfortunately for our information, the Parson did not say how old they were : if he had, this chance piece of evidence would have been more reliable than many guesses of classical and biblical critics on the same subject.

Judicious selection, shelter, ample supplies of nutritious food, and in most, if not all cases, judicious crosses, have produced what may be called " studs " of modern pigs, representing everything that is worth preserving in the many local breeds which were once identified with almost every county.

Mr. Youatt, and all the authors who have followed him, down to the latest work published on the subject, occupy space in describing various county pigs which have long ceased to possess, if ever they possessed, any merit worth the attention of the breeder. Thus, the Norfolk, the Suffolk, the Bedford, the Rudgwick, the Cheshire, the Gloucester breeds, have each a separate notice, not one of which, except the Suffolk, is worth distinct cultivation, and the Suffolk is only another name for a small Yorkshire pig.

It will generally be wise for the man who desires to feed pigs on a large scale to a profit, to take the best sows he can buy in the district, of whatever breed they may be, and cross them with a pure-bred boar of suitable size and colour ; and if he desires to establish a breed, then of a suitable size and the same colour. Thus, to take an extreme instance, a French farmer will probably do better, in a district where the white Craonnaise breed prevails, by taking the best Craonnaise sows he can get and putting them to an improved Yorkshire boar of the small or middle breed—gradually establishing a new profitable animal,—than by introducing an entirely new breed, because he can operate on a large scale with the sows of the country, he will

escape most of the difficulties incurred in settling a new breed in a new climate, and he is sure of a profitable produce from the first cross. The same rule will apply to England. Always stick to the colour that sells.

Half the names given to pigs at fat stock shows are invented or carelessly adopted by the exhibitors, as I shall show in my notes on county pigs, and do not insure fixity of type in the produce. A useful pig in these days may easily be bred; but if you want fixity of type, or, as it is well called, "character," you must adopt pure blood; and this can most surely be obtained by going to some breeder of established reputation. For practical purposes, the following are the only breeds worth the attention of the breeder requiring boars of pure blood.

White Pigs; viz., Large, Middle, and Small Breeds.

Yorkshire,
Cumberland,
Leicester.

Black Pigs.—Middle and Small Breeds.

Berkshire,
Improved Essex.

Red Pigs.

Tamworth or Staffordshire Breed.

Thus, under the name of Yorkshire, there is, first, the refined representative of the old farm-yard hog, the improved large breed—still hardy, still prolific, but wonderfully improved in symmetry and quality, making, when fat, from 600lbs. to 1,000lbs. of bacon and hams.

Secondly, there is the Yorkshire, or rather Cumberland-York, small breed, which has always been a different stamp of animal from the old large breed, probably, at perfection, about 200lbs. to 250lbs., which, transplanted into southern counties, crossed most probably more or less remotely with Chinese, has received many names, and become famous as Suffolk, Windsor, Coleshill, Middlesex;—by whatever name,

the boars always breed kindly with the true York-Cumberland or Cumberland-York small breed.

Thirdly, there is the middle breed of pigs, the result of a cross between the dwarfs and the giants—a small boar and a large sow—or from an intermixture of the Cumberland with the small Yorkshire. Whenever I use the word “York,” I include the Cumberlands, as will be seen in a future chapter.

We have, therefore, arrived at a stage in pig-breeding when, for improvement in white pigs, we can always turn to one of the three York or York-Cumberland breeds, because, although other counties have white pigs, it is in Yorkshire and Cumberland that competition is most keen, judges most acute, and pedigrees most strictly preserved.

Then, for black, or dark pigs—for I am now speaking of the best practical mode of improving an old breed of inferior sows, white or black, as the case may be, by crossing with superior boars—there are the three breeds which will supply all that can be required without troubling either wild boars or those excellent pork-makers the Neapolitans. These are the improved Berkshire—which, reduced in size by Neapolitan crosses, gives a middle-sized bacon pig; the improved Essex, also the result of a remote Neapolitan cross, justly famous as a porker of small size; and if constitution be required at some sacrifice of maturity, there is a black-red breed, the Tamworth, or Staffordshire breed.

Some years ago I used to despise red pigs, but was convinced of my error by the evidence of one of the most successful pig-breeders in the kingdom, who assured me that well-chosen specimens were invaluable for giving vigour and constitution to black breeds when demoralized by over-coddling, over-feeding, and injudicious in-and-in breeding; and afterwards by seeing the result of a cross between the improved Oxford Berkshires and a Tamworth boar.

I am prepared to receive grievous remonstrances on the subject of this chapter—to be accused of having overlooked divers county pigs and several famous studs. Jones, Brown, and Robinson, Lord M. or N., as the case may be, will think themselves unjustly passed over. I can't help that. This chapter is the broad outline—the details will be found in the succeeding pages.

Almost all writers on pigs set out with a preference for some particular prize-winning breed; that is a mistake: the best tribe of every pure breed is good. But it is useless to breed a white pig for a black market, or *vice versa*, or a big pig where the demand is for small pork, or a small pig where there is food and demand for good bacon hogs. Regulate your choice by supply of food and demand for pigs, and then select your boars accordingly.

Pigs are divided, by farmers and butchers, into three classes, viz., large, medium or middle, and small, which are represented by something like the following weights. I have given these weights in pounds instead of stones, because the stone in some parts of England is eight pounds and in others fourteen.

Large breed, 600 lbs. to 1,000 lbs.			
Middle	„	400	„ 500 „
Small	„	200	„ 300 „



SIR ROGER DE COVERLY (Yorkshire Large Breed).



CHAPTER II.

WHITE BREEDS.

Yorkshire Large Breed—Origin of—The Leicester Cross—Good Result—Castle Howard Breed—Valley of the Aire Breeding-place of Large Yorkshires—Pedigrees preserved—The Pig Shows—The female Exhibitor of the Sow “Lady Kate”—Enthusiasm of Cottagers—Description of Large Sows—Weights and Dimensions of Large Breeds—Northallerton—Chester Show—“Duchess” and “Lady Havelock”—Cumberland Large Breed—Cheshire Large Breed—Anecdote of Manchester and Lancashire Large Breed—Yorkshire Middle Breed—Origin of—“Miss Emily” (*see Portrait*)—Description of Middle Breed—Illustration of Yorkshires—White Leicesters, Mr. Williams’s account of—The Small Cumberlands and Small Yorkshires—Description of Yorkshire—The Cumberland Cross—Its effect—Feeding value of York-Cumberland—Weights of—Description of Cumberland—Profits of Lord Ducie’s sow—Pedigrees, showing close relation of York, Cumberland, Leicester, Earls of Carlisle, Ducie, Coleshill, and Windsor Breeds.

LARGE YORKSHIRE AND CUMBERLAND.

YORKSHIRE stands in the first rank as a pig-breeding county, possessing the largest white breed in England, as well as an excellent medium and small breed, all white, the last of which, transplanted into the south, has figured and won prizes under the names of divers noblemen and gentlemen and more than one county. The Yorkshires are closely allied with the Cumberland breeds, and have been so much intermixed that, with the exception of the very largest breeds, it is difficult to tell where the Cumberland begins, and where the Yorkshire ends. It will be enough to say, for the present, that the modern Manchester boar, the improved Suffolk, the improved Middlesex, the Coleshill, and the Prince Alberts or Windsors, were all founded on Yorkshire-Cumberland stock, and some of them are merely pure Yorkshires transplanted, and re-christened.

The old Yorkshire pig was a large narrow animal, with

a strong coat of white hair, with a few pale-blue spots on the skin, the hair on the spots being white. It had a long head, great ears, long legs, and was very strong in the bone. It was a long time coming to full size, and could be fed to upwards of 800lbs., but whether with any profit is doubtful. It was and is still very hardy, and a very prolific breeder. Attempts have been made to improve it by crossing with the Berkshire, Essex, Neapolitan, and other black breeds, which produced a black-and-white race. Those from the Berkshire are a hardy, useful sort, but fatten slowly; the other crosses have little or no hair, are too delicate for the North, and are fast wearing out.

"The first step taken in the right direction for improving the old Yorkshire seems to have been the introduction of the white Leicesters. These were a large sort, with smaller heads than the old York, erect ears, finer in the hair and lighter in the bone, not unlike the Yorkshire middle breed of the present day, but not so much fleshed, and deep in the carcass.* The improvement in the York large breed commenced early in this century, when the white Leicesters were introduced. The general run of the pigs in the corn-growing districts shows that they partake more or less of this cross. The old sort is seldom seen except in the northern part of the county.

"The Leicester cross," says a Yorkshire correspondent, "has been still further improved by putting the largest and best young sows of the Leicester cross to boars of the small white breed from Castle Howard† and Bransby,‡ breeding from the progeny, and selecting the largest and best of the young of the sows and the best-formed boars for that purpose, taking care that they were not too nearly related. By this means the size and constitution of the large breed with the symmetry and tendency to fatten of the small breed, have been in a great degree

* I can find no trace of these white Leicesters, except Mr. Williams's, among the prize-winners of the last ten years. Bakewell's improved Leicesters were black.

† The Earl of Carlisle.

‡ Mr. Wiley, of Bransby, introduced a small breed of White Leicesters, now called Yorkshires.

transmitted to the offspring. If a sow shows too much of the old sort, she is put to a boar of the small breed for her *first litter*."

These improved large Yorkshires are principally bred in the valley of the Aire, in the neighbourhood of Leeds, Keighley, and Skipton. They are in great request as breeding stores, and purchased for that purpose for every part of the United Kingdom, as well as for France, Germany, and the United States, at great prices.

The Yorkshire and Cumberland pig-breeders preserve and print pedigrees as long as those of Derby winners. Some very amusing specimens have been transmitted to me, from which I have made extracts at page 22.

The Yorkshire and local agricultural societies have done much to improve the breeds of pigs by the prizes they offer. The Keighley society alone gives £60 every year among the pig classes, about half of that sum being given for pigs belonging to cottagers.

At Keighley, on the first Wednesday in September, there may be seen nearly two hundred pens of white pigs competing for prizes. Many of them, writes a Yorkshireman, "have pedigrees extending back ten or a dozen generations, some almost as far back as the Felon sow of Rokeby."

In the West Riding the competition in pigs is keener than in any other part of England. The villages have their little events, and there is scarcely a town without an Agricultural Society, or at least a Pig and Poultry Show, where prizes are given for pigs belonging to working men, *with rules that completely exclude shopkeepers and small tradesmen*.

The working men's pigs are usually of the large or middle breed, most commonly of the latter; and it is, perhaps, the size best adapted to their circumstances.

At these shows there is often a row of twenty or thirty fat pigs, worth from £6 to £12 each, all as white as soap and water can make them, stretched on beds of clean straw, with wrappers of some kind to protect them from the sun or rain, contending for the 1st prize, £4; 2nd prize, £3; 3rd prize, £2; 4th prize, £1.

These prizes, for the "hands" of Yorkshire manufactories,

are well worth winning, for they go far towards paying for the feed of the pig, and set many a neighbour of a winner of a prize thinking of training a young one for this race of the fattest.

"The 'better half' is sure to encourage an idea that must end in less public-house ale and more evenings at home. Then follows a course of economy; when, the purchase-money having been accumulated, some experienced friend is called into consultation before selecting the animal, who has often not only to carry the family investments, but to support the (hog) honour of the neighbourhood.

After the purchase, the family earnings are weekly taxed for the maintenance of the bacon racer. Thus the pig becomes the family savings bank, the family amusement, and the family speculation. All the Yorkshire instincts are combined—gossip, saving, and racing. Piggie is capitally cared for; on washing days, the family suds are saved for him; two or three times a week, during the short leisure of dinner hour, he is '*walked out*' for a few minutes for exercise. Who can paint the importance of the party in charge of the to-be prize pig! Every week he is measured to see how much he has gained, and when the show-day arrives he travels to the field in a van;* if he wins the prize, the owner is a hero, and his neighbours hold a festival in honour of the pig.

"This pig-breeding fancy is not always confined to the male part of the community; women are pig-breeders and prize-winners.

"One evening early in August, 1858, a stout labouring woman left her home in Airedale, accompanied by her only sow and her litter of pigs, on a journey (by rail) of sixty-five miles to the city of York, where the Yorkshire Agricultural Society held its show that year. She bore with her the white rosettes of several previous victories of her treasure, 'Lady Kate.' But on this occasion fortune did not smile on her, and 'Lady Kate' suffered her first defeat. But although she did not win the prize, she carried the

* The Keighly Agricultural Association keep a van for carrying the pigs of exhibitors to their shows.

public pig-breeding opinion so far with her, that she was able to sell all 'Lady Kate's' suckers at £5 a head. When, next month, the Keighley and Skipton shows arrived, 'Lady Kate' retrieved her first and only defeat, and stood first in her class.

"Thirty-eight sovereigns have been counted down on the cottage table and refused for 'Lady Kate.' She afterwards reared a litter of sixteen, and enabled her owner to maintain an aged father and invalid sister in comparative comfort. She was, indeed, the prop of the house; and by the side of many a sty in Airedale, for years after her flesh has been consumed in bacon, will her merits and victories be discussed in the long summer evenings consecrated to pig gossip. 'Lady Kate' was of the middle breed, a cross between a small boar and a sow of the modern improved large breed.

"The pig prize system has had a very beneficial effect upon the labouring classes in the populous manufacturing districts of Yorkshire. Many weavers, woolcombers, and artisans keep a good pig in the sty who would otherwise have been at the expense of feeding a fighting or rabbit-coursing dog. The result is seen in good flitches of home-fed bacon on the rack, and hams hanging from the wall. Money is carefully saved for buying a young sow *with a pedigree*, and thus these customers among the million stimulate the breeders to cultivate good blood.

"Many a cottager will send a common sow several miles, and pay his guinea for the use of a prize boar, and make a good profit by the speculation. As a case in point, a cottager who lives near me keeps a common sow, which farrowed in the middle of November eleven suckers, which at fifty-eight days old he sold for £13. 10s. His spring litter from the same sow paid him still better. This man has no cow, no garden, not as much land as he could build a sty on, and has to hire one from a neighbour, but he has the advantage of sending his sow to a first-rate boar of the large breed at a reduced charge.

"The sows of the improved large breed have generally fourteen or sixteen teats, and are usually put to the boar at six or seven months old, and have from eight to twelve

young the first litter. The young stores will fetch from four to five shillings more a head in the market than the other breeds. They attain a good bacon size at a very early age, and when killed, they cut more lean meat in proportion to the fat than the smaller breeds."

"The following," says Mr. Fisher, the bailiff of Carhead Farm, "are instances of the dead weight of these pigs, which have come under my notice:—We killed one, February 8th, 1860, which was farrowed July 17th, 1859, or under seven months old. It weighed 18st. 3lbs. (14lbs. to stone)—255lbs., and sold for £6. 7s. 6d.; another, killed on the day it was twelve months' old, weighed 34st. 13lbs.,—489lbs.—and sold for £12. 4s. 6d."

These pigs were fed almost exclusively on wheat meal, which cost twenty shillings for a sack of 240lbs.

The following is the live weight of two Yorkshire prize sows (half-sisters). The one at Rotherham, in 1856, age three years and two months, 11cwt. 2qrs. 27lbs.; Northallerton prize, 1858, 11cwt. 2qrs. 17lbs. The measurement of the latter was, length, passing the tape from the ham or twist to the end of the nose, when the animal was laid down, 7ft. 2in.; and girth behind the shoulders, close to the fore legs, 7ft. 8in. This sow was a most extraordinary breeder: on two occasions she brought two litters within twenty weeks of each other, and seldom reared less than thirteen at a time. She was also a great prize-winner. Having reared thirteen pigs in May, she was beaten by a sow of the same breed at the Royal Agricultural Society's show at Chester, 1858, but she turned the tables on her rival the following month at Northallerton, and was again victorious in two other contests that summer.

The large breed is equally valuable for making large or small bacon, that being only a matter of age; as porkers of a few weeks old they are unequalled, their flesh being very rich and well-flavoured, not so fat as the smaller breeds. Their skin is fair and white—which looks more agreeable than dark skins when brought to table (as boiled pork).

They can be fed to 60 stone of 14lbs. dead weight, or 840lbs. The prize boar shown by J. Harrison, of Stock-

port, at Chester, weighed alive 88 stone, 14lbs. to the stone. At Warwick, Mr. Robinson's, of Alnwick, prize sow weighed 86 stone. But Mr. Umbers writes, that he can get the small York breed profitably up to 600lbs. where thick bacon is required.

"At Northallerton, in 1859, the finest lot of large sows ever seen in one place, were collected together. There were at least a dozen, each of whose live weight would not be much less than half a ton. The Royal Agricultural prize-winner, at Norwich, was only just good enough to get second honours.

"When the two famous sows, 'Lady Havelock' and the 'Duchess,' went for the Chester prize, the partisans of each were confident of success, and the betting was hot and heavy. 'Lady Havelock' was in splendid condition, having been bought at a long price and 'bottled up' specially for this event, while the 'Duchess,' from having weaned her little ones so lately, was not quite up to the mark, but was again in a breeding state, and it was thought that would have weight with the judges. It was, however, universally agreed that one of the two must win, for Yorkshire had never sent anything like them before.

"On Wednesday night it oozed out (the award was not published until the next morning) that the 'Lady' was the prize-winner. The telegraph was set in motion, and the morning trains brought in a motley crowd of the Leeds pig fancy, with wives, aunts, and sisters, all bound to the Roodee, to celebrate the triumph. There, the 'missus' of the 'Lady,' excited with the congratulations of her friends, gave her native Yorkshire eloquence full swing, and astonished the Cestrians with a speech in which she complimented the judges, vowed that 'Lady Havelock' should lick all the world, whispered that 'our Tom' would never have bought the sow but for her, and announced that the prize-money should be spent on the spot."

Nothing draws such a crowd of Yorkshire folk as a monster pig-show.

At Northallerton, "Carswell" and "Albert," winners in the boar class at Salisbury and Chester, were beaten by "Young Prince," an old boar who had been shelved a couple

of years. He was forthwith purchased by an eminent Suffolk pig-breeder. "Carswell" and "Albert" were white pigs with large blue spots, showing the Essex cross. The Yorkshiremen thought that they ought to have been in the middle, not in the large class."

A Cumberland correspondent states, that Mr. Harrison of Heatland Norris, who won the R.A.S. prize for large boars three years in succession, crossed his large sows with small (middle) Cumberland boars of Brown's Aspatria breed.

He describes the large Yorkshires as "too high on the legs, too flat in the sides, deficient in backs and rumps, the hair stronger and thicker than the (small) Cumberland breed, ears large and bent forward, and nose of a moderate length."

I give this in order that my readers may have both sides of the question.

The large Yorkshire are very much esteemed in France, and are well calculated to improve the Craonnaise, a white pig, with all the defects and some of the merits of the old unimproved Yorkshire.

Mr. Wainman, the owner of Carhead Farm, has been one of the most successful breeders, having won more than two hundred prizes, and sold, according to one of his Yorkshire admirers, the produce of one sow "for as much as would build a church."

Although the large Yorkshire is a white pig, blue spots, if *covered with white hairs*, do not show any impurity of breed.

In Yorkshire the prejudice against black pigs was formerly very strong ; it has been somewhat modified by the success of black crosses at the royal shows. At Bingley Hall, during a late Birmingham show, a shepherd from the Yorkshire wolds, who probably had never seen a black pig in his life, after gazing for some minutes in wonder at a pen of very fat black porkers snoring away in concert, said to the pig-guardian, who was sitting on a bushel in the corner of the pen,

"Where do you bring those frae?"

The pig-man named his master's residence in the South.

"And do ye eat sike as them in your country?"



1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

Some authors suggest that the P. albocinctus is a subspecies of *R. A. superze* (a large toad) or *R. A. sierrae* (a very large toad), but the large size of this toad is not consistent with the study's *A. spectabilis*.²

As shown in Figure 1, the back of the head is back and neck is in the same line with the spine. The balance is maintained and posture is moderate.

There are other factors that may have contributed

1. The great emphasis in the
 2. on the training of a white
 3. of the merits of the old
 4.

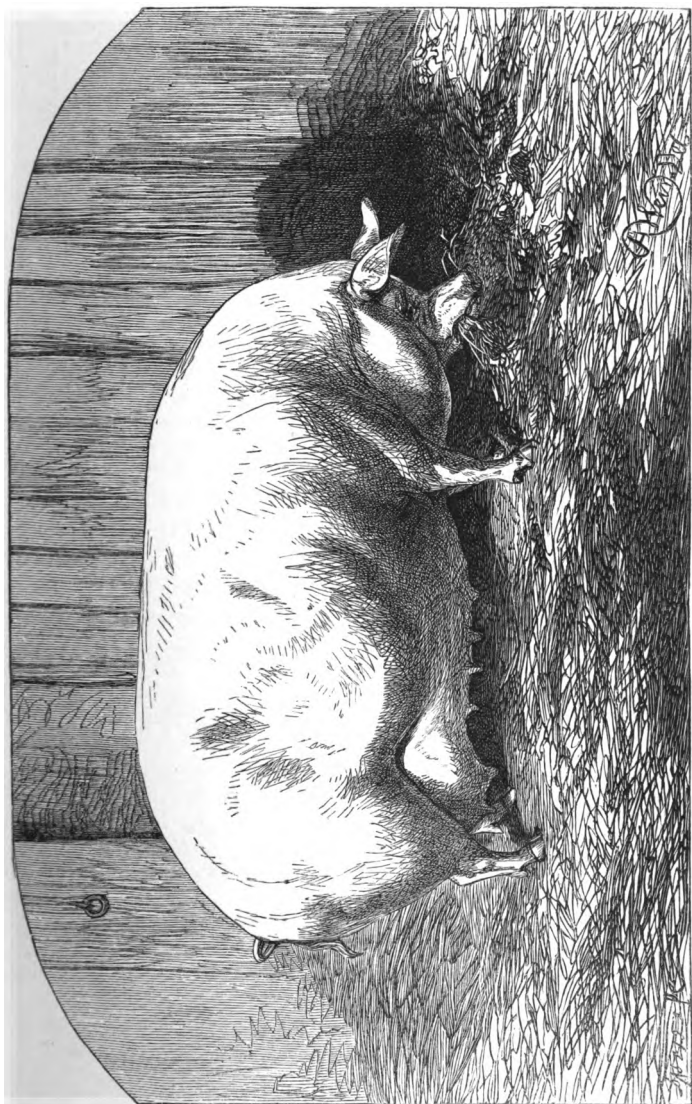
Mr. Woodcock, the owner of the Cornhill Hotel, has been one of the most successful in the city, having made more than two millions of dollars, according to one of his Yorkshire friends, by one sow, which he has now sold for \$100,000.

2. *Albizia julibrissis* (Silk Tree).—A tree 10 to 15 ft. high, with a white, pig-blinde (pale) bark, and a grey, smooth, shining bark. The leaves are dark green, and the flowers are white, with long, white, silken stamens.

At the first public sale of black pigs was purchased by a gentleman somewhat inclined to the success of the cause, at the royal shows. At Bingley Hall, in 1817, at the English show, a shepherd from the Yorkshire village of Threlkby had brought a black pig in his flock, and he had some remarks in wonder at a pen of very fat black porkers standing in a cart, said to the pig-merchant, "how was sitting on a stool in the corner of the stall."

„Woher ist von ... das ... ?“

2. "The Government has no interest in the South
any more, it is in the hands of the country."



GOLDEN DAYS (Yorkshire Large Breed).

"Well, what do you think?" replied the pig-driver, rather nettled.

"Think," said the shepherd; "well, I think, if ye do, they must taste vary like young blackamoors."

CUMBERLAND LARGE.

There is a large breed of pigs in Cumberland, but it has not been improved, or has not the original merits of the true Cumberland or small breed, and has no place in the prize-lists. At the Carlisle show of the Royal Agricultural Society, the Cumberland pigs shown in the large classes were roach-backed brutes, little better than, and very like Irish, motley black-spotted. The only decent large pig shown by a Cumberland man had been purchased in Yorkshire.

CHESHIRE LARGE.

Modern writers on swine have often copied a description of a gigantic race of this kind written by Culley in 1807; but these unprofitable giants are almost extinct. White pigs have no special favour with the dairymen of Cheshire, and the white ones most used are "Manchester boars"—another name for the Yorkshire-Cumberland breed. It will be seen in my chapter on Berkshires, that they have established their dark coats in Cheshire. My Cheshire correspondent writes me, 17th March, 1860 :—

"The old gigantic long-legged, long-eared pig, of a large patched black-and-white colour, is all but extinct. My son met with a fine specimen last year in a sow which he bought to breed with our boar of the Berkshire small breed; but changed his mind, and fed her. She showed no propensity for fattening at two years old. She weighed when killed 42 score 12lbs.—852lbs.; but as 3½d. per lb. was the best offer we could get for her, we took her for the family, and the meat was surprisingly good. She was lean-fleshed. The hams weighed 77lbs. each."

LANCASHIRE, OR MANCHESTER LARGE.

These are Yorkshire or crosses of Yorkshires, and not to be distinguished from them.

MEDIUM, OR MIDDLE YORKSHIRE.

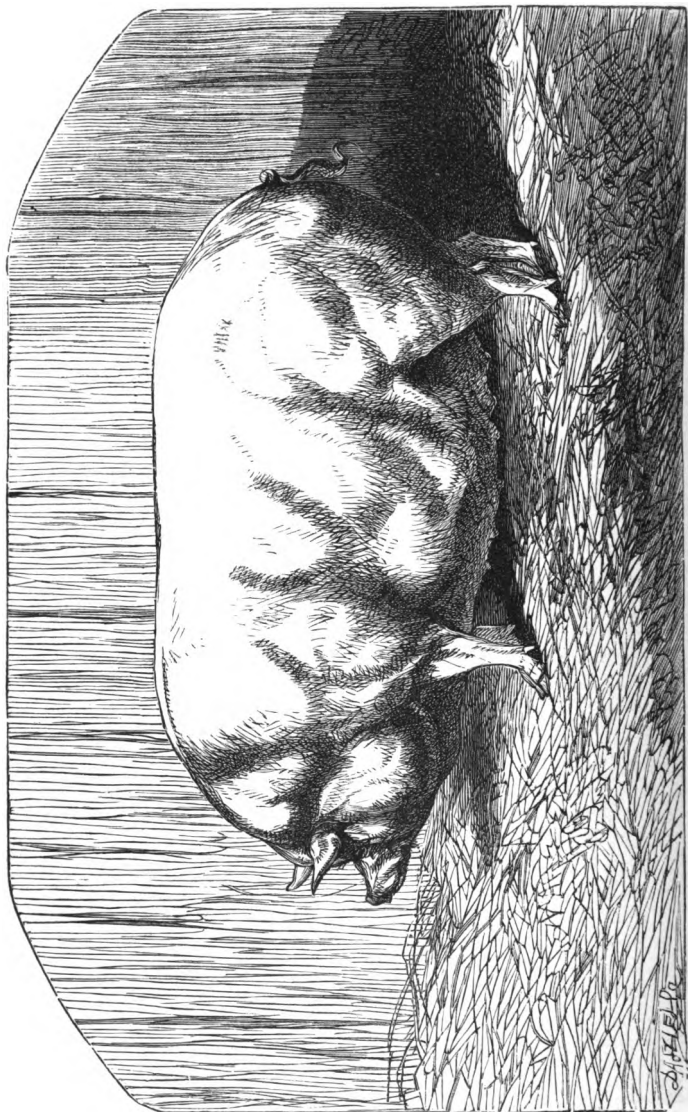
The Yorkshire medium or middle breed, is a modern invention of Yorkshire pig-breeders, and perhaps the most useful and the most popular of the white breeds, as it unites in a striking degree the good qualities of the large and the small. It has been produced by a cross of the large and the small York and the Cumberland, which is larger than the small York. Like the large whites, they often have a few pale-blue spots on the skin, the hair on these spots being white. All white breeds have these spots more or less, and they often increase in number as the animal grows older.

It was not until 1851 that the merits of this breed were publicly recognized at a meeting of the "Keighley Agricultural Society," when, the judges having called the attention of the stewards to the fact that several superior sows which were evidently closely allied to the small breed had been exhibited in the large-breed class, the aspiring intruders were by official authority withdrawn.

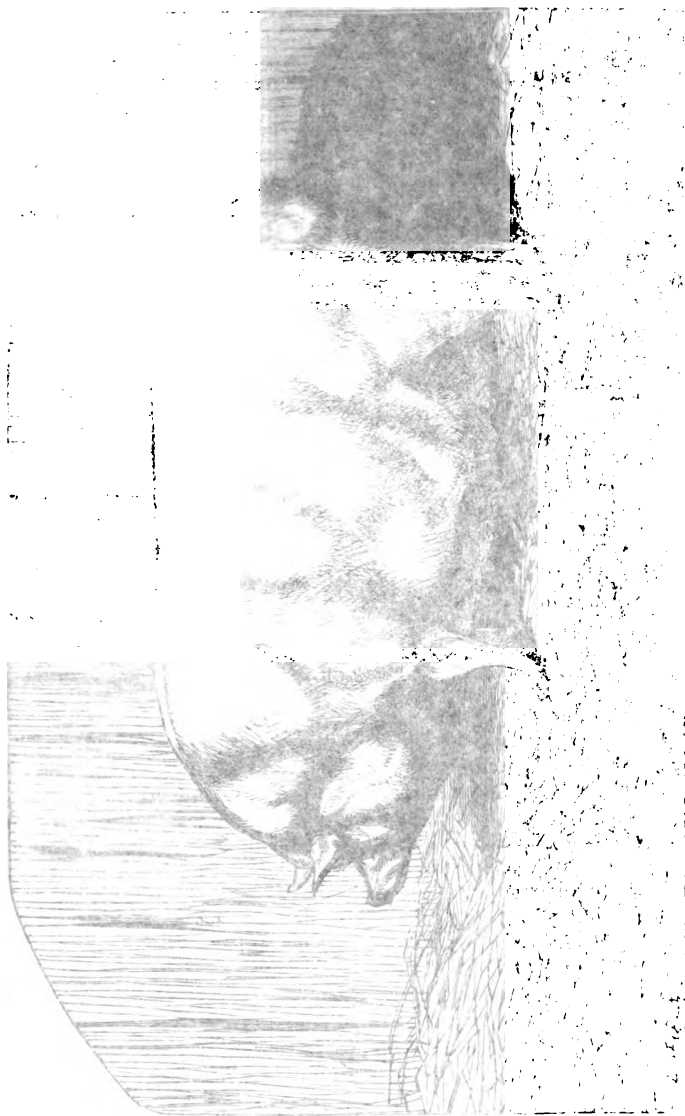
"They included the since celebrated 'Sontag,' 'Jenny Lind,' 'Kick-up-a-dust,' and some other distinguished grunTERS, forming altogether such an imposing *troupe*, that the authorities gave them a performance (*i. e.* a class) to themselves, with a benefit in the shape of first and second prizes, and called them the '*middle breed*.'"

This example was generally adopted throughout Yorkshire, and at local shows they are the strongest and best-filled of all the classes.

"The principal prize-takers amongst the boars in this breed have been 'Paris,' 'Nonpareil,' 'Lord Raglan,' 'Sir Colin,' and 'Wonder;' and amongst the sows, 'Zenobia,' 'Lady Airdale,' who held her own during two seasons, in



"MISS EMILY" (Yorkshire Middle Breed).



one of which she took ten prizes, 'Craven,' 'Lady Kate,' 'Queen Anne,' and '*Miss Emily*' (see portrait), who has never found her marrow, having taken nine first prizes in succession, including the champion cup at Caldervale show in 1859, for the best pig in all classes. This competition brought all Yorkshire, several Warwick, Royal Highland Society, Dublin and Irish Royal, as well as Cheshire and Lancashire champions, to the Cloth Hall, Halifax. Amongst the rest '*CARSWELL*,' the second winner in the *large* boar class at Warwick, entered in the middle class, and carried off the first prize in that class; but in the trial for the championship, he was beaten like the rest; and the plate with the 'white rosette of York,' went to '*MISS EMILY*,' whose girth taken behind the shoulder was at this time eighty-five inches. She fully qualified for all the prizes she had taken as a *breeding sow*, by producing at Carhead the following October a fine litter of pigs."

The middle Yorkshire breed are about the same size as the Berkshire breed, but have smaller heads, and are much lighter in the bone. They are better breeders than the small whites, but not so good as the large whites; in fact, they occupy a position in every respect between these two breeds. Hitherto (1860) they have not been in much demand beyond their own locality, and they have not been exhibited in the south under their distinctive name; but they will in future be entered at the Royal Agricultural Shows in the new class recently established.

My illustrations of the large and middle Yorkshire breed are taken from photographs of specimens in the possession of W. F. Wainman, Esq., of Carhead, near Leeds, to whose intelligent bailiff, Mr. Fisher, I am indebted for most of my information as to these valuable animals.

WHITE LEICESTERS.

The white Leicester pig seems almost lost in its native county. Mr. Wiley, of Bransby, and other Yorkshiremen who formerly used it, seem to have dropped the name in

favour of the improved breed of their native county, "the small Yorkshire." Thus Leicesters have been crossed into middle or small Yorkshires, and have also the merit of having, according to Carhead authority, been the great improvers of the gigantic Yorks.

My attention was called to this breed by the fact of the gold medal of the Smithfield Club being awarded to a pen of white Leicesters in 1854. Mr. J. V. Williams, of Haygrove, Bridgwater, Somerset, the exhibitor, writes :—

"I first exhibited in 1852 ; have since won, besides the Smithfield Club gold medal, two gold medals at the Paris Universal Exhibition, 1855 ; five silver medals and a cross, and upwards of a hundred money prizes.

"My fat pigs generally average the following weights :—

5 to 6 months old,	7 to 9 score lbs.
8 "	10 to 12 "
10 "	12 to 15 "
12 to 18 "	15 to 18 "

"The three pigs shown in 1854, at eighteen weeks old, weighed, sinking offal, nine score each." I give a portrait of the Paris Prize Leicesters. In France they are, I believe, called New Leicesters.

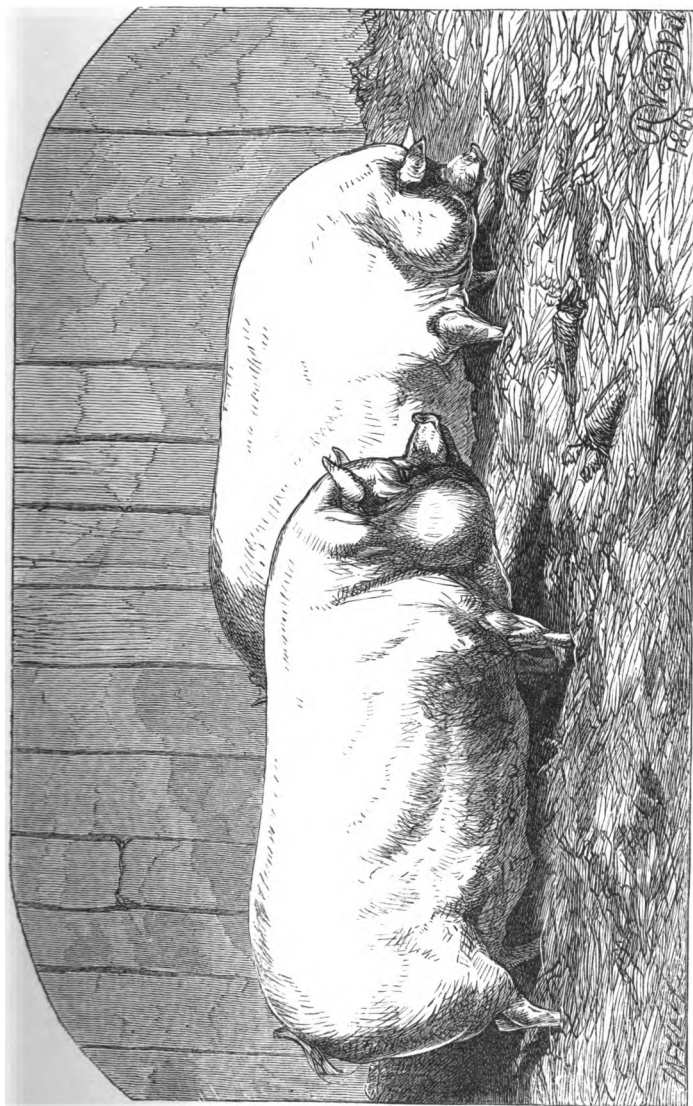
SMALL CUMBERLAND AND SMALL YORKSHIRE.

These two breeds are included in the same chapter, because, although originally they somewhat differed in size, the Cumberland being the larger, they are being continually intermixed, with mutual advantage ; and pigs of exactly the same form, the result of crosses, are constantly exhibited under the names of Yorkshire or Cumberland, according to the fancy of the exhibitor.

Mr. Mangles, one of the first pig-breeders and feeders in Yorkshire (according to the unanimous testimony of half a dozen of my Yorkshire correspondents), writes :—

"The small Yorkshire is peculiar to Yorkshire, and different from any other breed I have seen. It has a short head, small erect ears, broad back, deep chest, and short legs,





WHITE LEICESTER BOAR AND SOW (Small Breed).



A CUMBERLAND-YORK BOAR (Small Breed).

THE NEW YORK PUBLIC LIBRARY
ASTOR LENOX TILDEN FOUNDATION
500 5TH AVENUE NEW YORK 17, N.Y.

with fine bone. It is always ready to fatten, and turn to account either in the way of roasters, small porkers, small bacon, or medium. Three or four of the small breed might be fed well, and kept fresh and symmetrical, on the food which would barely keep one lean and gaunt large Yorkshire.

"The small Cumberland is a great deal larger than the small Yorkshire. By judiciously crossing the two I have obtained a breed combining size, aptitude to fatten, and early maturity. From the Cumberland I got size, and from the Yorkshire quality and symmetry. I have tried a great many breeds of pigs, and, keeping the pounds, shillings, and pence in view, have found no breed equal to the Yorkshire and Cumberland cross."

A Warwickshire correspondent writes :—

"No animal of the pig species carries so great a proportion of flesh to the quantity of bone, or flesh of as fine a quality, as the small Yorkshire, or can be raised at so small a cost per pound. With common store food they can always be kept in condition—with common care and slight addition to food they are ready to be killed, for porklets, at any age ; and if required for bacon, take one farrow of pigs from a yelt. You ought to have from seven to ten pigs the first time. I have four sisters, yelts, that have brought me thirty-eight pigs this last January. They are as pure as 'Eclipse,' being descended from the stock of Earl Ducie* and Mr. Wyley, of Bransby, near York, and are of good size. I killed a sow this winter that weighed 26 score—520lbs.

"The ordinary weight is from 14 to 17 score—280 lbs. to 340 lbs. In some cases, where very thick bacon is required, they may be profitably got to 30 score—600 lbs. The Small Yorkshire owes its present superiority to choice selections, judicious crossing of different families of the same breed ; by this means size is maintained with character."

The Cumberland small breed are described by Mr. Brown, of Aspatia, who is one of the most noted founders of the modern breed, from whom Lord Ducie purchased some of his most celebrated animals, as "not small in reality, but a

* It will be seen in another communication, that Earl Ducie used Cumberland as well as Yorkshire blood, and Mr. Wyley's original stock were white Leicesters.

medium size ; short in the legs ; back broad, straight, and evenly fleshed ; ribs well developed ; rumps and twists good ; hams well down and low ; breast and neck full and well formed ; no creases in the neck ; ears clean, fine, of a moderate size, and standing a little forward ; nose short ; body evenly covered with short, fine hair."

At the Birmingham show, in 1850, Mr. Brown won all first prizes in small breeds for the "best boar," "best sow," and "best pen of pigs," with his Cumberland breed ; and sold a boar and sow under six months' old for forty-three guineas to Earl Ducie's agent. At the sale, on the death of the earl, the sow "Miss Brown" was sold to the Rev. F. Thursby, of Avington Rectory, Northampton, for sixty-five guineas. The rev. gentlemen writes :—"She paid me very well, having sold her produce for £300, and having now (February, 1860) four breeding sows from her." Mr. Thursby exhibited and received commendation for "Miss Brown," at Lincoln, and for a "Cumberland sow," the daughter of the famous "Miss Brown," at Chelmsford, in 1856.

The wide extension of this Cumberland and York blood is to be traced wherever the Royal Agricultural Society's prizes for white pigs are won.

Thus :—Mr. H. Scott Hayward, of Folkington, a prize-winner at Chelmsford, in 1856, in small breeds, with a white sow, states that he has used boars from the following breeders :—The late Earl of Carlisle, Castle Howard ; the late Earl of Ducie ; the Earl of Radnor, Coleshill ; and at present (1860) one from the Prince Consort's stock.

The card of Mr. Brown's boar "Liberator" contains the following pedigrees, and shows a distinct connection between Cumberland and Yorkshire and all the most celebrated white breeds in the south :—

"Liberator" was bred by Earl Ducie, got by "Gloucester," dam "Beauty" by Lord Radnor's boar, gr.-d. "Julia Bennett" by Lord Galloway's boar, &c.

"Gloucester" was bred by the Earl of Ducie, got by "General," dam "Hannah" by the "Yorshireman ;" gr.-d. bred by the Earl of Carlisle, and purchased by Lord Ducie at the Castle Howard sale.

"General," bred by Mr. Wiley, sold to Mr. Mackintosh, of London, and hired by H.R.H. Prince Albert, the Earl of Ducie, and Lord Wenlock, and was the sire of two pens of pigs, the property of H.R.H. Prince Albert, that obtained the first prize at a Smithfield Christmas Show."

It may, therefore, safely be assumed that all the best white pigs of modern times have been bred from Yorkshire or Cumberland and white Leicesters, or both ; and many breeds, such as Middlesex, Coleshill, &c., may be dismissed as mere variations of the white small Yorkshire.

Mr. G. Mangles, of Givendale, near Ripon, Mr. Brown writes me, was one of the first to cultivate the cross of the York-Cumberlands.

CHAPTER III.

BLACK BREEDS.

Black Pig Counties: Berks, Hants, Wilts, Dorset, Devon, Sussex, Essex—Account of Berkshire—Lord Barrington's Herd—Mr. Sadler Mr. Owen—A Norfolk farmer—Mr. W. Hewer—Cross with Essex—The Sussex Breed—Its good qualities—The Essex Breed once Black-and-White—Neapolitan imported by Lord Western—Mr. Fisher Hobbes' Improved Essex—Value as Jointers—As a Cross—Both Small and Large—Description and Dimensions of Boar (*see Portrait*)—Breeds Crossed with Improved Essex—Improved Oxfords, origin of—Marquis of Blandford's Neapolitan Boars—Mr. Druce's Berkshire Cross—Result more Lean Meat than Essex—Better Feeders than Berkshire—Birmingham and Tamworth Breeds—Black Devon—Improved Dorsets bred from Neapolitan-Chinese, Dorset, and Improved Essex.

BLACK pigs and their crosses occupy almost exclusively the counties of Berks, Hants, Wilts, Dorset, Devon, and Somerset. Sussex has a black county breed, and in Essex a black-and-white pig has become all black. In the Western counties, the prejudice against a white pig is nearly as strong as against a black one in Yorkshire. In Devonshire, white pigs are supposed to be more subject to blistering from the sun when pasturing in the fields.

For breeding purposes, the black breeds may be divided into two—the improved Berkshire and the improved Essex, because there is no dark breed that has special characteristics so well worth cultivation as these two, and there is no black pig that may not be advantageously crossed by boars of one or both of these breeds. Hampshire has an ancient, coarse, and useful breed of black pigs. They are inferior to Berkshire, and not in the same refined class as Essex, therefore not worth taking from their native county.

Breeders of large white pigs are generally unwilling to allow that their improvements have been based on Chinese or other foreign crosses, but it is universally admitted that all the improved black breeds have been crossed with Neapolitans, and some with black Chinese.



SMITHFIELD-CLUB PRIZE FAT SOW (Improved Berkshire).



SMITHFIELD CATTLE PRIZE FAT SOW (Improved Berkshire).

BERKSHIRE.

Among the black breeds, by universal consent, the improved Berkshire hog stands at the head of the list, either to breed pure, or to cross with other inferior breeds. The Berkshire was originally a large breed (it has very recently carried off prizes in the large classes at Royal Agricultural and other shows) of a black-and-white and sandy-spotted colour, as represented in the portrait given by Mr. Youatt, in this respect distinctly differing from its neighbour the old black Hampshire hog, rather coarse, but of general form very superior to the old white and black-and-white farm hog of the northern counties.

The late Lord Barrington (he died in 1829) did a great deal towards improving the Berkshire breed, and the improved Berkshires are almost all traced back to his herd. They are now considered by Berkshire farmers to be divided into middle (not a large breed) and a small breed. If first-class, they should be well covered with long black silky hair, so soft that the problem of "making a silk purse out of a sow's ear" might be solved with a prize Berkshire. The white should be confined to "*four white feet, a white spot between the eyes, and a few white hairs behind each shoulder.*"

At Mr. Sadler's, Benthams, near Cricklade, one of the most successful improvers of Berkshires, and eminent as a manufacturer of North Wiltshire cheese, the committee of the Ayrshire Agricultural Association saw "three hundred, every one of which was marked in this manner."

Mr. Sadler obtained his original stock from the late Lord Barrington's herd. At Baker Street, he once won the prize for the best fat pig in the yard with a sow nearly four years old, of which I give a portrait, which had been the mother of a numerous progeny. She was 6 ft. 4 in. in length, 7 ft. 6 in. in girth, and weighed 42 score 16lbs., or 856lbs.,—more than many fat heifers. But it seems to be the general opinion of feeders that Berkshires pay best at moderate weights.

"To develop the full size, they must not be allowed to breed until twelve months old at least. Mr. Sadler considers

the improved Berks superior to any other (black ?) breed, for size, quality, hardiness of constitution, prolificness, early maturity, and aptitude to fatten."

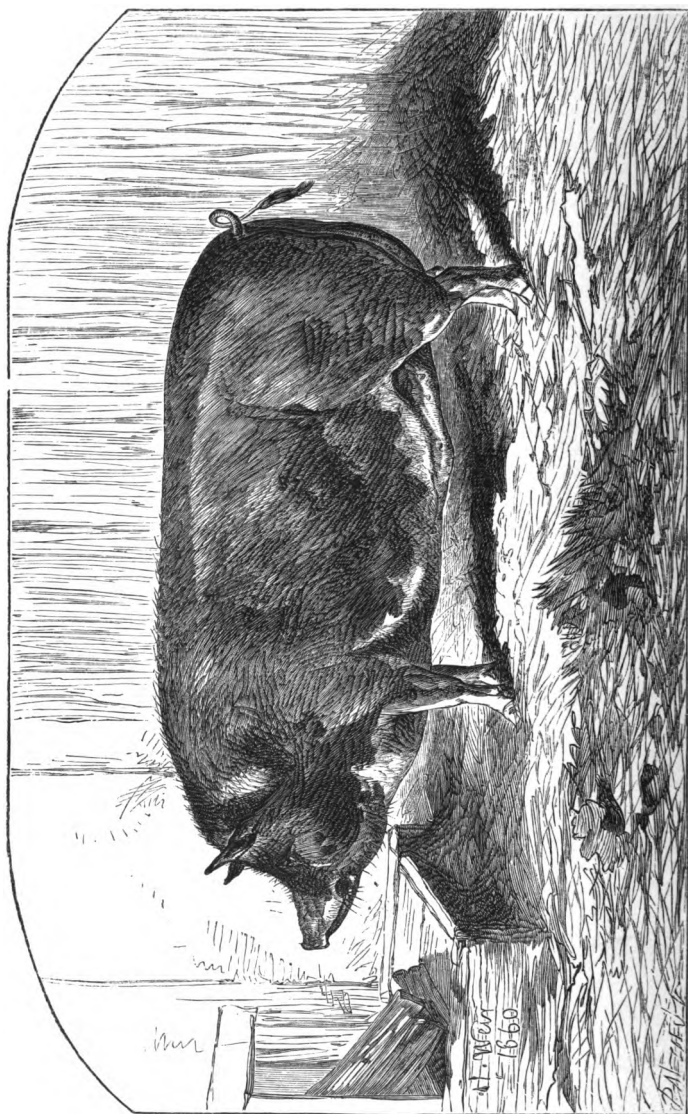
My friend Mr. Thomas Owen, of Clapton, Hungerford, who has had in his forty years' experience as a Berkshire farmer, "some thousand through his hands dead," writes me :—

"I remember the Berks pig a much larger and coarser animal than now ; at present they are a medium, not a large breed. They have been improved by judicious selection and distant crosses with the Neapolitan, which have added to their fattening qualities. They are much esteemed by butchers for evenness of flesh (that is, more lean to the proportion of fat) than any other breed,—and this is a good recommendation."

The late Rev. T. C. James, who was a successful exhibitor of pigs at Chelmsford, and one of the judges of pigs at the Royal Agricultural Society's show at Warwick in 1859, wrote :—"The improved Berkshire is a good big animal, well calculated to produce a profitable fitch. A good little pig is very well, but a good big pig is better, if with aptitude to fatten : two exhibited at Chelmsford, in 1856, (of Sadler's breed) weighed each twelve score at seven months old, and with that weight were of such good constitution that they were well upon their legs. They had walking exercise in an orchard every day while fattening."

One of the most extensive farmers in West Norfolk writes :—"Dissatisfied with the Norfolk pigs, I flew to Mr. Sadler, of Bentham, Wilts, gave him 20 guineas for three sows and a boar. I sold over 100 in the first eighteen months for £2 each when ten weeks old, and the only complaint I have is, that they do not breed so many as the old Norfolks ; but I say eight or nine good ones are better than ten or eleven ordinary ones. They are good graziers and our butchers are very fond of them. There is plenty of *lean meat* with the fat, which is not the case with the fancy pigs. The cross between the Berks boar and Norfolk sow (white), like all cross breeds, is most profitable to the feeder, but we must have pure breeds first."

This Norfolk opinion is confirmed by all my correspond-



IMPROVED BERKSHIRE BOAR (Middle Breed).

and the Berkeley and Princeton universities dis-
cussed the problem of the "highly educated" who do not
conform to the social hierarchy, but this is a situation
requiring a solution.

It will be the goal of the program, Wilson said, to use the data to "make big decisions" with regard to the "general use" of the information, rather than to "make a lot of little decisions."

any of us. I am not at all sure
that the "new" is in any sense
a new thing. It is a new thing

[illegible]

and from 1915 to 1917, 1918 to 1920, 1921 to 1923, 1924 to 1926, 1927 to 1929, 1930 to 1932, 1933 to 1935, 1936 to 1938, 1939 to 1941, 1942 to 1944, 1945 to 1947, 1948 to 1950, 1951 to 1953, 1954 to 1956, 1957 to 1959, 1960 to 1962, 1963 to 1965, 1966 to 1968, 1969 to 1971, 1972 to 1974, 1975 to 1977, 1978 to 1980, 1981 to 1983, 1984 to 1986, 1987 to 1989, 1990 to 1992, 1993 to 1995, 1996 to 1998, 1999 to 2001, 2002 to 2004, 2005 to 2007, 2008 to 2010, 2011 to 2013, 2014 to 2016, 2017 to 2019, 2020 to 2022, 2023 to 2025, 2026 to 2028, 2029 to 2031, 2032 to 2034, 2035 to 2037, 2038 to 2040, 2041 to 2043, 2044 to 2046, 2047 to 2049, 2050 to 2052, 2053 to 2055, 2056 to 2058, 2059 to 2061, 2062 to 2064, 2065 to 2067, 2068 to 2070, 2071 to 2073, 2074 to 2076, 2077 to 2079, 2080 to 2082, 2083 to 2085, 2086 to 2088, 2089 to 2091, 2092 to 2094, 2095 to 2097, 2098 to 2099, 2100 to 2102, 2103 to 2105, 2106 to 2108, 2109 to 2111, 2112 to 2114, 2115 to 2117, 2118 to 2120, 2121 to 2123, 2124 to 2126, 2127 to 2129, 2130 to 2132, 2133 to 2135, 2136 to 2138, 2139 to 2141, 2142 to 2144, 2145 to 2147, 2148 to 2150, 2151 to 2153, 2154 to 2156, 2157 to 2159, 2160 to 2162, 2163 to 2165, 2166 to 2168, 2169 to 2171, 2172 to 2174, 2175 to 2177, 2178 to 2180, 2181 to 2183, 2184 to 2186, 2187 to 2189, 2190 to 2192, 2193 to 2195, 2196 to 2198, 2199 to 2201, 2202 to 2204, 2205 to 2207, 2208 to 2210, 2211 to 2213, 2214 to 2216, 2217 to 2219, 2220 to 2222, 2223 to 2225, 2226 to 2228, 2229 to 2231, 2232 to 2234, 2235 to 2237, 2238 to 2240, 2241 to 2243, 2244 to 2246, 2247 to 2249, 2250 to 2252, 2253 to 2255, 2256 to 2258, 2259 to 2261, 2262 to 2264, 2265 to 2267, 2268 to 2270, 2271 to 2273, 2274 to 2276, 2277 to 2279, 2280 to 2282, 2283 to 2285, 2286 to 2288, 2289 to 2291, 2292 to 2294, 2295 to 2297, 2298 to 2299, 2300 to 2302, 2303 to 2305, 2306 to 2308, 2309 to 2311, 2312 to 2314, 2315 to 2317, 2318 to 2320, 2321 to 2323, 2324 to 2326, 2327 to 2329, 2330 to 2332, 2333 to 2335, 2336 to 2338, 2339 to 2341, 2342 to 2344, 2345 to 2347, 2348 to 2350, 2351 to 2353, 2354 to 2356, 2357 to 2359, 2360 to 2362, 2363 to 2365, 2366 to 2368, 2369 to 2371, 2372 to 2374, 2375 to 2377, 2378 to 2380, 2381 to 2383, 2384 to 2386, 2387 to 2389, 2390 to 2392, 2393 to 2395, 2396 to 2398, 2399 to 2401, 2402 to 2404, 2405 to 2407, 2408 to 2410, 2411 to 2413, 2414 to 2416, 2417 to 2419, 2420 to 2422, 2423 to 2425, 2426 to 2428, 2429 to 2431, 2432 to 2434, 2435 to 2437, 2438 to 2440, 2441 to 2443, 2444 to 2446, 2447 to 2449, 2450 to 2452, 2453 to 2455, 2456 to 2458, 2459 to 2461, 2462 to 2464, 2465 to 2467, 2468 to 2470, 2471 to 2473, 2474 to 2476, 2477 to 2479, 2480 to 2482, 2483 to 2485, 2486 to 2488, 2489 to 2491, 2492 to 2494, 2495 to 2497, 2498 to 2499, 2500 to 2502, 2503 to 2505, 2506 to 2508, 2509 to 2511, 2512 to 2514, 2515 to 2517, 2518 to 2520, 2521 to 2523, 2524 to 2526, 2527 to 2529, 2530 to 2532, 2533 to 2535, 2536 to 2538, 2539 to 2541, 2542 to 2544, 2545 to 2547, 2548 to 2550, 2551 to 2553, 2554 to 2556, 2557 to 2559, 2560 to 2562, 2563 to 2565, 2566 to 2568, 2569 to 2571, 2572 to 2574, 2575 to 2577, 2578 to 2580, 2581 to 2583, 2584 to 2586, 2587 to 2589, 2590 to 2592, 2593 to 2595, 2596 to 2598, 2599 to 2601, 2602 to 2604, 2605 to 2607, 2608 to 2610, 2611 to 2613, 2614 to 2616, 2617 to 2619, 2620 to 2622, 2623 to 2625, 2626 to 2628, 2629 to 2631, 2632 to 2634, 2635 to 2637, 2638 to 2640, 2641 to 2643, 2644 to 2646, 2647 to 2649, 2650 to 2652, 2653 to 2655, 2656 to 2658, 2659 to 2661, 2662 to 2664, 2665 to 2667, 2668 to 2670, 2671 to 2673, 2674 to 2676, 2677 to 2679, 2680 to 2682, 2683 to 2685, 2686 to 2688, 2689 to 2691, 2692 to 2694, 2695 to 2697, 2698 to 2699, 2700 to 2702, 2703 to 2705, 2706 to 2708, 2709 to 2711, 2712 to 2714, 2715 to 2717, 2718 to 2720, 2721 to 2723, 2724 to 2726, 2727 to 2729, 2730 to 2732, 2733 to 2735, 2736 to 2738, 2739 to 2741, 2742 to 2744, 2745 to 2747, 2748 to 2750, 2751 to 2753, 2754 to 2756, 2757 to 2759, 2760 to 2762, 2763 to 2765, 2766 to 2768, 2769 to 2771, 2772 to 2774, 2775 to 2777, 2778 to 2780, 2781 to 2783, 2784 to 2786, 2787 to 2789, 2790 to 2792, 2793 to 2795, 2796 to 2798, 2799 to 2801, 2802 to 2804, 2805 to 2807, 2808 to 2810, 2811 to 2813, 2814 to 2816, 2817 to 2819, 2820 to 2822, 2823 to 2825, 2826 to 2828, 2829 to 2831, 2832 to 2834, 2835 to 2837, 2838 to 2840, 2841 to 2843, 2844 to 2846, 2847 to 2849, 2850 to 2852, 2853 to 2855, 2856 to 2858, 2859 to 2861, 2862 to 2864, 2865 to 2867, 2868 to 2870, 2871 to 2873, 2874 to 2876, 2877 to 2879, 2880 to 2882, 2883 to 2885, 2886 to 2888, 2889 to 2891, 2892 to 2894, 2895 to 2897, 2898 to 2899, 2900 to 2902, 2903 to 2905, 2906 to 2908, 2909 to 2911, 2912 to 2914, 2915 to 2917, 2918 to 2920, 2921 to 2923, 2924 to 2926, 2927 to 2929, 2930 to 2932,

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for the purpose of determining the best way to use the information that is available to the public, and to help in the decision-making process.

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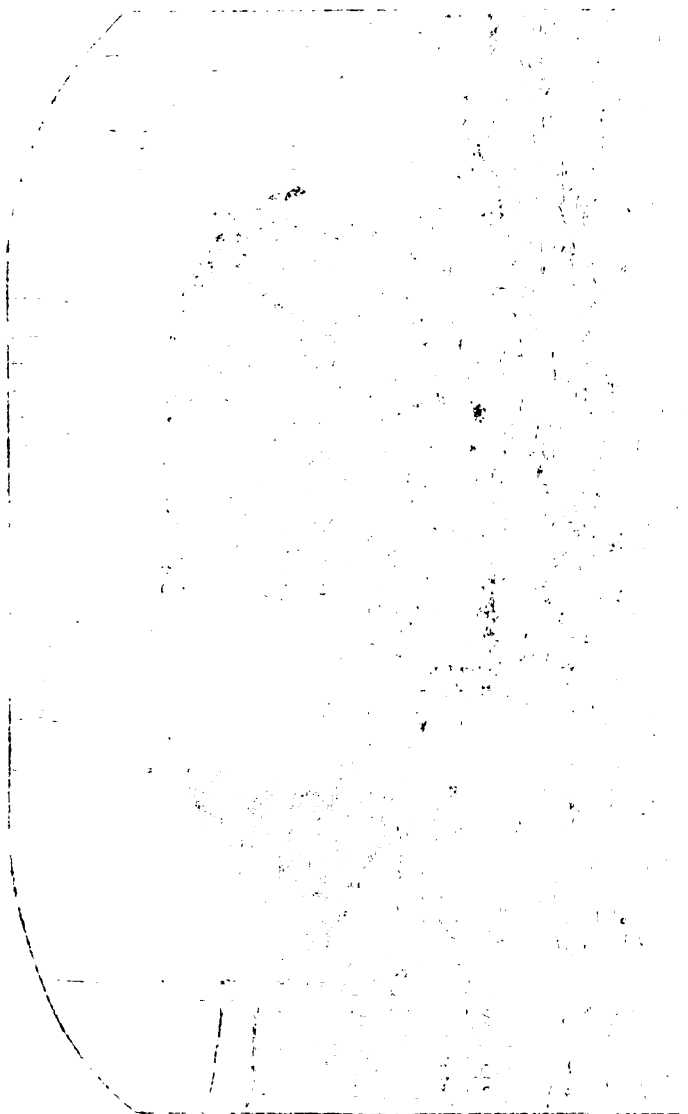
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the 1990s, but by the early 1990s, and also the early 1990s, the market for Sarsaparilla had become a much less attractive one. The market for Sarsaparilla is effectively nearly dead, and sold

and the β values are calculated by the following equation:

$$\beta = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{\sum_{i=1}^n (x_i - \bar{x})^2} \quad (1)$$

where \bar{x} and \bar{y} are the sample means of x and y , respectively. As a result, the parameter β is given by the value



ence. The Berkshire pig is in favour in every dairy district, either pure or as a cross, but chiefly as a cross ; he does not fatten so quickly as some other breeds, but his constitution and bacon quality are famous.

Mr. William Hewer, of Sevenhampton, Wilts, breeds improved Berkshires on a large scale with great success, and has carried off a great many prizes.

The dairy farmers of Wilts and Somerset are not sure that pigs pay ; but it may be owing to their market being inferior to that of the Yorkshire and Cheshire manufacturing districts.

The average weight of a bacon improved Berkshire hog, fit to kill, will be about 400lbs. The ham-curers who purchase from these farms, prefer the small breed of Berkshires of from nine to fourteen score.

The improved Berkshire boar was used to give size and constitution, many years ago, to the Essex ; and the most eminent breeder of Essex has informed me that on one occasion in a litter of Essex pigs two little pictures of the Berkshire boar, their remote ancestors by at least twenty-eight years, appeared. It seems to be generally agreed that the Berks breed is best adapted for hams and bacon, and not for small fresh pork. As I have already mentioned, the Berks boar has been used to cross the large breed in Yorkshire, but without permanently satisfactory results in establishing a breed, for a first cross with almost any breed it is sure to produce a well-sized useful animal. In reply to questions addressed through the landlord of the Arley Hall estate, in Cheshire, to his principal tenants, it seems that the dairy farmer of that county finds it profitable to cross the dark or spotted sows which they have in the county, and also those they purchase largely from Shropshire and Wales, with a Berkshire boar. The produce is all, or nearly all, made into and sold for making bacon. On the other hand, in Kent, Mr. Betts, of Preston Hall, buys Berkshire sows and crosses them with a white Windsor boar, "the produce being invariably white."

SUSSEX.

The Sussex pig is larger in bone than the Essex breed, and is one of the ancient breeds, perhaps as old as the Sussex cattle. It has excellent qualities, but has never been cultivated under its own name as a pure prize-winning breed. The pointed ears somewhat redeem the long snout. Sussex sows have the merit of being able to take, if required, either the Essex or the Berks cross. They might, perhaps, be much improved by selection from within, but the demand for fresh and pickled pork does not encourage new experiments in competition with two such breeds as Berkshire and Essex.

A dairy farmer, breeder, and feeder of Sussex pigs for Brighton market, describes them as "thin of hair, good size, hardy, good feeders, not so fleshy as the Berks, and more hardy than the Essex [he does not say, as he might, and rather coarse], which feed well at an early age." "A cross with the Berks has not answered my purpose, the produce at from eight to fifteen stone (8lbs.) not being fat enough for the Brighton Market."

Lord Western, according to Mr. Youatt, was at one time in possession of the best breed of Sussex pigs; therefore it is most probable that he used them to turn the old black-and-white sheeted Essex pigs black. This would make Lord Western's breed a combination of Essex, Sussex, and Neapolitan. The picture given by Youatt of an Essex in 1846 is much more like a Sussex than an Essex in 1860.

Had Lord Western been a Sussex man, perhaps Sussex pigs would now hold the refined place justly held by the Essex.

IMPROVED ESSEX.

The improved Essex is one of the best pigs of the small black breeds, well calculated for producing pork and hams of the finest quality for fashionable markets; but its greatest value is as a cross for giving quality and maturity to black pigs of a coarser, hardier kind. It occupies, with respect to the black breeds, the same position that the small

Cumberland-Yorks do as to white breeds—that is to say, an improved Essex boar is sure to improve the produce of any large dark sow.

The original Essex pig was a particoloured animal, black, with white shoulders, nose, and legs—in fact, a sort of “sheeted” pig, large, upright, and coarse in bone.

The first improvement was made by the late Lord Western, when Mr. Western, an Essex squire, who divided his life pretty equally between the cultivation of live stock and the passionate support of the politics of his friend, Charles James Fox.* While travelling in Italy (making the grand tour), he observed, admired, and secured a male and female of the breed called Neapolitan, “found in its greatest purity (according to a letter addressed by Lord Western to Earl Spencer in the *Farmers' Magazine*, January, 1839) in the beautiful peninsula, or rather tongue of land, between the Bay of Naples and the Bay of Salerno. . . . A breed of very peculiar and valuable qualities, the flavour of the meat being excellent, and the disposition to fatten on the smallest quantity of food unrivalled.”

From this pair Mr. Western† bred in and in, until the breed was in danger of becoming extinct—a sure result of in-and-in breeding. He then turned to Essex, and, there is reason to believe, to black Sussex and Berkshire sows; and obliterating the white of the old Essex, produced a class of animals of which he says in the letter already quoted:—“I have so completely engrafted this stock upon British breeds, that I think my herd can scarcely be distinguished from the pure blood” (of Neapolitans).

The Western Essex pigs had great success at agricultural shows. The old Essex, with its “roach back, long legs, sharp head, and restless disposition,” was capable of being made very fat, but then it required time and an unlimited

* English agriculture owes much to the “cold shade of opposition” under which such men as Francis Duke of Bedford, Coke of Holkham, Lord Yarborough, and Mr. Western, excluded from the favours of the court and the dignities of office, found consolation in reclaiming wastes, breeding a “bold tenantry,” and establishing “an aristocracy of live stock.”

† Mr. Western was created Lord Western on losing his seat in the House of Commons after the passing of the Reform Bill.

supply of food. The advantage of a cross with the Italian was obvious, and the fact that the new breed was in the hands of a popular county squire was no small help in extinguishing the native and unprofitable particoloured race.

But as Lord Western bred exclusively from his own stock—having attained what he considered perfection—always selecting the neatest and most perfect males and females, his breed gradually lost size, muscle, and constitution, and consequently fecundity; and at the time of his death, in 1844, while whole districts had benefited from the cross, the Western herd had become more ornamental than useful.

But in the mean time the well-known Mr. Fisher Hobbes, of Boxted Lodge, then a young tenant farmer at Mark's Hall, on the Western estate, had taken up, among other farm live stock, the Essex pig, and made use of the privilege he enjoyed of using Lord Western's male animals to establish a breed on strong, hardy black Essex sows, even if somewhat rough and coarse, crossed with the Neapolitan-Essex boars. On the carefully selected produce of these, divided and kept as pure separate families, he established the breed that he first exhibited, and has since become famous as the "*Improved Essex*," a title which Lord Western himself adopted when his tenant and pupil had successfully competed with him. On Lord Western's death, Mr. Hobbes purchased his best breeding sows. The difference between Lord Western's Essex and Mr. Fisher Hobbes' improved Essex, is shown very plainly by the two portraits which illustrate this section, the one drawn by Mr. Youatt, in 1845, and the other from "*Emperor*," an eight-year-old working boar, drawn for me in April, 1860.

The improved Essex, with symmetry, have more size and constitution than the original Essex-Neapolitans, and this has been maintained without any crosses for more than twenty years, by judicious selection from the "three distinct families."

The improved Essex probably date their national reputation from the second show of the Royal Agricultural Society held at Cambridge in 1840, when a boar and sow, both bred by Mr. Hobbes, each obtained first prizes in their respective classes.

Early maturity, and an excellent quality of flesh, are among the merits of the improved Essex. They produce the best "jointers" for the London market. With age they attain considerable weight, and often make 500 lbs. at twenty-four months old. "Emperor" is 2 ft. 8½ in. high at the shoulder, and 6 ft. 1 in. long. Boars bred at Boxted have been known to reach 36 in. in height.

The defect of the improved Essex is a certain delicacy, probably arising from their southern descent, and an excessive aptitude to fatten, which, unless carefully counteracted by exercise and diet, often diminishes the fertility of the sows, and causes difficulty in rearing the young. As before observed, they are invaluable as a cross, being sure to give quality and early maturity to any breed, and especially valuable when applied to a black breed where porkers are required. For this purpose they have been extensively and successfully used in all the black pig districts of this country, where, as well as in France and Germany, and in the United States, they have superseded the use of the imported Neapolitan and Chinese. Many attempts, on a limited scale, to perpetuate the breed pure, have been unsatisfactory, because it is too pure to stand in-and-in breeding. They require much care when young. "In the sows the paternal fattening properties are apt to overbalance the milking qualities, and make them bad nurses."

The Berkshire breed have benefited much from the improved Essex cross. The best Devonshire pigs have a large infusion of the same strain. The improved Dorsets, the most successful black pigs ever shown at the Smithfield Club shows have borrowed their heads at least from the Boxted breed. The improved Oxfords are the result of a judicious blending of pure Neapolitan, Berkshire, and improved Essex blood; and throughout the midland and western counties the results of Lord Western's Italian tour are to be found in every parish where a black pig is patronized.

The history of this breed affords a good illustration of the advantages of the system under which landlords, stimulated by patriotism or competition, or mere love of things agricultural, breed and experiment with great zeal, varied success, and little or no profit, until they reach the point where the

tenant farmer, with sufficient capital, equal zeal, and a clear eye to the *£. s. d.*, takes up the work, breeds, and works the problem out with a degree of practical knowledge, personal attention, and enthusiasm, which few except armers breeding for a profit can contrive to combine, and persevere to bestow for a long series of years.

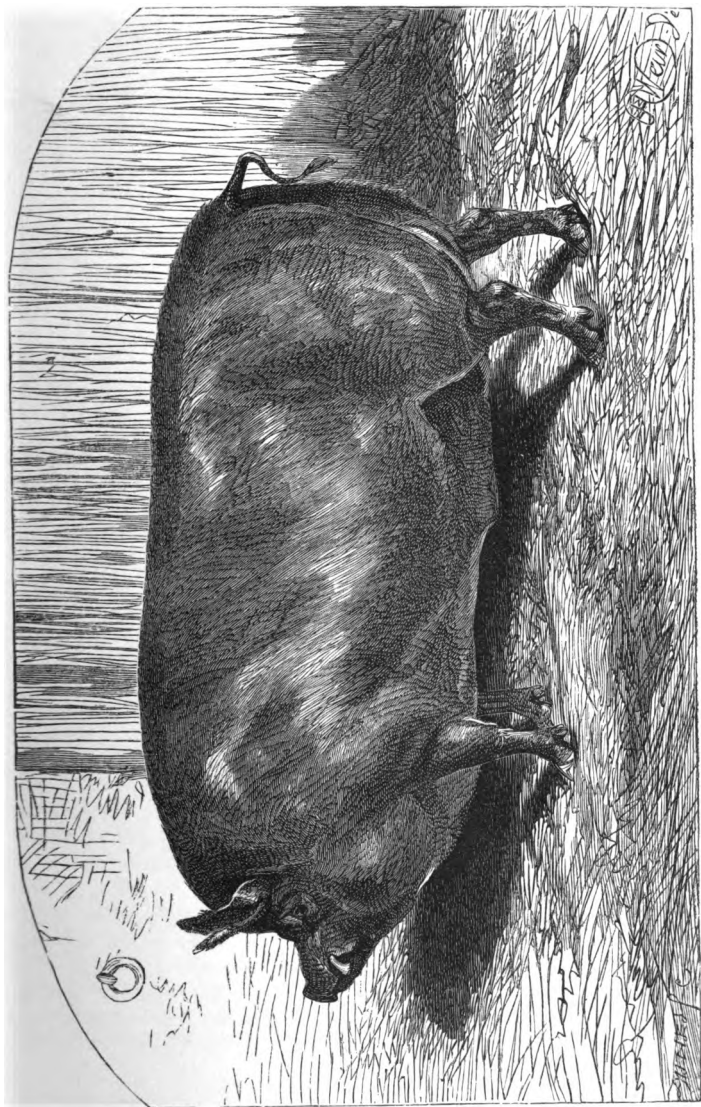
Foreign governments endeavour, with very limited success, to produce the effect of our aristocratic breeding enthusiasts by government studs. But an official, however gilded, titled, or crossed, has never the influence of a peer or squire; and besides his name, the raw materials—the working bees, the great tenant farmers—are wanting on the continent.

The improved Essex are ranked amongst the small breeds, and there they are most profitable; but exceptional specimens have been exhibited at agricultural shows in the classes for large breeds, as, for instance, at Chelmsford in 1856.

There is probably no black pig which combines more good qualities, as either porker or bacon hog, than the produce of an improved Essex boar and an improved Berkshire sow.

IMPROVED OXFORDSHIRE.

These black pigs, although they are scarcely numerous enough to enable them to claim the title of a breed, are interesting, because representing a successful attempt to unite the best qualities of the Berkshire and improved Essex. The old Oxfordshire breed were very like the old Berkshire. The first great improvement is traced to two Neapolitan boars imported by the late Duke of Marlborough when Marquis of Blandford, and presented by him to Mr. Druce, senior, of Eynsham, and the late Mr. Smallbones, in 1837. These Neapolitans were used with Berkshire sows, some of which were the result of Chinese crosses. Two families of jet-black pigs were formed by Mr. Smallbones and Mr. Druce. On the death of Mr. Smallbones Mr. Samuel Druce, jun., purchased the best of his stock, and had from his father, and also from Mr. Fisher Hobbs, im-



EMPEROR (Improved Essex).

proved Essex boars. The produce were a decided "hit," and very successful at local Royal and Smithfield Club Shows. The improved Oxfords are of fair size, and all black, with a fair quantity of hair, very prolific, and good mothers and sucklers.

Mr. Samuel Druce writes me :—" I have recently used one of Mr. Crisp's black Suffolk boars. In fact, wherever opportunity offers, I obtain good fresh blood of a suitable black breed, with the view of obtaining more lean meat than the Essex, better feeding qualities than the pure Berkshires, and plenty of constitution. I have never been troubled with any diseases among my pigs. Without change of boars of a different tribe, if of the same breed, constitution cannot be preserved. Where breeding in and in from a limited stock is persisted in, constitution is lost, the produce of each sow become small in size and few in number." The Oxford dairy farms have a first-rate market for pork in the University. Porkers at thirteen to sixteen weeks are wanted to weigh 60 lbs. to 90 lbs. ; bacon pigs at nine to ten months, 220 lbs. to 280 lbs., but at that age the improved Oxfords are easily brought to 400 lbs.

BLACK AND RED PIGS.

Birmingham has long been one of the greatest pig-markets in the kingdom, and the pig-breeding of the district has been not a little affected and improved by the winter fat-stock show which has for some years past been held there, at Bingley Hall, with great success. The town of Birmingham unites Staffordshire and Warwickshire. The old Warwickshire breed was a white or particoloured animal of the old-fashioned farm-yard type, and has never been improved into a special breed. The Staffordshire breed was the "Tamworth." At present the Tamworth are rapidly going out of favour with farmers, from the want of aptitude to fatten, and are being replaced by useful pigs, the result of miscellaneous crosses of no special character. The best are the middle-sized white pigs, a cross of the Cumberland-York

with local white breeds often called the Cheshire. The northern cross improves the constitution and gives hair of the right quality, "hard, but not too much or too coarse."

At Bingley Hall the class of Berkshire breeding-pigs under six months old generally brings from twenty to twenty-five pens. At present, however, the Berkshires in the Birmingham district are chiefly in the hands of amateur farmers, tenant farmers not having taken very kindly to them.

But the breed must be spreading rapidly if the ready sale of the young pigs at the Birmingham show be taken as evidence.

Mr. Joseph Smith, of Henley-in-Arden, one of the most successful exhibitors of Berkshires, keeps three or four sows, and sells all their young; and others find the demand for young pigs constant throughout the year.

Mr. Thomas Wright, of Quarry House, Great Barr (who did so much toward founding the Bingley Hall show), considers the cross of the Berkshire with the Tamworth "produces the most profitable bacon pigs in the kingdom, the Berkshire blood giving an extraordinary tendency to feed, and securing the early maturity in which alone the Tamworth breed is deficient. The cross of the Berkshire boar with large white sows has been found to produce most satisfactory results to plain farmers. My own notion with regard to all agricultural stock is, that we should abandon crosses and stick to our pure breeds, adapting them to our particular wants by careful selection."*

The TAMWORTH BREED is a red, or red-and-black pig,—hardy, prolific, and the best specimens well shaped, but slow in maturing. It seems a near relation to the old Berkshire; but modern Berks breeders carefully exclude all

* This theory of Mr. Wright's is contrary to the current of opinion among tenant farmers within the last ten years, as regards both sheep and pigs. Breeding pure stock seems growing into and pays well as a separate business, if judiciously conducted; but the ordinary tenant farmer will generally find that a cross-bred sheep, a cross-bred pig, and even a cross-bred ox, in the first cross, fattens more profitably than a pure-bred animal; and pure-bred pigs are confined to two or three districts.

red-marked pigs from their breeding-sheds. Reddish hairs at the tips of the ears of Essex would be permitted and admired. Mr. Alderman Baldwin, of Birmingham, is a noted breeder of this hardy, useful pig, which, however, does not seem to have any success as a prize winner. At the Royal Agricultural Show at Warwick, 1859, the Yorkshire and Berkshire breeds divided all the honours.

DEVONS.

Devonshire has an excellent breed of black pigs, which partake for the most part of the character of the improved Essex and Berkshire. The climate seems to require less hair than the northern and midland counties. Mr. George Turner, the great cattle-breeder of Devon, has done a good deal in the last forty years towards improving the west country black pigs by his "stud" and importations.

The "original Devon pigs were valued according to the length of their bodies, ears, noses, tail, and hair; the longer the better, without reference to quality or substance," just like some Devonshire squires of 500 ragged acres, who value themselves on the length of a pedigree unilluminated by a single illustrious name or action. "They were of no particular colour or character; but within the last forty years they have been improved perhaps more than any other stock, by judicious crosses and importations." Within the last twenty years a good deal of Mr. Fisher Hobbes's stock have been introduced, and seem well adapted to the climate. The Berkshires are also much approved. Mr. George Turner's stock "are black, with short faces, thick bodies, small bone, and but little hair, and exhibit as much good breed, shape, and constitution, as any tribe of pigs in the kingdom, and have won as many prizes at the breeding-stock shows of the Royal Agricultural Society."

"At eighteen months old they generally make from 18 to 20 score—360 lbs. to 400 lbs., sinking the offal."

Some of the original breed of the county may still be seen in parts of North Devon; they will jump a fence that

would puzzle many horses and some hunters. But taken as a whole, the pig stock of Devonshire is far above the average of other counties; the black pig being perhaps the only foreigner who has ever been cordially welcomed as a settler in that very exclusive county.

DORSETS.

Dorset has no reputation as a pig-breeding county; but one breeder, Mr. John Coate of Hamoor, has achieved a reputation for his Improved Dorsets, by winning, amongst other prizes, the gold medal for the best pen of pigs in the Smithfield Club Show not less than five times, viz., 1850, 1851, 1852, 1855, and 1856.

Mr. Coate writes me that he purchased about "twenty years ago a boar and sow in Somersetshire, of a breed said to have been sent from Turkey. They resembled in some measure the wild boar,* being short on the leg, with very long, wiry hair, black in colour, and very inclined to fatten. I was led to believe it was a mixture between the wild boar and Neapolitan breeds. I crossed them with some Chinese I had, and by so doing *both ways* produced the animals I named, when first exhibited, the "Dorset breed," although not properly; but they had, from their beauty, previously found their way into many farm-yards in the county. I had two distinct breeds to begin with [Mr. Coate means, I presume, the Chinese-Turks and the Turk-Chinese], which I kept pure a long time for crossing; but as both wore away, have used my own stock as far akin as possible, and have once or twice introduced fresh blood by getting a boar as much like my own as I could. I have tried crosses with other breeds, but not liking the offspring, got rid of them again. Crosses answer well for profit to the dairyman, as you get more constitution and quicker growth; but for me, who sell a great number of pigs for breeding purposes,

* According to this description, they did not in the least resemble any wild boar I have ever seen.—S. S.

I find it will not do, as it requires many years to get anything like purity of blood again. With all animals, the first or second cross is good ; but if you ever get away from the pure breed, it requires years and great attention to retain it, as the cross often shows itself in colour or shape years after it has taken place, when you fancy you are quite safe."

There is no manner of doubt that Mr. Coate's Dorset have been improved by a strong cross of Mr. Hobbes's improved Essex. Experienced pig judges tell me that they carry the relationship plainly in their faces ; and this would be a safe cross, both being derived from Neapolitans.

But Dorset, as a county, is so far from being celebrated for pigs, that one of the greatest dairy farmers, who feeds whole herds, writes me—"All I know is, that our breed of pigs is very bad."

They are, for the most part, black and white, of a Berkshire character. The ancient Dorset pig is said to have been blue, perhaps the original of the blue boar. One well-known parish in Dorset is called "Toller Porcorum."

CHAPTER IV.

COUNTY FANCY AND CROSS BREEDS.

Hampshire Breed—Lincolnshire and Suffolk, Norfolk, Shropshire, Welsh, Cheshire Crosses—Fancy Breeds explained—The Windsor Breed—Origin of—List of Prizes—The Coleshill—The Middlesex.

It will be right to say a few words about two or three county pigs of no particular merit, but which, nevertheless, are "familiar in our mouths as household words." For instance, there is the HAMPSHIRE HOG—a name used, very unjustly, no doubt, to designate a county man as well as a county pig. There are some very pretty things to be said about the herds of swine in the New Forest, but they have been said so often that they are scarcely worth repeating. The county animal is black or spotted with red, and about the size of a Berkshire, but coarser, and has had less attention paid to its improvement. There are also a considerable number of white pigs in Hampshire. Like every other breed within reach of a good market, they have been much improved within the last twenty years; but no Hampshire man has made himself celebrated as a pig-breeder, and I cannot find any instance of Hampshire pigs taking prizes at the Smithfield Show; therefore it may be concluded that, although the county abounds in useful animals, it is not worth while to resort to it either for establishing a new or improving an old breed. Of his class, the Berkshire is a better animal than the dark Hampshire hog, both having, when unimproved, a want of thickness through the shoulder which has been corrected by a cross of Neapolitan or Essex, and both are slow feeders.

The LINCOLNSHIRE PIG cannot now be distinguished from Yorkshire. At the Lincoln Royal Agricultural Society's Show the prizes were easily carried away by Berkshires; but that proves nothing, as some judges never give a prize to a white pig, and others never to a black one.

The SUFFOLK, a white pig, once appeared frequently in the

catalogues and in the prize-lists of the Smithfield Club Show, but of late years it seems to have given way to more popular names. Suffolk has a leading breeder of pigs in Mr. Crisp, of Butley Abbey; but he breeds both black pigs and white pigs, and calls his black pigs Suffolks, being a sort of cosmopolitan breeder, a purchaser of the best pigs he can find of any colour. His most celebrated pigs are quite black. Mr. Barthropp, of Cretingham Rookery, celebrated for his Suffolk horses, but not a pig-breeder, writes of the swine of his native county in terms which might be applied to almost every district not distinguished by a thorough-bred sort. "The old Suffolks were white, with rather long legs, long heads, flat sides, and a great deal of coarse hair; they made good bacon hogs, but were not so well adapted for porkers as the present improved Suffolks are. These are the white, with short heads and long cylindrical bodies upon short legs, and fine hair, which breeders try to get long, fine, and thin. These are the best Suffolks; but there are a great many about the county the result of crosses with the black Essex, which have 'no character,' although they are useful animals." The best Suffolks, as before mentioned, are Yorkshire-Cumberlands that have emigrated and settled in Suffolk, and thence been transported to Windsor.

The NORFOLK PIG, also described by Youatt, is, according to the report of one of the best farmers in the county, "an indescribable animal, the result of the mixture of many breeds in a *hocus pocus* or *porcus* style; and although they have improved of late years, the county stands very low in that division of live stock." "They really are (writes another Norfolk farmer) a disgrace to our county. The only thing to recommend them is, that they are 'stunners,' as the boys say, to breed. If they would have three or four less, and better quality, it would pay better." In the days of the first Earl of Leicester he had, of course, some good pigs for the time, and they then found their way into book, and have remained there ever since. The only noted pig-breeder in Norfolk cultivates the improved Berkshire.

BEDFORDSHIRE cannot boast of a county pig, but a pig was bred at Woburn, white, with occasional brown spots,

and depicted in Youatt's original edition of this book, which I have the very best Bedfordshire authority for saying, was "a good sort of pig, without any particular character, good feeders, but bad swillers, and they were therefore allowed to die out, and replaced by Berkshire sows crossed with Suffolk boars. Indeed, the Bedfordshire breed were so little known, that a tenant of one of the first-class farms of that county told me that "he did not know they had a breed, until he saw it marked over one of Prince Albert's pens about ten years ago, at the Smithfield Club."

At present a white breed is the most fashionable, which means saleable in Bedfordshire.

Another very eminent Bedfordshire farmer says: "The breed of pigs in this county is wretchedly bad, and has been ever since I have known it."

A third writes me: "The Woburn breed described by Youatt was a good sort of pig, of no particular character, except great aptitude to fatten. They were discontinued, in consequence of the sows being very bad sucklers, in favour of a cross-bred animal, the produce of Berkshire sows and white Suffolk boars, the best that could be got. These are prolific, of good quality, can be fed at any age, and to a fair medium weight. A cross like this pays the farmer best."

Herefordshire has a useful white pig, but no attention has been paid to it.

SHROPSHIRE AND WELSH.

The dairymen in Cheshire breed and buy a great many dark pigs, black, black-spotted, and red-and-black of the Shropshire and Welsh breeds, using Berkshire boars, and also Manchester or "Yorkshire" boars.

A tenant of R. Egerton Warburton, Esq., of Arley Hall, writes in answer to a set of questions which that gentleman was kind enough to circulate among his tenants:—

"There is no distinct Cheshire breed. The pigs are mostly cross-bred, short-eared, and long-sided. The favourite breed is a cross between Berkshire and Chinese."

The Shropshire, of which great numbers are introduced into Cheshire by travelling pig-jobbers, are of a dark red-and-black colour, long-snouted, and lengthy; not very fine in the coat.

The Welsh pigs are generally a yellow-white, but some are spotted black-and-white.

The dairymen depend more on these Welshmen and proud Salopians than on breeding. The cross of the Manchester boar with the Shropshire and Welsh produces a larger and coarser breed than the small Yorkshire.

The Cheshire farmers buy in their stores at about sixteen weeks, feed them from eight to twelve months, and sell them weighing from 240 lbs. to 300 lbs. These are considered in Cheshire the best selling weights for bacon. I observe that the farmer who uses most Welsh pigs keeps them twelve months and sells them at 300 lbs., which will scarcely pay for four months more keep than the Yorkshire, Manchester, and Shropshire sold after eight months.

An immense improvement has taken place in Cheshire pigs within the last thirty years, in quality and weight. They are made fat at least six months sooner than thirty years ago.

One farmer says few or no Irish pigs are brought into Cheshire; another, a good many, but not so many as formerly. The great importation is of Shropshire and Welsh. Yet a county member, who ought to be an authority, writes me that "Shropshire cannot boast of a county pig."

As a general rule, dark pigs would seem to be in favour on English dairy farms.

The MIDDLESEX is a name which has become known from winning prizes at the Smithfield Club, in 1841, 1848, 1850, 1851, 1854, 1856. It is not a county pig, but of the same class as the Windsor. Mr. Barber, of Slough, Buckinghamshire, is the principal breeder and exhibitor of Middlesex. Captain Gunter used to show it before he settled permanently in Yorkshire.

The NOTTINGHAMSHIRE BREED, whatever that may be, has won one prize in Baker-street, and the Warwickshire crossed with Neapolitan two, many years ago.

FANCY BREEDS.

By fancy breeds, I mean pigs named after a person or a place. The prizes awarded to pigs at the Smithfield Club Shows are a very good evidence that the breed, if a breed, had good feeding qualities, although it may not have been suited for the ordinary work and treatment of a farm. Cross-bred animals have had the greatest success. Pure Essex and Berkshire, and large Yorkshires, have not met as much success as at breeding stock shows. The most successful animals at Smithfield have been cross-bred. The prize-winning white pigs, under whatever name, have all had a large dash of Cumberland-York-Leicester; the black pigs of Neapolitan-Essex.

Among the most successful exhibitors at the Smithfield Club Shows, has been H.R.H. the Prince Consort, with what has lately been called *the Windsor breed*.

This is a white pig, the result apparently of many crosses, the prevailing blood being small York-Cumberland. Thus, H.R.H. won, according to printed prize-list, in

1846 with Bedfordshires.

1847 „ Bedfordshire and Yorks.

1848 „ Suffolks.

1849 „ Suffolks.

1850 „ Yorkshires.

1851 „ Bedfordshire and Suffolks.

1852 „ Suffolk.

(These were all but one second prizes.)

1853 „ Suffolks.

(First prize and gold medal for best pen of pigs in any class.)

1854 „ Windsors.

And since that time only the breed has been called Windsors. His Royal Highness took a first prize in small

boars at Warwick with his Windsor breed, and a commendation for a Berkshire sow.

It is a tribe greatly in demand among gentlemen pig-breeders, and crosses admirably with strong county sows.

The COLESHILL is a white pig closely connected with the York-Cumberlands bred at Coleshill, by the Earl of Radnor, who had stock from Earl Ducie, who had stock from Mr. Wiley, of Bransby, Yorkshire, and Mr. Brown, of Cumberland, for more than twenty years. The Coleshills, between 1847 and 1850, had great success at the Smithfield Club Shows; since that time, they seem to have somewhat lost their reputation, and two of my Yorkshire correspondents describe them as "toys." "At one time they were of a good size, but they have by no means maintained the even character that would entitle them to the name of a breed." When any of Lord Radnor's stock pass into other hands in England, the produce generally cease to be called Coleshills. They become Suffolks, Yorkshires, Middlesex, according to the fancy of the breeder. They are esteemed, and much better known among the fashionable pig-breeders in France than in England, and there their opponents term them "drawing-room pigs"—(*cochons de salon*). The Coleshills carried off first prizes and gold medals at the Smithfield Shows in 1846 and 1847, and second prizes in 1844, 1845, 1847, and 1850.

The BUSHEY BREED are white, bred by the wealthy banker, Mr. Marjoribanks, and were long called Yorkshires, and have recently been named after their place of birth. They have no distinctive character to distinguish them from their competitors.

The BUCKINGHAMSHIRE took the first Smithfield prize in 1840, but in these and many other names it is difficult to find any distinctive character.

CHAPTER V

FOREIGN PIGS.

Chinese—From Canton chiefly—Description and Portrait—Good Foragers—Prolific—Early Mature—Want Lean and Size—Early History, Guesses at—Bewick's Account of Black Chinese—Hint for an Imaginative Monogram on the Chinese Pig—The Neapolitan—Description of—Mr. Brandreth Gibbs's Account—Lord Western's Importation—Earl of Harborough's Cross—Mr. Buckley's Pigs—Correspondence in "Journal d'Agriculture Pratique"—Mons. Allier's Piggery—Mons. Chomel Adam—Hints for Improving the Peasant's Pigs—Mistake in our Royal Agricultural Prize System.

CHINESE.

CHINA is a vast empire with a great variety of climate, and no doubt the pigs vary in character as much there as in Europe ; but the true Chinese imported into this country within the last hundred years have chiefly come from Canton and Macao. In those districts it is a perfectly domestic animal, cultivated with as much care in shelter, in food, and avoidance of anything likely to interrupt the fat-making process as we bestow upon our prize-winning animals. The Canton breed is rather small, thin-skinned, short-legged, hollow-backed, often with a sort of hog mane. The sows are very prolific, and the young have extraordinary foraging powers ; at four weeks old they have been found travelling all over a straw-yard, gathering up food among the feet of other stock, and safely returning to their dams. The defect of this breed is a want of lean ; they are real bladders of lard. White has recently been the favourite colour. Twenty years ago they were in high favour, and at every agricultural show some of the pure stock and many crosses were exhibited. But within the last ten years, since breeding has passed so much into the hands of real farmers, you hear very little of the Chinese, for the pure breed did not pay, and the stud breeders seem to think that the less they say about foreign crosses the better. Nevertheless, there are strong reasons for believing that the best

of our small white prick-eared breeds owe something to a remote cross with the white Chinese. The cross of them with the Berkshire is admitted. It must be noted that the term Chinese has been indiscriminately applied to pigs imported from various parts of the East, the Indian, and Pacific Seas, and these of all colours—black, white, red, and pied. Pigs are a very convenient kind of ship live-stock. Sailors make pets of everything. It is a fair assumption that Eastern pigs were imported as early as monkeys and parrots, and presented as curiosities to farming friends near the Cinque Ports, Bristol, Hull, and Falmouth. Considering the fertility of the breed, it would be easy to account for the varied character of the hog in different counties long before serious attention had been paid to its improvement.

Sixty years ago Bewick gave a picture of a very well-shaped sow of the half-breed, observing that "the Chinese, a black breed, is now very common in England; they are smaller, have shorter legs, their flesh is whiter and sweeter than the common kind."

But at the present day so completely have they passed out of favour that, out of some hundred letters addressed to me by pig-breeders and feeders in reference to this edition, only one, a Cheshire dairyman, refers to the Chinese, saying that it is liked as a cross with the Berkshire.

No doubt one cause for the disfavour into which the Chinese has fallen, is the increasing distaste for excessively fat meat of any kind which characterizes every class of the modern generation. Even the coal miners will not now eat the fat mutton their fathers loved to roast over brown potatoes.

The object of this book is, as Mr. Alderman Mechi would say, "sternly practical;" but there is room for a very interesting work on the Natural History of the Hog with special reference to the Chinese, Siamese, and other Eastern breeds to which the best breeds of Europe owe their improvements; and for an agricultural writer of a poetical and imaginative turn, there is a fine subject in a history on the plan of those biographers who relate so very dramatically what certain great poets and painters of whom we know nothing might, could, would, or should have

done or said. Thus we might have "Thoughts on Pigs," by Cabot, Drake, Raleigh, and all our early distinguished navigators, and room for the display of agricultural, of archæological, and antiquarian learning on shipbuilding and costume.

The portrait engraved for Mr. Youatt's edition is a very good representation of a fine specimen of a parti-coloured Chinese, sent direct from China to the Hon. Secretary of the Zoological Society, in 1845, except that it gives the idea of an animal as large as an Essex instead of about 200 lbs. The head and eyes are very peculiar, more like a calf than a pig, and this is characteristic of the breed. The eye of the Chinese pig is sometimes very fine, full, and sleepy.

NEAPOLITAN.

The Neapolitan pig is black, or rather brown, with no bristles, and very little hair, and consequently delicate when first introduced to our northern climate. The flesh is of fine grain, and the fat is said to be free from the rankness of other coarser tribes. But whether or no this superiority is due to the breed, it is in part no doubt due to the food—sweet chestnuts and acorns ripened under an Italian sun, and maize when taken in the winter from the woods to the farmers' sties. Some writers, pursuing the stereotyped theory, take it for granted that this smooth-skinned pig is a domesticated edition of the bristly wild boar; but as the young ones are all black, and not the least like wild swine, which are always striped when piglings, it is more probable that the Neapolitans are the descendants of dark Eastern swine imported by early Italian voyagers, and cultivated to perfection by the favourable climate and welcome food, abundantly produced with little toil on that part of the Italian peninsula. Mr. Brandreth Gibbs tells me that he often saw a black pig very much like an Essex, tethered with a collar and rope before the cottages of peasants near Naples, sleeping in the sun, fat, tame, and contented. Pigs thus petted and fed are much more likely to acquire the

easy, indolent, aldermanic temperament and habits essential for a due development of fat-making qualities than when driven out in herds to pick up a scanty living, like the rough long-legged hogs on the banks of the Rhine or the Danube—the land of swineherd-princes and rulers.

I have already mentioned how the happy introduction of a pair of Neapolitans by Lord Western, some eighty years ago, led to a permanent improvement in our black breeds, especially in the Essex and Berkshire. About twenty years ago a good many pure Neapolitans were imported. The late Earl of Harborough bred and exhibited more than once a Neapolitan Chinese cross; and Mr. Buckley, of Normanston, the Leicester sheep-breeder, won several prizes with a Neapolitan and Warwickshire cross. Others exhibited the pure Neapolitan. Lady Pigott, I rather think, was one of the exhibitors of this breed. But foreign crosses of pigs, like Saxon and Norman crosses of men, have had their day, and no one, except as a matter of amusement, would go to any extra expense to obtain a breed the best qualities of which are absorbed in the Essex, Berks, and Sussex.

But although having had all the use we could out of him, we forget and almost despise the Neapolitan, according to the custom of fashionable, and very unfashionable folks too, it is worth considering whether, in the climates of Australia and the Southern States of America, the Italian cross might not be found more suitable than the more refined English breeds.

The fact that Portugal and the island of Malta have a black breed of pigs resembling the Neapolitans, confirms the notion of their Eastern origin, for the Portuguese were amongst the earliest adventurers in the East.

After the great live-stock show in Paris in 1856, several Italian princes and a princess purchased English black boars for crossing with the native breeds. The results have not been reported.

There is a considerable business done in the exportation of pigs by improving agriculturists in France, Germany, and the United States. But this trade has been seriously impeded, if not permanently depressed, in France and Germany, by injudicious

selections of breeds, and of animals spoiled for breeding purposes, by the over-fattening process which it is essential to practise if pigs are intended to win prizes.

The Americans have the advantage of knowing what they want, and of speaking our language. The principal French and German purchasers are either government commissioners or men of fortune, following a fashion and seeking medals of honour and stud prizes rather than profit in bacon or sausage-meat. Being generally but imperfectly acquainted with English, they are dependent on the advice of noblemen and gentlemen amateurs like themselves; and they are induced to purchase, at enormous prices, prize boars and sows too fat to be any use, and sometimes of breeds utterly unsuited to the soil, climate, and supply of food of the country to which they are to be transplanted.

Now, on the continent, and especially in France, a broad and almost impassable line divides the agriculturists into two classes,—the one a peasant proprietor, hard-working, ignorant, prejudiced, dragging an existence out of four or five acres by the sweat of his face; the other wealthy, highly educated, skilled in agricultural science as taught in books, and sometimes deeply—more often superficially acquainted with the profit and loss department of stock-breeding. The gentlemen take up, some one breed, some another, of English stock; one swears by the improved Essex, another by the Coleshill, or Middlesex, or the “new Leicester,” the favourite fancy breed of France. Others again vaunt the merits of the large or medium Yorkshire, or the Berkshire, and contemptuously stigmatise the small breeds as “drawing-room pigs;” and few, if one may judge from the long discussions in that excellent periodical the “Journal d’Agriculture Pratique,” are prepared to admit that white pigs and black pigs, large breeds and small breeds, if of good constitution, have each a proper place. Indeed, one enthusiast, Mons. de Dampierre, contends that boars of the new “Leicester, Coleshill, and Essex” breeds, should be *exclusively* used for crossing with French sows. The peasants watch the operations of the amateurs, and when they find sows with three piglings and boars that cannot walk, they turn with contempt from the *foreigners*.

One of the most splendid and perfect model piggeries ever seen was built by Monsieur Allier, at Petit Bourg, a model farm and reformatory carried on for many years at Government expense, but recently discontinued; there specimens of all the best English pigs and their crosses were to be found. But this and similar establishments have not produced much more effect on the pig stock of the peasantry, who are the bulk of the cultivators and pig-breeders of France, than the examples of the gentlemen like Monsieur de Dampierre and Monsieur Chomel Adam, because, in agriculture, improvement always descends by gradations, and continental laws, customs, and habits do not encourage that race of tenant farmers with capital and education, who, in England, reap the first-fruits of experiments made by peers, broad-acred baronets, and squires, and transmit their knowledge to cottagers.

The fact is, that taking into consideration the condition of agriculture in France, Monsieur Chomel Adam was not far wrong when he sneered at "drawing-room pigs."

We have a place for small, delicate thin-skinned hairless pigs in England, on establishments where, carefully tended, they are manufactured into choice pork and fat bacon for fashionable markets. But in France there is no such want, and the stock really required are such as would improve the peasant's pig, by rounding his carcass and shortening his legs without deteriorating his constitution. Very early maturity is not so important in France or Germany as in England.

Where the pigs are white, one of the Yorkshire breeds, probably the middle breed, will be the safest cross. They are hardy, prolific, and of a good shape. Where black is preferred, the improved Berkshire or Berks-Essex will be sure to produce a satisfactory result. All are good travellers, fatten on little, and give at least twice as much meat as the active, skinny French and German races.

The following translation of a letter addressed to the editor of the "*Journal d'Agriculture Pratique*," expresses very correctly and completely the opinion of the French peasantry and of a gentleman who, having never had an opportunity of seeing English pigs travelling or grazing, has formed his idea of them from the fat toys which are furrowed at Christmas

and coddled in cotton wool during the cold months in order to win prizes in June :—

The discontinuance of prizes for the large breeds of Normandy and Augeronne has been suggested. The profit which our farmers derive from our large breeds can never be supplied by any of the short-legged English breeds.

La Pusayie is in the centre of vine growers, who each feed one or two pigs every year.

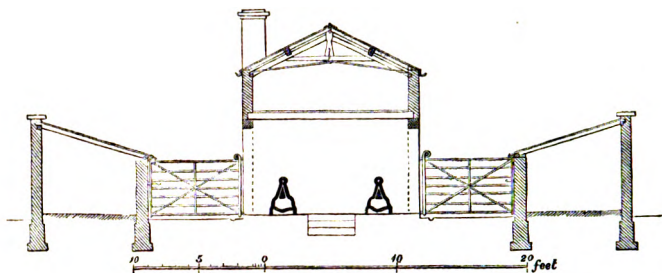
At Torcey, every Saturday 600 to 700 porkers are sold, consisting of the large breeds, with a few 'Tonquins' (query, Chinese?). They are carried to market in cages, and purchased by travelling dealers, who carry them away in cage-like carts. Our customer likes something better in his *pot au feu* than a shadow of meat, which is all that is to be had in an English pig, of which there is nothing left but grease after being boiled.

It often happens that the pig-dealers who attend our markets and fairs with their droves have to travel 200 to 300 miles, at the rate of 30 to 40 miles a day. Could such marches be performed with English hogs? Why, not one would reach the end of the journey.

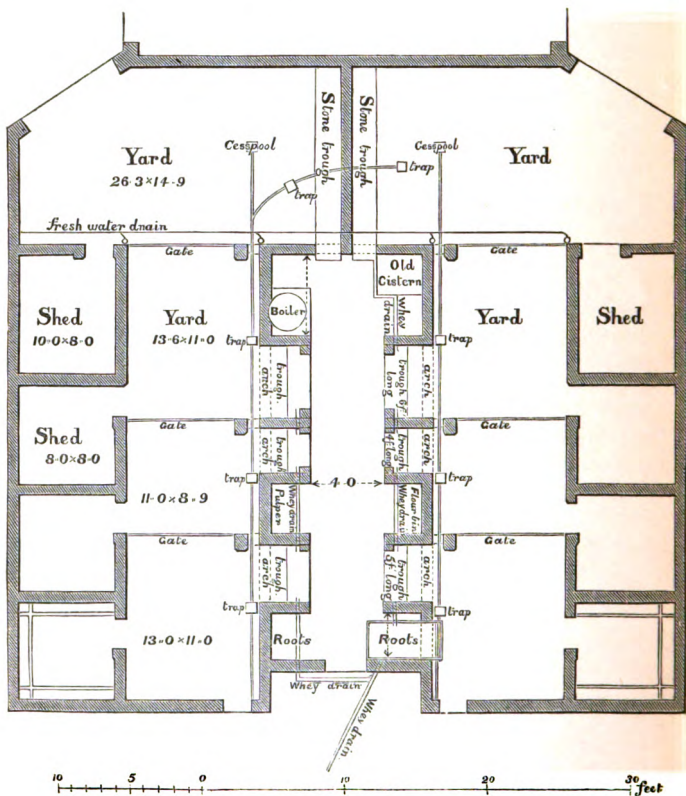
English pigs are never found in these droves, because experience has proved that they cannot travel.

The porkers of eight to ten months old purchased by labourers in our markets are always of the large French breeds, because they know they can sell them at six or seven months if they choose, at market price, to the pig drovers.

With some prejudice, excusable as the writer has never been in England, there is a good deal of sense in this letter. Here we could show him first-rate Irish cross-bred, and Yorkshire and Berkshire pigs travelling and fattening as easily and much more profitably than any French pig. But if a French or German agriculturist desires to improve the pigs of his district, he will choose, not prize animals, but hardy farm-fed young animals of the best blood. If he only desires to win prizes, he may select any of the fancy breeds—"snow-white bladders of lard."



View of Covered Food House of Piggery at the Tattenhall Dairy Farm, Cheshire.
Page 53.



Ground Plan of Piggeries at Tattenhall Dairy Farm.

CHAPTER VI

THE PIG-STY

The Boar's Sty—Breeding-Shed—Norfolk Breeder's Advice—Importance of Dry Foundation—The Breeding Shed—The Covered and fashioned Pig-sty bad—Windows and Pig-sheds—Pig-sties for fattening Pigs—Completely covered Buildings—Mr. Jackson's Dairy Pig-sties described—*Illustration*. A positive Pleasure to feed a hundred Pigs in this Arrangement—Mr. Mangles' Plan of Covered Pig-sties—*Illustration*. Details of Wood-work and Description of Arrangements—Construction of

THE profit of pigs depends very much upon their lodgings. The accommodation to be considered is of four kinds, viz.: for BOARS, BREEDING SOWS, STORE PIGS, and FATTENING PIGS.

The Boar's sty should, if possible, be placed out of the way of the sows, and in a position where he can be easily driven in daily for a large exercise. The walls should be high and the door strong, for it is as usual for the boar to attempt to break well sprung and strong doors. The door should be well secured in this way. A board fence across the sty is also required, the width of the sty being determined by the length of the pig-sties to be used.

BREEDING SOWS

"The breeding house," says a breeder of large Yorkshires, "should not be less than 12 feet by 10 feet wide, with strong rails placed all round, the rails being fixed 14 inches from the floor and projecting the same distance from the walls. This will prevent the sow from lying too near the wall, will enable the young to get round her, and may save her from overlaying them. The dimensions given suit the largest Yorkshire sows. Twelve inches is the height used in Cheshire and Devonshire, where the sows are not so large."

CHAPTER VI.

THE PIGGERY.

The Boar's Sty—Breeding-Shed—Norfolk Breeder's Letter—Importance of Dry Foundation—Feeding-troughs under Cover—Old-fashioned Pig-sty bad—Windows in Pig-sheds—Piggeries for fattening Pigs—Completely-covered Buildings most Profitable—Mr. Jackson's Dairy Piggeries described (*see Illustrations*)—A positive Pleasure to feed a hundred Pigs on this Arrangement—Mr. Mangles' Plan of Covered Piggery (*see Illustrations*)—Details of Wood-work and Description of Arrangements—Other Suggestions.

THE profit of pigs depends very much upon their lodgings. The accommodation to be considered is of four kinds, viz. : for BOARS, BREEDING SOWS, STORE PIGS, and FATTENING PIGS.

The BOAR's sty should, if possible, be placed out of the hearing of the sows, and in a situation where he can be safely driven out daily for a little exercise. The walls should be high and the doors strong, for it is astonishing how high a rampant boar will spring, and through what obstacles he will force his way. A boar loose among the wrong sows, or at the wrong time, may destroy all the breeding arrangements for the year.

BREEDING-SHED.

"The breeding-house," says a breeder of large Yorkshires, "should not be less than 12 feet by 10 feet wide, with strong rails placed all round, the rails firmly fixed 14 inches from the floor, and projecting the same distance from the walls. This will prevent the sow from laying too near the wall, will enable the young to get round her, and may save her from overlaying them. The dimensions given suit the largest Yorkshire sows. Twelve inches is the height used in Cheshire and Devonshire, where the breeds are not so large."

But "a loose box is as good as anything for a breeding sow, if it be warm and well ventilated; it must be supplied with plenty of *soft short* straw, and cleaned out every day."

The breeding-house should be in a situation where the sow will be free from the sight or sound of other pigs or dogs, and adjoining a yard, orchard, or other space, into which she can be turned, if necessary, for a little exercise for a few days before and after farrowing, without disturbance or annoyance.

A Norfolk breeder of Berkshires writes :—

I find the great thing in rearing pigs is not to have them in the old-fashioned pig-sty, *a little shed and yard*. We did away with the yard, carried the front wall up to the height of the back wall, took off the old roof and put one over the shed and yard. I now find I can rear many more pigs in the year. *Little pigs cannot stand the cold and rain*. Warmth and clean beds are most essential for young pigs.

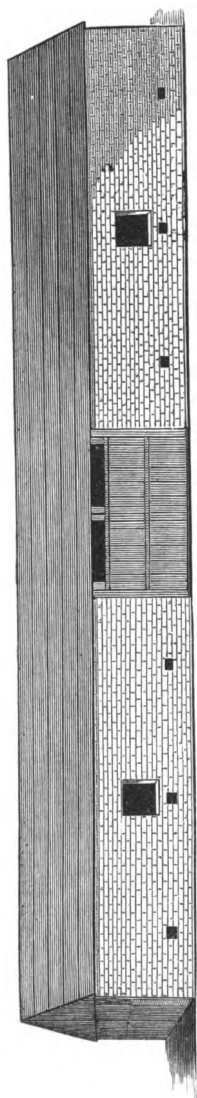
For Stores.—Store pigs thrive best in a good fold-yard, with not more than twenty together.

Some years ago the store pigs at the Prince Consort's farm became almost all diseased, in consequence of being kept on brick floors. By the urgent advice of a great Essex authority on these points they were turned to root in the fold-yards, and recovered at once.

Where a large lot of pigs are kept, it will always pay the farmer to go to some expense and trouble to make them thoroughly comfortable. Where open sties are used, they should face the south; covered sheds need not face the south.

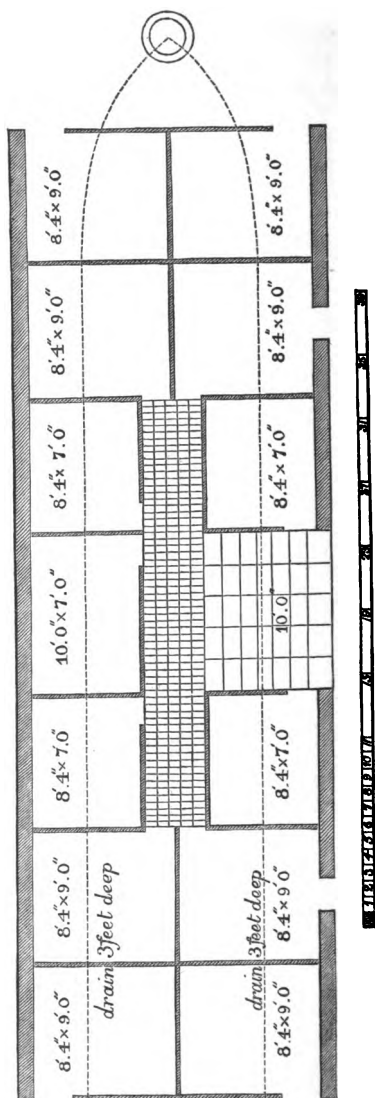
In the summer any cattle-shed will do for the growing pigs engaged either in routing over the manure in the yards, or grazing or gleaning corn and beans after harvest; but if confined in pig-yards in cold weather, they must be kept dry, and their sheds well supplied with straw.

In building a piggery on a stiff retentive soil, it will be wise to excavate some feet of the clay and fill in with chalk or building rubbish. Pigs will never thrive on cold, damp



Page 55.

Covered Shed for fattening Pigs, at Givendale, Ripon, Yorkshire.



Page 55.

Ground Plan of Givendale Piggery.

doors. The feeding troughs should always be covered, so that the animals can comfortably eat and drink without being chilled by the weather.

The worst arrangement is that of the old-fashioned pigsty of a low lean-to roof, forming a shed almost always at the time, and so low that a man can only enter on his hands and knees, with a little damp, dirty, open yard.

The sheds or sties should never be less than 12 feet high, so that they can be entered and cleared without stooping, and so arranged as not to want fresh water in the summer. All pigs are not clean, and the shed should be kept with *never* dirty, although being is an exaggeration.

B. N. Souter, the Berkshire breeder, has a shed 12 feet 6 inches high, in the roof of all his sheds, and the pigs are secure.

The Fattening.—The piggeries for fattening are arranged in simple open sheds, just as for raising the breeding sows, two plans of box or stall rearing, and just as for rearing.

The balance of the evidence which I have collected from farmers of every breed of pigs is in favour of providing a simple covered building, if they are to be fed to the best profit,—a building where wind and pure air will be excluded, and darkness combined to make a steady alternate course of eating and sleeping.

George Jackson, a member of the Council of the Manchester and Salford Improvement Society, who has a large farm of 330 acres, has fattened more than 100,000 of a variety of young part of model piggeries, and has designed even a shed, and recently erected for him of his own design, at the farm of Manchester, which have been arranged to illustrate this chapter, and which include some novel and simple features. The pigheds are each six feet high, and feeding troughs and water passages alongside them are arranged.

The floors of the piggeries and the pigheds are made of flagstone flags. The two rear sheds are provided with a door to keep them warm in cold weather, and with a number of small windows square set in the outer wall for ventilation in hot weather. A jet is set of three inches



FIG. 5.

PLAN OF THE BUILDING.

FIG. 6. SECTION OF THE BUILDING.

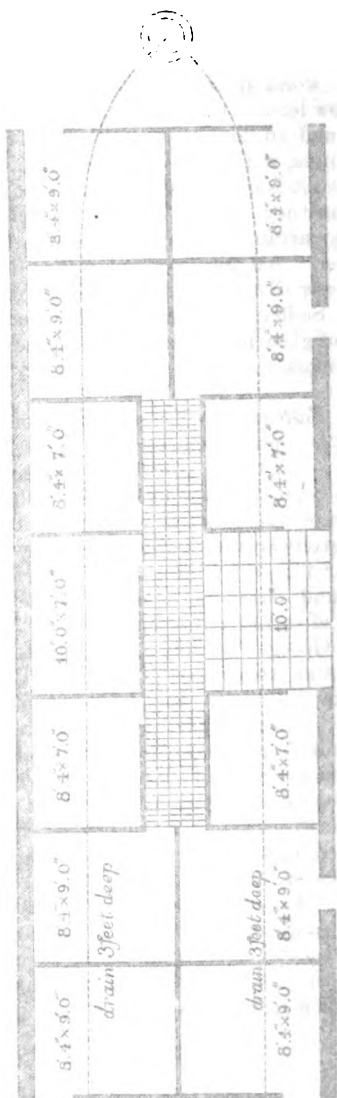


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floors. The feeding-troughs should always be under cover, so that the animals can comfortably consume their meals, without being chilled by the weather.

The worst arrangement is that of the old pigsty, composed of a low lean-to roof, forming a shed almost dark in the day-time, and so low that a man can only enter on his hands and knees, with a little damp, dirty, open yard.

The sheds or sties should never be less than six feet high, so that they can be entered and cleaned without trouble; and so arranged as not to want fresh and cool air in summer. All pigs are not clean, and the theory that they will *never* dirty their bedding is an exaggeration.

Mr. Sadler, the Berkshire breeder, has inserted a thick plate of glass in the roof of all his breeding pig-sheds: light ensures care.

For Fattening.—The piggeries for fattening are on two principles, open and covered; just as for cattle there are the two plans of box or stall-feeding, and yard-feeding.

The balance of the evidence which I have collected from feeders of every breed of pigs is in favour of providing a completely-covered building, if they are to be fed to the best profit,—a building where warmth and pure air with quiet and darkness combine to induce a steady alternate course of eating and sleeping.

Mr. George Jackson, a member of the Central Farmers' Club, and tenant of Tattenhall Hall, Cheshire, a dairy-farm of 330 acres, has favoured me with the plans of a piggery (forming part of model farm buildings), designed by himself, and recently erected for him by his landlord, R. Barbour, Esq., of Manchester, which have been engraved to illustrate this chapter, and which include some novel and valuable features. The pig-sheds are each six feet high; the feeding-troughs and the passage alongside them are under cover.

“The floors of the pig-yards and the pig-sheds are of strong sandstone flags. The two near sheds are provided with doors to keep them warm in cold weather, and with iron doors fifteen inches square, set in the outer wall, for ventilation in hot weather. A joist is set on three sides, one

foot from the wall and one foot from the floor, to prevent mothers from overlaying their young. The 'outlets,' or yards, are too small; but we were cramped for space. The drains to all the liquid manure-tanks are trapped.

"Whey," says Mr. Jackson, "forms the staple food of my pigs, the fatting ones getting a portion of Indian cornmeal and barleymeal, with occasionally, in winter, roots.

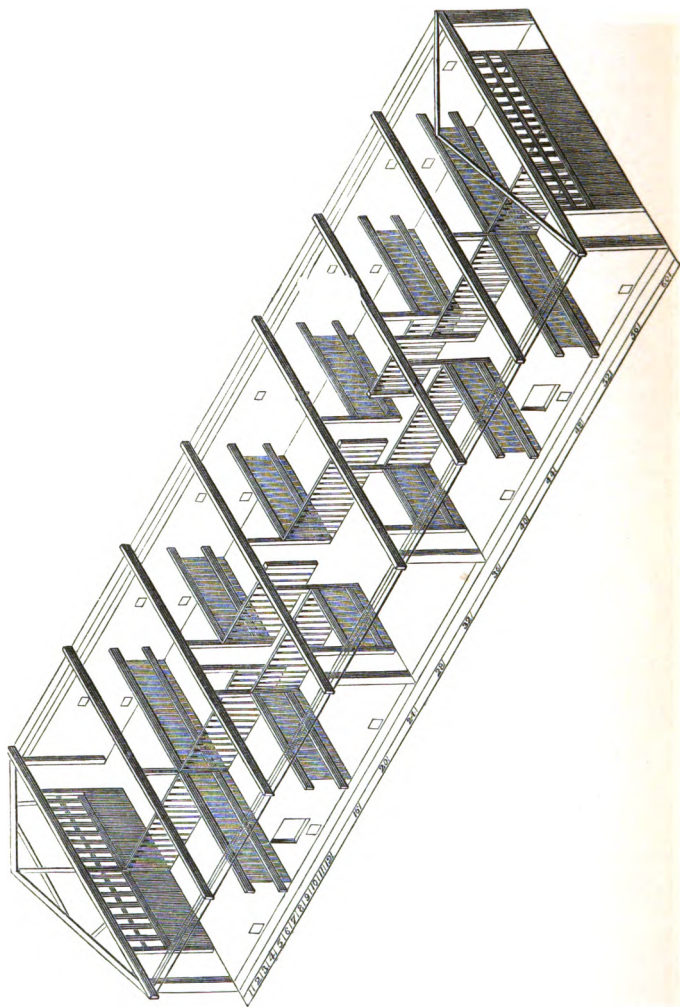
"It will be seen that the food-house is the receptacle of these kinds of food. The Windsor* troughs, with swing doors, push back and shut out the pigs while the solid food is put into the troughs, and one key locks up the whole. The whey is laid on to all the troughs from four large whey-cisterns in the buttery, and one hundred pigs are, all summer, daily fed with as many gallons of whey per meal *in one minute, by simply lifting a valve*. By this plan is *pig-feeding made easy*, and they get properly instead of laboriously and irregularly fed. The iron gates are provided for enabling to cleanse and straw the sties. The rain water goes off by a drain, and the liquid manure passes to the 'tank,' from which it is drawn by drain at pleasure into a liquid manure cart in the middle of a ten-acre meadow. The fowls are over the food-house, the floors of which are flags, but are equally adapted for boards."

This is undoubtedly one of the best things of the kind, designed by a farmer of great experience, and executed in a liberal manner by his landlord. "It becomes," he writes me, "a positive pleasure to feed a hundred pigs" by this novel and excellent arrangement for turning the tap of whey on to the pig-troughs.

But Mr. Mangles, of Givendale, Ripon, Yorkshire, who breeds and feeds pigs on a very large scale, is all for covered sheds, and has sent me plans of a pig-shed which he has erected at very moderate cost, and used with great success. He writes me—

"For feeding pigs the best arrangement is a covered shed (like the design engraved), kept dark, with partitions to hold three pigs in each division, as feeding-pigs do not require much exercise. If the pigs be fed regularly,

* Commonly called Torr's troughs. See Illustration.



Internal arrangements of the Givendale Piggery.

The covered porch or veranda covers the entire front and side of the building, while the balcony at the rear of the building is covered with both horizontal boards and vertical balusters and encloses the porch. The floor is made of extremely heavy timber in the south, which is covered with numerous pens of different sizes, some of which I find useful at any time to flat over the hills and valleys.²

Length of shed, 60 feet; breadth, 13 feet; inside length of walls, 56 ft. 6 in.; height of posts, 12 ft. 6 in.; flooring, ninety-three posts 2 feet high; 3 inches apart; front of ground for posts, 4 feet 6 in.; 3 inches; two strong posts for doors 6 inches apart.

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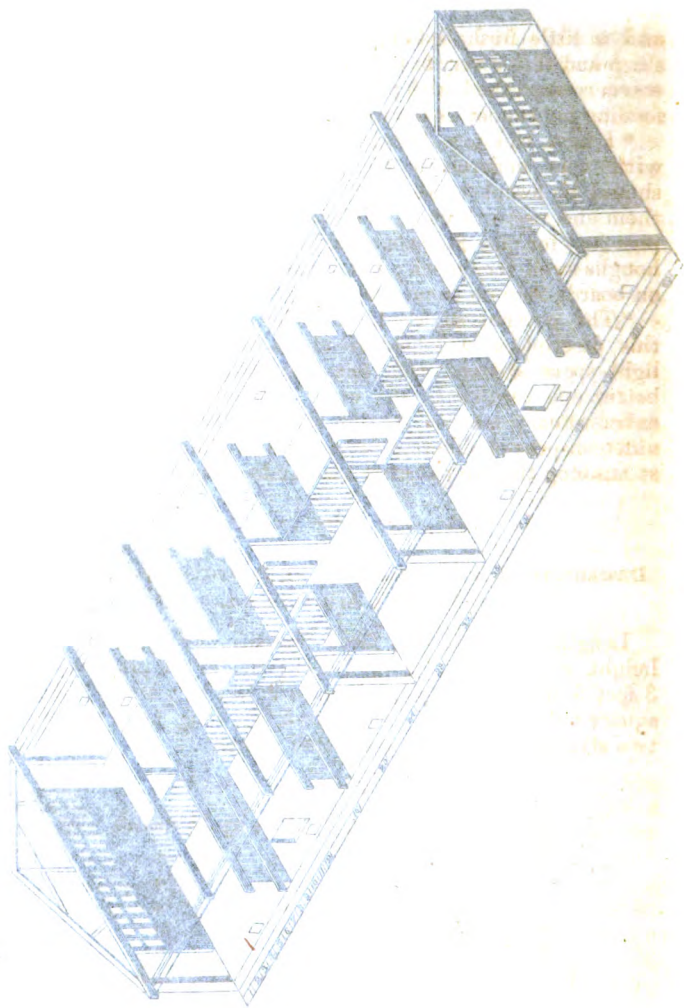


FIGURE 1. Plan of the College of Arts.

and a little fresh bedding spread every day, the animals sleep and thrive very fast. The improvement they make in a warm covered shed, with plenty of fresh air, is astonishing. A feeding pig cannot be too warm, if he has plenty of fresh air.

"I have had pigs fatten very fast upon latticed boards, with pits underneath for the droppings. The boards should be swept occasionally, and saw-dust sprinkled over them and swept through. This plan will only do for feeding pigs (not for pigs for sale, breeding, or exhibition), as their houghs swell very much; but young pigs always do better on boards than on stone floors.

"The covered pig-shed, of which a plan accompanies this description, will hold about sixty pigs; the roof is of light spars, covered with felt, but thin boards would be better and cheaper in the end. The pigs thrive in an extraordinary manner in this shed, which is divided into nineteen pens of different sizes, some of which I find useful at lambing time to put ewes and lambs in at night."

DESCRIPTION OF ISOMETRICAL PLAN OF PIG-SHEDS, SHOWING THE
INTERNAL ARRANGEMENTS.

Length of shed, 60 feet; breadth, 18 feet, inside; height of walls (*of brick*), 6 feet; height of pens inside, 3 feet 6 inches; thirty-three posts 9 feet long and 3 inches square out of ground; five posts 5 feet long by 3 inches; two strong posts for doors 6 inches square.

Pens.

4 rails,	13 feet long,	3 inches by	1½ inches
8 "	9 "	"	"
14 "	8 feet 4 in.,	"	"
8 "	7 feet	"	"
4 rails	6 "	"	"
4 "	5 "	"	"
600 poles	3 feet 6 in. long,	3 in. by	1 inch.
90 feet boards,	11 in. by	1 inch.	
150 boards for doors,	11 in. by	1 inch.	

“Woodwork for Roof.—Three boards for the centre, to nail rafters to, 20 feet long, 9 inches deep, and 1 inch thick; sixteen rafters 13 feet long, 3 inches by 2; 58 rafters 13 feet long, 3 inches by $1\frac{1}{4}$; 120 feet of rails, 3 inches by $1\frac{1}{2}$, to lie on wall, to nail rafters to; eight rails, 20 feet long, 3 inches by $1\frac{1}{2}$; ten lengths of felting, 60 feet long; 1660 feet of boarding, required 11 inches broad.

“There are air-holes in the brick walls to every pen, on one side; on the side where the folding-doors are set there are four air-holes, and two holes for throwing the manure out. One end of the shed is boarded half-way up, the rest of it up to the point of the gables of open palings; the other end is boarded, and a large space is filled with Venetian blinds, or *louvre*s.

“The floor of the pens is of beaten soil; a drain, 3 feet deep, filled with stones, leads to the liquid manure pit. The passage is laid with bricks, and the entrance is flagged, and a cart can be backed up to take the manure when the pig-pens or pits are cleaned out. I generally let the pits get full of manure, and contrive to empty them against the turnip season. They are soon emptied; it takes one hand more than the ordinary force for filling manure.

“I whitewash the walls and partitions every year, and the man keeps the passage swept and covered with saw-dust. My troughs are iron, with many divisions, and filled by hand from the passage. Each pit will hold five or six porkers, or three bacon pigs.”

As Mr. Mangles is a plain farmer, feeding pigs for profit, his plan of a covered shed will inspire more confidence than if copied from the fancy farm of a nobleman or banker. It might be improved in the feeding arrangements.

Very good pig-sheds are contrived out of the cattle-sheds which are usually found on stock-feeding farms, round the straw yard, by fencing in the sheds from the yard, dividing them so as to accommodate three to five pigs in each, according to size, and fitting a moveable shutter so as to keep out the cold and let in the sun, according to the season.

Capital boxes for feeding cattle have been made at small expense over pits covered with rough timber, gorse, and clay, and these would answer just as well for pig-breeding and feeding, and cost very little money.

However humble the pig-farmer, and whether owner of one or a hundred swine, the cardinal maxims are—dry floors, well-drained, warm aspect, warmth, fresh air, and cleanliness. Foul air encourages disease ; cold air consumes food, in making heat, that ought to make bacon.

CHAPTER VII.

BREEDING AND FARROWING.

Sow to be larger than the Boar—Boar's Influence on Future Litters—Disease Hereditary—Points a Boar should possess—Sows fit to Breed at Seven Months—Twelve Months the Best Age—Period of Gestation—Two Litters a Year—Not a Good Breeder with less than Eight at a Litter—To Farrow not earlier than March : except Prize Pigs—Treatment of Sows during Pregnancy, and while Suckling—The Carhead Advice—Piglings lost by over-care—Dead Pigs to be removed—Food after Farrowing—Constipation, Remedy for—Directions for Breeding-house and Attendance—Mr. Sadler on Management of Berkshire Sows—Care of New-born Piglings essential in Cold Weather—Food of Sow—Management of Young while Suckling—Weaning, Treatment before—Age, from Eight to Ten Weeks—Loss of Tail—Mr. Mangles' Plan of treating Tails.

For this chapter I have had the advantage of communications from eminent breeders of Berkshires, large Yorkshires, and York-Cumberlands.

The offspring usually inherits the merits and defects of both parents. In swine, the qualities of the boar predominate.

The sow should be larger than the boar. This was the rule in the days of Ulysses, and it holds good still :—

“Twelve ample cells
Full fifty pregnant females each contain'd,
The males without (*a smaller race*) remain'd.”

ODYSSEY.

The boar to whom the sow has her first litter of pigs has a considerable influence on future litters, especially if of a very pure breed. In one instance a black sow was put to a white boar, and afterwards continuously to a black boar for three litters, yet in all these three litters there were white or black-and-white pigs. Common Berkshire sows put to one of Prince Albert's white boars on the Preston Hall farm have hitherto invariably produced white pigs ; but this seems an exception to ordinary experience.

Tendency to disease is hereditary in pigs, therefore it is well to know the pedigree and past history of your boars. Ninety per cent. of the stock of a large Yorkshire boar were more or less affected with lung disease. On inquiry, it turned out that the sire of the boar had died of inflammation of the lungs.

The boar should be selected from a breed well suited to the market. He must be sound, and free from hereditary blemishes; he should be kept separate from the sows till he is a year old, and has finished his growth, or he will begin to leap too early. If not castrated before completing his third year, his flesh becomes uneatable.

A boar left on the pasture at liberty with the sows might suffice for thirty or forty of them; but as he is shut up, and allowed to leap at stated times only, so that the young ones may be born nearly at the same time, it is best to keep one boar for ten or twelve sows. Full-grown boars, being often savage, and difficult to tame, attacking men and animals, must be deprived of their tusks.

The sow must be chosen from a breed of proper size and shape, sound and free from blemishes and defects. She should have at least twelve teats; for it is observed that each pig selects a teat for himself and keeps to it, so that a pig not having one belonging to him would be starved. A good sow should produce a good number of pigs, all of equal vigour. She must be very careful of them, and not crush them by her weight; above all, she must not be addicted to eating the after-birth, and what may often follow, her own young ones. If a sow is tainted with these bad habits, or if she has difficult labours, or brings forth dead pigs, she must be castrated forthwith. It is therefore proper to bring up several young sows at once, so as to keep those only which are free from defects. Breeding sows and boars should never be raised from defective animals.

According to Varro and Columella, the ancients considered the distinguishing marks of a good boar to be—a small head, short legs, a long body, large thighs and neck, and this latter part thickly covered with strong erect bristles.

Our most experienced breeders prefer an animal with a long cylindrical body, small bones, well-developed muscles,

a wide chest—which denotes strength of constitution,—a broad straight back, short head and fine snout, brilliant eyes, a short thick neck, broad well-developed shoulders, a loose mellow skin, plenty of fine bright long hair, which denotes a hardy constitution, few bristles, and small legs and hoofs. The boar should always be vigorous and masculine in appearance.

That quaint old writer Lisle, in his "Husbandrie," gives the following advice on this subject—advice more suited to swine "as they were" than to the improved breeds which are now so generally replacing the heavy old races, but still worthy of some degree of attention :—

"In all kinds of four-footed beasts, the shape and form of the male is chosen with great care, because the progeny is frequently more like the father than the mother; wherefore, in swine-cattle also, certain of them must be approved, which are choice and singular for the largeness of their whole body, and such as are rather square (than those that are long or round), with a hanging-down belly, vast buttocks, but not so long legs and hoofs, of a large and glandulous neck, with short snouts, and turned upwards; and especially, which is more to the purpose, the males must be exceeding salacious, and such as are proper for gendering from the age of one year, till they come to their fourth year; nevertheless they can also impregnate the female when they are six months old. Sows of the longest size and make are approved, provided they be, in the rest of their members, like the boars which have been already described."

A good-sized sow is more likely to prove a good breeder and nurse, and to farrow more easily and safely, than a small delicate animal. Few of our domesticated animals suffer so much from being bred in-and-in as swine. Where this system is pursued, the produce becomes small and delicate, and the number of young ones is decreased at every litter, until the sows are almost barren.

A sow is capable of conceiving at the age of from seven to ten months, but it is always better not to let her commence breeding too early, as it tends to weaken her, and her stock are likely to be small. Twelve months old will be about the best age. Sows are almost always in heat until they have

received the boar ; this state commences even as early as the age of four or five months.

The best plan is to shut up the boar and sow in a sty together ; for when turned in among several females, he is apt to "ride" them so often that he exhausts himself without effect.

The period of gestation averages from seventeen to twenty weeks, according to the age, constitution, &c., of the mother ; young or weakly sows farrow earlier than those of more mature age or stronger constitutions. It is commonly asserted that three months, three weeks, and three days, is the period of gestation ; but, from M. Tessier's observations on twenty-five sows, it appears that it varies from 109 to 123 days.

A good breeding-sow will produce two litters in a year ; where she is suffered to have more, the pigs are not so fine or so many in number, nor can she suckle them so well. How many years they would continue to breed is scarcely known, as it is generally considered to be most advantageous to spay them in their second, or, at any rate, early in their third year, and then fatten them for the butcher, especially where there is always a stock of young sows to replace them ; for after the last-mentioned period the litters are seldom so fine, and the animal herself deteriorates in value. Some breeders, indeed, only suffer a young sow to have one litter, and then immediately spay and fatten her, as the bacon is then supposed to be equally as good as that of an animal spayed in the very onset. This is mainly a question of choice or economy. An agricultural author of some repute states that "a sow is fit for pigging up to her seventh year, and many will continue to be so even longer. The more prolific, however, the animal is, the sooner does she grow old and her fruitfulness decay."

But they, doubtless, would go on farrowing for many years, for there are instances on record of sows that have produced as many as eight or ten pigs at a litter when in their eighth and tenth years. White, in his "History of Selbourne," gives an account of a half-bred bantam sow, kept by a friend of his more from curiosity than with any view to profit, "who was as thick as she was long, and whose belly swept on the ground till she was advanced to her seventeenth year, at

which period she showed some tokens of age by the decay of her teeth and the decline of her fertility. For about ten years this prolific mother produced two litters in the year, of about ten at a time, and once above twenty at a litter; but, as there were near double the number of pigs to that of teats, many died. From long experience in the world, this female had grown very sagacious and artful. When she found occasion to converse with a boar, she used to open all the intervening gates, and march, by herself, up to a distant farm where one was kept, and, when her purpose was served, would return by the same means. At the age of about fifteen her litters began to be reduced to four or five; and such a litter she exhibited when in her fatting-pen. She proved, when fat, good bacon, juicy and tender; the rind, or sward, was remarkably thin. At a moderate computation, she was allowed to have been the fruitful parent of three hundred pigs—a prodigious instance of fecundity in so large a quadruped. She was killed in the spring of 1775.”

A sow that brings forth less than eight pigs at a birth the third or fourth time she farrows, is worth little as a breeder; the sooner she is fattened the better.

Whenever it is practicable, it should always be so arranged that the animals shall farrow in the spring, not earlier than March, on account of the very cold weather; nor later, if you can help it, because you lose the chance of a second litter before the cold weather sets in; and at the latter end of the summer, or quite the beginning of the autumn. In the former case the young pigs will have the run of the early pastures, which will be a benefit to them and a saving to their owners; and there will also be more whey, milk, and other dairy produce which can be spared for them by the time they are ready to be weaned. And in the second case, there will be sufficient time for the young to have grown and acquired strength before the cold weather comes on, which is always very injurious to sucking-pigs. But the principal Agricultural Societies give prizes on terms which encourage farrowing at the most unprofitable time of the year. Such societies should abandon the motto, “Practise with Science,” and adopt “Prizes at any Price—Profit no Object.”

TREATMENT OF SOWS DURING PREGNANCY, AND
WHILE SUCKLING.

Sows with pig should be well and judiciously fed ; that is to say, they should have a sufficiency of wholesome nutritious food to maintain their strength and keep them in good condition, but should by no means be allowed to get fat, as, when they are in high condition, the dangers of parturition are enhanced, the animal is more awkward, and liable to smother or crush young, and, besides, never has as much or as good milk as a leaner sow.

A few days before the sow is expected to farrow, she should be placed in the breeding-house, and fed with the kind of food that she is intended to have when suckling her young. She should be walked out for a few minutes before each feeding-time ; this will keep the sty clean and dry, and her bowels in a proper state.

She should have a small allowance of soft short litter, which she will generally collect in a heap as parturition approaches, and lie down upon it so as to raise the lower part of her body. This greatly facilitates delivery, and she ought to be allowed to indulge her own inclination.

"I recommend," says Mr. Fisher, the successful manager of Mr. Wainman's celebrated Carhead pig-breeding establishment, "that she be left entirely to herself. We find it necessary to look carefully after our large excessively fat sows when they farrow ; but, under ordinary circumstances, it is better to keep away from them. They very rarely require assistance ; a pig or two may sometimes be saved, but whole litters are frequently lost by over-interference." And he mentions a case in which a gentleman, who had purchased a young in-pig sow of the large Yorkshire breed, wrote,—*"The sow farrowed on Monday, and brought eleven very fine ones ; but they are all dead but three, and we do not expect to save them. My man paid them the greatest attention, having been with them early and late, but she would not give them her milk."*

Now, there is no doubt but that the servant was too zealous ; if he had left the sow to manage her own business,

there would, most probably, have been eight or ten pigs reared. "*The greatest possible attention*" spoiled all. No doubt the young were taken away before the sympathy of the mother had been properly excited, and before they were returned it had almost entirely ceased, and could only have been restored by very skilful management. Thousands of young pigs are lost in this way. If the mother's sympathy for her young be lost, the milk, especially of young sows, will soon dry up.

But in reference to this remark about over-anxiety, perhaps the evil was done by the attendant being a stranger to the sow. It will be seen that Mr. Sadlers, on the same subject, recommends close attention.

The attendants, sometimes, in their anxiety, break off the navel-string too short. The young, consequently, either bleed to death, or become so weak that they are trodden down by their stronger fellows.

A dead pig should never be left within reach of the sow, as some will eat them, and thus acquire the habit of eating them living, as some sows do. But the sow is naturally a most affectionate mother. It is when, from over-fatness, they have fever, that they are most likely to eat their young.

Sows, after farrowing, should have a little milk, water, and treacle mixed together. They seldom eat much for a day or two.

Constipation often sets in after farrowing, and by creating pressure on the neck of the bladder, kills the animals by inflammation of that delicate organ. The remedy recommended by a high practical authority, is an injection of water in which a little soap has been dissolved, the animals to be walked out for a few minutes three or four times a day, until they are relieved.

The bed, which should be kept as clean and dry as possible, should be made *not* of fresh new straw, but of a little old litter which has been trodden soft in the stables : when dried, it is much better than soft straw.

All other pigs, dogs, and strangers should be kept from the breeding-sow.

The breeding-house, like the store-house, should be well

ventilated and lime-washed, and a shovelful of lime, rubbish, cinders, and coals may be usefully thrown in one corner two or three times a week. It is a very good plan to have a glass light in the roof, which can be covered with a blind, and a powerful lamp for night; then with a well-contrived peep-hole, the sow can be watched when farrowing without being disturbed. If the attendant is strange to her, a sow will rise and "bark" at him, but take no notice of her *regular feeder* when farrowing.

"I generally," writes Mr. Sadler, the breeder of pure Berkshires, "put the boar to my young sows at from twelve to fifteen months; if intended for show purposes, eighteen or longer. Breeding too young prevents the size they would otherwise arrive at. Care should be taken to select those possessing the best form, size, &c. A person would do well in the choice of most animals to remember the three L's—long, low, and lusty. It should be borne in mind much will depend hereafter upon the kind of boar the young sow has first taken, having noticed the near resemblance of all after-litters. They generally produce at a litter from six to ten; seven is quite enough for them to nurse when young. I attach little value to their first litter, as they seldom do well.

"My older sows, I regulate the time I put them to the boar according to the age I wish them for the different agricultural exhibitions. The Royal Agricultural Society's Exhibition rules specify they must be over four and under eight months. Their show takes place in July; it is therefore necessary they be farrowed in December or January, which must be admitted to be a very bad time. I think it a pity the Royal Agricultural Society should adhere to this rule. Young pigs are very tender, and require much warmth the first month. If a sow farrows in cold weather without an attendant, the chances are you lose many, if not all, as they are not strong enough of themselves to get to the sow for warmth or milk. My herdsman usually sits up with them, if the weather is severe, for a few nights, keeping them covered by the mother's side; but take what care you may, they never grow so fast or do so well as those farrowed in the spring.

"I like to put two or more sows to the boar as nearly the same time as possible, which can generally be managed by taking away their young together. They will then take the boar about the third day. I adopt this plan so as to regulate the numbers, taking away when too many, and adding to those falling short. I frequently have more with my older sows than they can nurse.

"I keep my sows from November on raw roots, more especially mangolds, which they are very fond of. When these are gone I give cut vetches, or allow them to graze in the pastures. They will keep themselves in good condition for breeding purposes. A ring should be kept in their nose, to prevent their turning up the turf, which gives the fields a slovenly appearance. A month before farrowing the sows should be fed on toppings, or grains mixed with whey, or wash, wholly discontinuing roots. Should the sows be in high condition, which I avoid, give a little castor oil in their food for a few days before farrowing, and increase the quantity to half a pint if any tendency to fever. A clyster of oatmeal and water will much relieve them should there be stoppage of urine or otherwise, as the rectum is often filled with hard excrement, and requires to be moved, so as to allow a passage for the water. Food, after farrowing, should be scalded. Bean for a few days, then oatmeal or toppings; the former I prefer. Should the young ones scour, give the sow a few old beans, which will generally stop it; it is from this cause, and cold weather, that little pigs often loose their tails. They should be kept warm, and at ten days they will lap a little milk. A good bed and room for exercise is among the essentials for their wellbeing. I usually wean them from eight to ten weeks old."

Another correspondent writes:—

Immediately after farrowing, many sows are apt to be feverish; where this is the case, a light and sparing diet only should be given them for the first day or two, as gruel, oatmeal porridge, whey, and such-like. Others, again, are very much debilitated, and require strengthening; for them strong soup, bread steeped in wine, or in a mixture of brandy and sweet spirits of nitre, administered in small quantities, will often prove highly beneficial.

Gradually the rations must be increased and given more frequently ; and they must be composed of wholesome, nutritious, and succulent matters. All kinds of roots—carrots, turnips, potatoes, and beet-root,—well steamed or boiled, may be given, but never raw ; bran, barley, and oatmeal, bean-flour, Indian corn, whey, sour skim, and buttermilk, all are perfectly well adapted for this period ; and, should the animal appear to require it, grain well bruised and macerated may also be added. Bean-flour is considered by many persons to create an abundance of milk ; and there are many who deem barleymeal too stimulating, and advise that it should never be used alone, but always one-third oatmeal to two-thirds of the barleymeal. Whenever it is possible, the sow should be turned out for an hour each day to graze in a meadow or clover-field, as the fresh air and exercise and herbage will do her an infinity of good. The young pigs must be shut up for the first ten days or a fortnight, after which they will be old enough to follow her and take their share of the benefit.

The rations should be given regularly at certain hours ; small and often-repeated meals are far preferable to large ones ; for indigestion or any disarrangement of the functions of the stomach vitiates the milk, and produces diarrhœa and other similar affections in the young.

The mother should always be well, but not over-fed ; the better and more carefully she is fed, the more abundant and nutritious will her milk be, the better will the sucking-pigs thrive, and the less will she be pulled down by suckling them.

When a sow is weakly, and has not a sufficiency of milk, the young pigs must be taught to feed as early as possible. A kind of gruel, made with skim milk and bran or oatmeal, will be the best thing for this purpose ; or a soup composed of potatoes, boiled, and then mashed in milk or whey, with or without the addition of a little bran or oatmeal.

But for the first ten days or a fortnight the mother will generally be able to support her litter without assistance, unless, as has been already observed, she is weakly, or they are too many in number ; in either of which cases they must be fed from the first. When the young pigs are about a fortnight

old warm milk should be given to them. In another week this may be thickened with some species of farina ; and afterwards, as they gain strength and increase in size, boiled roots and vegetables may be added. As soon as they begin to eat, an open frame or railing should be placed in the sty, under which the little pigs can run, and on the other side of this should be the small troughs containing their food. Some recommend that they should be allowed to eat out of the same trough with the mother, but the food set before her is generally too strong and stimulating for them, and besides, the chances are they would not get a mouthful. Those intended to be killed for "sucking-pigs" should not be above four weeks old ; most persons kill them for this purpose on the twenty-first or twenty-second day. The others, excepting those which are kept for the purpose of breeding, should be castrated at the same time.

WEANING.

Towards the period when the pigs are to be weaned the sow must be less plentifully fed, otherwise the secretion of milk will be as great as ever ; and it will accumulate, and there will be hardness, and perhaps inflammation, of the teats. Should it appear requisite, a dose of physic may be given, to assist in carrying off the milk ; but in general a little judicious management in the feeding and weaning will be all that is requisite.

The age at which pigs may be weaned with the greatest advantage is when they are about eight or ten weeks old ; many persons, however, wean them as early as six weeks, but then they seldom turn out so well. They should not be taken from the sow at once, but gradually weaned. At first they should be removed from her for a certain number of hours each day, and accustomed to be driven by hunger to eat from the trough ; then they may be turned out for an hour without her, and afterwards shut up while she is turned out also by herself. Subsequently they must only be allowed to suck so often in the twenty-four hours : per-

haps six times at first, then four, then twice, and at last only once; and meanwhile they must be proportionally better and more plentifully fed, and the mother's diet in a like manner diminished; thus will the weaning be accomplished without danger or evil consequences to either. If it should happen that one or two of the young ones are much weaker and smaller than the others, and if the sow remains in tolerable condition, they may be suffered to suck for a week longer; but such a mode of proceeding should be an exception, not a general rule.

Pigs are more easily weaned than almost any other animals, because they learn to feed sooner; but nevertheless this is always a somewhat critical period, and great attention must be paid to them if we would have them grow up strong healthy animals. They should have the run of a grass meadow or paddock for an hour or two every fine day, in the spring and summer, or be turned into the farm-yard among the cattle in the winter, as fresh air and exercise tend to prevent them from becoming rickety or crooked in the legs.

Buttermilk, whey, and the refuse of the dairy, with boiled or steamed potatoes, pollard, and oat or barleymeal, may be given as food; also boiled cabbage and lettuce, macerated and bruised oats, barley, and wheat; in short, the most nutritious and succulent food that circumstances will permit of, and a daily run at grass wherever it is possible. At first their food should all be given to them warm, and be tolerably soft, in order better to assimilate with the state of the digestive functions; but gradually and soon they must be accustomed to take it cold, it being far better for them so when once they are used to it; and they must also learn to masticate their food.

Newly-weaned pigs require five or six meals in the twenty-four hours. In about ten days one may be omitted; in another week a second; and then they must do with three regular meals each day.

A little sulphur mingled with the food, or a small quantity of Epsom or Glauber's salts dissolved in the water, will frequently prove beneficial.

A plentiful supply of clear cold water should always be

within their reach ; the food left in the trough after the animals have done eating should be removed, and the trough thoroughly rinsed out before any more is put into it.

This treatment will bring them on to the time when the owner must separate those he intends for breeders from those which are to be fattened for the market. The boars and sows should be kept apart from the period of weaning.

LOSS OF TAIL.

High-bred pigs are very apt to lose their tails. Some authors, amongst others Mr. Finlay Dunn, in his *Prize Essay on the Diseases of Pigs*, "Royal Agricultural Society's Journal," vol. xvi. p. 41, maintains that it is not a disease at all, but merely the effect of the friction of rough straw ; and he proceeds to recommend a plan for taking the young pigs away from their mother, coddling them in a woollen-lined basket, and presenting them from time to time to their mother to suck. This is an expedient which could only be adopted in extreme cases, where a very valuable sow is too weak to attend properly to her young. If the preservation of the tails really depends on the softness of the litter, it would be cheaper to have litter of a soft nature prepared for the purpose. The accident, which is serious with regard to stud or prize-stock, but of no consequence when it happens to feeding-stock, occurs most frequently in cold weather, especially when the sow is fat and sluggish, and does not milk freely. The remedies recommended are numerous. Some seize them as they drop from their mothers, and wipe their little tails dry with a silk handkerchief ; others use stimulating mysterious oils ; others, again, cut a bit off the tip, so as to draw a little blood. This last plan has been found very, but not always, successful, by a breeder of some reputation.

Mr. G. Mangles, who feeds very often four hundred pigs in a year, says :—" I can save eight-tenths, if taken in time. The disease first shows itself when the pig is a day and a half old ; upon the loss of the tail a red spot may be seen, which gradually spreads all round the root of the tail, destroy-

ing the cuticle. If once round, there is but little chance of saving the tail ; but if, at the first, all the red place be well scraped with the nail or a penknife until it bleeds, and afterwards greased, a scab will form, and a new skin will grow, and the tail will be saved." If this be a remedy, an application of lunar caustic, instead of scratching the spot, would be worth trying.

CHAPTER VIII.

PIG-FEEDING.

On Dairy Farms—On Arable Farms—On Purchased Food—Pig-feeding pays in Manufacturing Districts—Letter from a Yorkshire Feeder—Directions for Feeding Young Pigs—The Secret of Profit—Mangles recommends Potatoes Pulped—Grazing—Slops a Deception—Barley—Indian Corn, crushed and boiled—Cooking Food—Berkshire Breeder's System of Feeding on a Dairy Farm—Cheshire Dairyman's System—How much Barley makes a Pound of Pork—Gain per Week in Feeding—How to gain Weight most quickly—How to Make the Most of Food—Super-phosphate good for Pigs in a Sty—Mr. Tyrrell's (Devonshire) System of Feeding—To cure Pigs infested with Vermin—Value of Pig Offal and Manure—Indian Corn and Bran—Professor Voelcker's Estimate of, and Recipe for Food—Ground Wheat used in Yorkshire—Cheddar Cheese Farm System—Workhouse Wash: its Value—Account of Pig Management at Workhouse School—How to apply Juvenile Labour to Pig-feeding on Roots.

PIG-FEEDING may be either—

Feeding on the skim-milk or whey of a dairy farm.

Feeding on the produce, tailings, and gleanings, of a corn and sheep farm.

Feeding near a great town, on purchased food.

Feeding for prize shows, regardless of cost.

Feeding the cottager's pig. (The cottager's pig must have a separate chapter.)

A great variety of food suitable for finishing and fattening pigs, is to be purchased by those who constantly attend the corn-markets at all our great ports, on favourable terms. The owners of rice and other grain-mills, have useful stuff to sell, and the ordinary cereals and Indian corn, and foreign beans and peas, are in turn to be had on paying terms, according to the state of the market. The food of pigs bred or fed for either breeding-stock or fat stock prizes is not counted very exactly, because the exhibitor either lays himself out for profit, by selling his stock as

offspring of pure-bred prizes, or is content with glory, and loss of the fat-stock victory.

After collecting a vast number of answers to the question "Will a pig pay?" I am inclined to come to the conclusion that the feeding of easy-fattening pigs pays well in the great manufacturing districts like Yorkshire, where there is unlimited demand for every part of a pig; but where the breeder is dependent on the fluctuations of the London or a fashionable market for the sale of fresh pork, he is often disappointed. Almost all the breeders of black pigs agree that a cross feeds more profitably than a pure Berks or Essex.

A Yorkshire breeder and feeder writes:—

"I am a farmer, and I keep pigs for profit, and I have no stock that pays like them; but I have found a surprising difference in the feeding qualities of the different breeds, and I am not astonished at farmers saying pigs will not pay. I expect in a few years to see a great change in the breeds, as it will not pay in these times to keep an unprofitable animal of any breed.

"I have been selling some York Cumberlands, 20 stone of 14 lbs. at 6*d.* the pound without offal, and 7*s.* 9*d.* with offal, for porkers; and I have seen some large Yorks of nearly 50 stone sold at 6*s.* with the offal. I think the medium size pay better than the large bacon hogs; and I very much doubt whether either the large Yorkshire or the Berkshire can be fed to a profit." (This is a breeder of small Yorks.)

"I know that it is the general opinion that pigs are fed at a loss. I have heard this year (1860) that bacon stood the feeder 9*s.* the stone of 14 lbs. But for eleven years I have kept an account of all my pigs cost, and what I sell, and at the year's end I know the truth. For I charge my pigs the corn grown on the farm at the market price. My balances are actually balances, not 'estimates,' like those of some fancy farmers.

"Mine is a farm of about 280 acres—half in plough, and half in grass. I spend sometimes £700 on purchased food but little on any manure, except lime and salt. I make all I can, and make it good. I calculate I get my pig manure free, but not my cattle manure."

For the first fortnight the little pigs live upon the sow's milk. Then they will begin to eat a little dry wheat. As soon as they begin to eat freely, have a place where they can creep to feed, *where the sow cannot get at their meat*, and feed them sparingly twice a day with milk, meal, and bran, and once a day with dry wheat. But beware of over-feeding them, or any young animals. At six weeks old the boar pigs are usually castrated, and at eight weeks old the litter may be weaned, by taking away the sow by degrees. But if the sow is not wanted to breed again directly, and you want to forward your pigs, it is a good plan to let them be with the sow, at night only, until they are twelve weeks old, and then they ought to be in very good condition.

After twelve weeks, the treatment will depend on what they are wanted for. "If to be made the best of, feed them for the next twelve weeks on boiled meal, vegetables, and a little bran, two feeds a day, keeping about six together in sty, warm and well bedded. Keep them on *cooked food* and a little meal every day, until within six weeks of being killed, when they should have as much barleymeal and water as they can eat. It is a waste of money to give them raw meal all the time, but they should always be gaining until the slaughtering day—to go back is a loss."

The great secret of profitable pig-feeding to fatten is, to feed at regular hours, keep them warm, but not too many together, and give them very little exercise.

Mr. Mangles (Yorkshire) prefers potatoes to any other roots, pulped and steamed. "My pulper," he writes me, "is worked by horse-power, and when the steam is up the potatoes cook as fast as they are pulped. I can press about 30 cwt. the hour. The potatoes are sorted by a woman, but not mashed; a boy can feed the pulper.

In the summer time pigs do well on green clover or tares, with a few beans or peas once a day. When twelve weeks old they are fit either to carry on as stores or feed out as porkers, all depending on the time of year, and demand for either porkers or bacon pigs.

"Slops for pig-feeding," says a breeder of large Yorkshires, "are a deception and a snare. Where milk or buttermilk can be spared, he will be grateful for it; but all water beyond

the quantity required for boiling or moistening is valueless. Soyer's famine soup, water flavoured by ounces of meal and vegetables in gallons of water, may stay hunger, but wont put flesh on, and a pig should be growing all his time."

A Berkshire breeder and dairy farmer writes :—

"My stores, farrowed in March, are fatted off by December, making from ten to twelve score, although I have often had them much heavier.

"Pigs this weight are always saleable in the London Newgate Market at sixpence or a shilling per score more than heavier ones. I have grown a pig of the Berkshire breed over forty score.

"Second litters, coming in about December, at three months, will do for pork. The sow will then be in again in March or April.

"The whey runs from my dairy into a vault near the piggery, in which I have large bins to mix the meal and whey together, allowing it to ferment for three days before using it.

"If I am well off for roots, I have a good quantity pressed, steamed, and minced with whey and barleymeal. In the winter, a few beans or lentils, ground. *If convenient*, give warm food.

"Have not more than six pigs together. Warm sties, clean, and the pigs *well groomed with brush and linseed oil*, which will cleanse the skin and kill the lice with which they are often annoyed."

Another pig-feeder, a Cotswold man, recommends pulping roots, leaving them to ferment for thirty-six hours, and then mixing the pulp by alternate spadefuls with meal. This plan, he assures me, answers quite as well as cooking, and saves both trouble and expense. In Cheshire, it seems that whey is the staple food of the growing pigs, the fattening pigs getting Indian cornmeal and barleymeal, and roots occasionally in the winter.

As to CEREALS and PULSE, pigs seem to like barley, ground *coarse* and boiled, best. Indian corn is very good, if crushed and boiled. They will not eat it so well if ground fine.

Beanmeal and peameal they soon tire of; but boiled Egyptian beans is a favourite course of food with many feeders.

"Cooking pigs' food pays well," says a Yorkshireman. "A bushel of barley will go much further cooked than raw." On the other hand, a great Cheshire dairyman writes:—"We did once cook our roots, and made Indian cornmeal porridge. Since we have given the meal dry, before turning the whey or water into the troughs, the pigs have grown and fattened much better. We made the change on the advice of an experienced feeder: it has answered beyond our expectations. We now only use the boiler for the bones and flesh of dead animals."

According to writers on the chemistry of pig-feeding, it takes $3\frac{1}{2}$ lbs. of starch to make 1 lb. of fat; $3\frac{3}{4}$ lbs. of barley to make 1 lb. of live weight; and 5 lbs. of barley to make 1 lb. of pork. So, if pork can be sold at 6d. the pound, and barley bought at 1d. the pound, it is profitable to make pork; but it is a poor speculation when the farmer only gets the manure for his profit.

"I have had a great many of the York-Cumberland breed that gained—

7 lbs. per week live weight up to ten weeks old;

10 lbs. for seven weeks;

14 lbs. per week until 23 stone.

"I can put on 18 lbs. a week until a certain time; and then they begin to put on less and less every day, until at last you feed at a loss. The pig should be killed when the point of profit for daily food is turned. For this reason the pig should be weighed weekly.

"After trying nearly all the different kinds of cereals, and weighing my pigs once every fourteen days, I have come to the conclusion, *if you want to gain weight fast*, give plenty of barleymeal and milk; *if you want to make the most of the food consumed*, give boiled vegetables and boiled meal, and finish off with raw meal.

"On the first plan, time is saved at the expense of food consumed. On the second plan, time is lost and the food saved."

It is very expensive to make manure with meal. An

animal can only digest and make meat of a certain quantity of food; and if more be forced on it, the balance must pass off in excrement.

It is a good plan to mix different kinds of corn, and allow pigs access to cinders, ashes, slaked lime, chalk or clay. A mixture of coal, salt, and super-phosphate, is Mr. Lawes's recipe for sickly pigs confined to a sty. Pigs at liberty find suitable medicine for themselves.

Mr. Tyrrell,* a Devonshire pig-fancier, takes up in November all the pigs under nine months old that have been feeding on grass during the summer, and puts them on roots and bran,—the roots, mangold or carrots, sliced or pulped in the proportion of a hundredweight of bran to a ton of unwashed roots, mixed in a tub, or on a brick floor, and allowed to ferment. This is a variation on the Cotswold plan. But the Rev. T. C. James considered that steaming roots, and mixing the liquor with the bran, produces one-third more profit, and pays well for the bran.

Even carrots are too nutritious for a sow intended for breeding, and she must be kept on mangold or swedes and bran.

Well-bred pigs will pay, I think, at least as well as sheep, for being depastured during summer on grass. I put up sixteen pigs, weighing about four stone each, one half on carrots and bran, the other half on mangold and bran. A ton of carrots and a cwt. of bran produced in eighteen days an increase of 90 lbs.,—deducting, in each case, one-sixth for offal, estimating the remainder at 10s. a score, and deducting 5s. 6d., the value of the bran, one lot paid me £1. 12s. a ton for carrots, the other £1. 6s. 6d. for a ton of mangold. During this period they consumed above 16 lbs. daily, and increased in weight upon the carrots 10 ounces, and upon the mangold 8 ounces. During a second period of sixteen days they consumed daily 25 lbs. each, and increased upon the carrots 14 ounces, and upon the mangold only 7 ounces.

This mixture of bran and roots—preferring carrots, when to be had, to mangold—may be continued when pigs are put

* "Will a Pig Pay?" *West Buckland Year-book.*

for fattening, gradually adding Indian, or barley, or oatmeal. Frequent changes of all kinds of food will admit the following process.

Last year I put up twenty pigs to fatten upon roots, and a large proportional quantity of oat and barleymeal. During the first fortnight the increased weight, compared with the food consumed, paid me 9s. 6d. ; the second fortnight, 4s. 6d. In the third period of three weeks they cost me sixteen guineas, while the value of their increased weight was but eight guineas. What happiness for a farmer to think he has bestowed eight guineas in actual charity to pig-consumers !

Pigs are apt to be infested with vermin. If found, they should be thoroughly well washed with soft soap, and *exceedingly well dried* ; they may be frequently dry-brushed with advantage under any circumstances. A pig put to fatten in a thoroughly clean state need not be put to the weekly annoyance of being washed, and perhaps not effectually dried.

The value of pig manure must not be forgotten.

"The ox walks off to market with his whole carcass—bone, muscle, fat, and offal — containing an immense quantity of mineral ingredients of the soil, which can only be replaced by the re-introduction, at a considerable expense, of artificial or other manure. The sheep does the same, and half the live weight of a sheep is offal, which, with the carcass, is wholly lost to the farm. The pig is most frequently killed on the farm, and the whole of the offal left behind ; and then a pig carries away a very small portion indeed of bone and muscle compared with his fat.*

"With tolerably good land, and no lack of capital, a farmer cannot do better than cultivate white crops alternately, and, with a moderate dairy, confine his stock exclusively to pigs. Let him consume his oats, sell off both wheat and barley, and buy Indian corn and bran. Indian corn is about the same price as barley, but sixty instead of fifty-two pounds to the bushel. A bushel of barleymeal is generally supposed to add ten pounds to the weight of a pig : I have found, in my latest

* Professor Voelcker says, "Horse-dung and sheep-dung are about equal ; then cow-dung ; last, hog-dung. Fat is of no value as manure."

experiments, that a bushel of Indian corn produced an increased weight to a pig of fifteen pounds."

"Indian corn," says Professor Voelcker, "is richer in fat-forming matters than almost any other description of food. The ready-made fat in corn amounts to from five and a half to six per cent. But animals should not be fed entirely on Indian corn, because the flesh-forming matter in it is small. Beanmeal supplies the deficiency. Five pounds of Indian corn (ground or crushed) to one pound of beanmeal is a mixture which contains the proportion of flesh-forming, and fattening matters nicely balanced."

A Yorkshire breeder and feeder of the large and middle breed takes a rather different view of the best way of feeding pigs from the black pig feeders. He writes:—

"We are now using ground wheat, purchased from the mill about 1d. per lb., which, as large bacon pigs are selling at 7s. per stone (14 lbs.), leaves a handsome profit for fattening, even at the present high price of stores.

"The farmer who is wise will keep both these profits in his own hands. He will rear his stores, and grind up his own (inferior) grain for feeding them. His pig-sties will not have to carry the profits and expenses of railway, corn-factors, and millers. If he wants pigs to pay, he does not starve them for twelve or eighteen months, leaving them to roam about the fields, robbing his own corn-stacks as well as his neighbours' while the pig-boy plays truant; consuming as much food among twenty as would feed thirty, rooting and turning over a fold-yard dungheap; but he feeds with the corn that will only cost him in money half its feeding value, and gets the manure into the bargain.

"A well-managed pig-feeding establishment near any great town ought to pay in times of low-priced grain. Unlike beef and mutton, every inch of a pig is in demand, and the offals are sold at good prices as dainty bits."

An account of the mode of feeding on the Cheshire cheese farms will be found in the description of the Tattenhall Hall model piggeries.

On the Cheddar cheese farms (Wiltshire and Somersetshire), the whey is mixed with some kind of grain, usually bruised barley, and allowed to grow rather sour, because

believed to be less laxative in that state. The pigs on the Cheddar dairy farms are never fed on whey alone ; it is thought more profitable to have a greater number than the whey will keep, and add other food to it. The growing pigs are pastured at Mrs. Harding's, Marksbury Dairy, Somerset, and have a few brewers' grains.

A Berkshire feeder says, "I can buy pig-food cheaper in Mark-lane than I can grow it."

WORKHOUSE WASH.

Pigs may be profitably fed by workhouses where there is a garden of any size ; but still more profitably on the farms attached to industrial schools, where food is boiled for a large number of children every day, where the labour of children costs nothing, and where there is a full consumption for all the pork, fresh or cured, that may be fed. There may be difficulties in disposing of all the offal of an ox or sheep ; but in an industrial school every part of a pig may be easily used. A well-bred one will have few bristles ; and even the bones, after boiling, will come in for turnip manure.

At a great school, where the destitute orphan and deserted children of the city of London are maintained and educated to the number of nearly fifteen hundred of both sexes, including many infants, pig-feeding was one of the profitable employments of the establishment, although the extent of land at the disposal of the institution was then very limited.

At the school alluded to, between sixty and seventy pigs, divided into about eight lots, according to their condition, were fed, the first sty being replenished as soon as the last lot was killed off. They were purchased at about twelve weeks old, and killed after being fed four or five months, when they usually weighed from eight to nine score. They were consumed on the premises as fresh pork, with the exception of a certain number reserved for bacon, which were kept until they reached about thirty score.

These pigs were fed on warm wash, consisting of the

liquor from the large quantities of meat boiled for the use of the house. To this liquor was added all the potatoe-peelings, refuse, bits of vegetables, bread, and meat, with the dish-washings, and about as much purchased "middlings" as amounted to a shilling a week per pig. Although there was a dairy of about thirty cows attached to the establishment, no milk, in any shape, could be spared for the pigs. They were tended by the boys, under the care of the dairyman; and so well tended, that, in a long course of years, no important loss by disease had ever been experienced. Under this system it is calculated that there was a profit, over and above the first cost and purchased food, of about £3 per pig. The profit would, probably, have been greater, if pea or beanmeal had been used in the earlier, and Indian corn and bran in the latter stages, and if the sties had been better arranged.

The advantages of this system, imperfect as it was, for want of land, are obvious. A large quantity of nutritive wash and waste food was consumed on the premises, and turned, at a profit, into meat, which was also consumed on the premises, giving, while growing, useful employment to some of the boys. Without the pigs, the pot-boilings and dish-washings must either have been sold at a nominal price, or allowed to run away to waste.*

There are strong objections to allowing anything in the shape of refuse to be sold from any large establishment, because it is found that whole loins and legs of mutton find their way by mistake into the swill-tub; even pullets and ducks have been found swimming in the wash of rich men's houses.

But if a proper quantity of arable and pasture land be attached to an industrial or reformatory school, then pigs, in conjunction with a dairy, may be made extremely profitable.

The cows, the horses, and the pigs, with the sewage of the school, will supply, under proper arrangements for storage, a large quantity of valuable manure, which may be applied, either in a liquid or in a solid state, mixed with the coal ashes of the great fires, to the cultivation of roots and seeds.

* This school has since been removed to a farm in the country.

With the labour of the boys and girls applied to digging, forking, hoeing, and weeding, first-class crops of turnips, swedes, mangolds, carrots, and parsnips may be grown. The great cost of root-crops consists in the labour required, first, to get the soil loosened to a sufficient depth, which can in no manner be more effectually done (after or without ploughing) than by children with steel forks of suitable size, and next, by hoeing and hand-picking, to thin the seed-crop and keep it clean from weeds—an employment which children perform in Norfolk better than grown labourers. The same advantages would attend children's labour in raising crops of beans and peas.

Now, pigs can be profitably fattened on roots with a little meal, while the pot-wash of the institution will satisfactorily fill the place of the whey from the Dorsetshire and Wiltshire dairies. The moral advantages to the children, in health and early training to useful labour, would be as great as the economical.

CHAPTER IX.

THE CHEMISTRY OF PIG-FEEDING.

(Abridged from an Essay by J. B. Lawes, Esq. ; with a Table of Value of various kinds of Food, compiled by G. M.)

HAVING thus far furnished my readers with a compilation of the opinions of the best practical authorities on pig-rearing and feeding, I think it will be useful to show how strongly the result of the experience of intelligent men has been confirmed by the investigations of a scientific agriculturist.

In 1851-2, with the view of ascertaining, among other points, the comparative value of various kinds of food used for fattening pigs, Mr. J. B. Lawes, of Rothamsted, Herts, the eminent chemist and manufacturer of artificial manures, undertook a series of experiments on a large scale, recorded in a paper illustrated by a series of elaborate tables, which occupy upwards of eighty pages of the 14th vol. of the *Journal of the Royal Agricultural Society*. This paper, of the highest possible value to the scientific agriculturist, few plain farmers or fancy pig-feeders would have the courage to read, or would be able fully to understand, if they did. We shall, therefore, endeavour to give the results briefly and plainly ; they fully confirm the opinions of the most successful pig-feeders.

The food employed in these experiments was composed as follows :—

1. Equal weights of beans and lentils.
2. Indian corn.
3. Bran.

The food was accurately weighed ; and the animals were put into the scales every fourteen days.

For the first series of experiments, forty animals, as nearly as possible of the same character, and age about ten months, were purchased, and divided into twelve pens of three pigs

each, and were all fed alike for twelve days, changed from pen to pen, and the unruly ones whipped, so as to put down the tyrants and enable them all to start fair in the feeding race for weight. When fairly started, twelve dietaries were prepared from three standard food-stuffs, arranged as follows :—

- PEN 1.—Bean and lentil mixture, an unlimited allowance.
- PEN 2.—Two lbs. of Indian corn per pig per day, and an unlimited allowance of the beans and lentils.
- PEN 3.—Two lbs. of bran per pig per day, and beans and lentils unlimited.
- PEN 4.—Two lbs. of Indian corn, two lbs. of bran, and the bean and lentil mixture unlimited.
- PEN 5.—Indian corn alone, unlimited.
- PEN 6.—Two lbs. of beans and lentils, and unlimited Indian corn allowance.
- PEN 7.—Two lbs. of bran per day, and unlimited Indian corn allowance.
- PEN 8.—Two lbs. of bean and lentil mixture, two lbs. of bran, and Indian corn unlimited.
- PEN 9.—Two lbs. of bean and lentil mixture, and bran unlimited.
- PEN 10.—Two lbs. of Indian cornmeal, and bran unlimited.
- PEN 11.—Two lbs. of bean and lentil mixture, two lbs. of Indian corn, and bran unlimited.
- PEN 12.—Bean and lentil mixture, Indian cornmeal and bran, each separately, and unlimited.

This food was duly mixed with water. The animals were fed three times a day ; viz., early in the morning, at noon, and at five o'clock in the evening. The limited food was mixed with a small quantity of that given *ad libitum* in the first two feeds of the day. Great care was taken in the management of the supply of food, both that the troughs should generally be cleared out before fresh food was put into them, and that the pigs should always have a liberal supply within their reach.

In one of the pens, two of the pigs having become unwell, from large swellings in their necks, which affected their breathing, a mixture was prepared, consisting of 20 lbs. of finely-sifted coal-ashes, 4 lbs. of common salt, and 1 lb. of super-phosphate of lime, and placed in a trough. The pigs devoured it with eagerness ; and, from this time, the tumours began to diminish, and entirely disappeared in six

weeks. Three pigs consumed 9 lbs. in the first fortnight, 6 lbs. in the second, and 9 lbs. during the third.

Three sets of pigs, each divided into twelve pens of three pigs each, were devoted to three series of experiments, with the various quantities of the food mentioned; in one series barleymeal taking the place of Indian corn, and the third series being devoted to the trial of *dried Newfoundland codfish*—an article which could be supplied in large quantities at a moderate price—in connection with the other food named. The amount given varied from 1 lb. to 2 lbs. of codfish per day. It was in all cases boiled, and a portion of other food mixed with the soup thus obtained.

The following are the more simple of the conclusions at which Mr. Lawes arrived :—

Indian corn or barleymeal, with a limited supply of bran, is very good food, the bran adding to the value of the manure.

Where the pigs had unlimited access to three kinds of food, viz., the highly nitrogenous pulse mixture, the non-nitrogenous Indian meal, and bran, which is moderately nitrogenous,—they gradually discontinued the proportion of their consumption of the first, as they approached maturity, and throughout only consumed five per cent. of bran.

The average consumption of corn per pig per week was 60 lbs., or about 9 lbs. per day, which produced 10 lbs. to 12 lbs. of meat per week, or about $1\frac{1}{2}$ lbs. per day.

There was a very rapid decrease in the rate of consumption of food to a given weight of animal as it fattens.

The nearer a fattening animal approached maturity, the greater was the proportion of fat in the gross increase obtained.

Indian corn and barleymeal contain less than two per cent. nitrogen, bran about two and three quarters per cent., beans and lentils about four and a half per cent., and dried codfish about six and a half per cent. Dried codfish contains less than one per cent. of fatty matter, beans and lentils two and a quarter per cent., barleymeal about the same, and Indian corn and bran about five per cent. It was found that—

“The larger the proportion of nitrogenous compounds

in the food, the greater was the tendency to increase in frame and flesh, but that the *maturing* or ripening of the animal, in fact, its *fattening*, depended very much more on the amount of 'certain digestible non-nitrogenous constituents in the food.' It also appeared that some of the cheaper highly nitrogenous foods would produce a given amount of gross increase more economically than the expensive ones (peas, beans, &c.) which are usually preferred by pork-feeders.

"If the amount of *gross* produce of meat, in return for a given amount of food, of a given money value, is alone to be taken into consideration; then, in addition to roots, wash, &c., it would be most advantageous to rely for fattening upon highly nitrogenous foods, such as dried fish, or animal refuse, or leguminous seeds, beans, lentils, and the like; because, not only would the weight be obtained at less cost than by the use of cereal grains, but the manure, the value of which must never be lost sight of in calculating the economy of the feeding process, would be much richer than if the latter were employed. But it is not a large amount of gross increase that makes the farmer's profit upon his sties. When pigs are fed freely upon highly succulent food, such as cooked roots, the refuse of starch herbs, and the like, they are frequently found to give a very rapid increase. But pork so fed is found to sink rapidly in the salting process, and to waste considerably when boiled. And although the first batch of pigs so fed may fetch a good price, their character is at once detected, and the market closed against a second sale.

"On the other hand, when pigs are fattened upon the highly nitrogenized leguminous seeds—peas being, however, much less objectionable than some others—the lean is hard, and the fat wastes in cooking. Fish, flesh, and strong oil matters give the pork a rank flavour.

"Finally, it is the interest of the farmer to use highly nitrogenous leguminous seeds, and even refuse flesh, if at command, during the earlier and growing stages of his bacon hogs. But if a constant market is to be secured for pork, barleymeal or other cereal grain must supersede everything else as fattening proceeds."

TABLE OF THE VALUE OF VARIOUS KINDS OF FOOD.

	Wheat	Barley	Oats	Rye	Indian corn	Rice	Peas	Beans	Linseed
Heat & fat-forming ingredients.	666 18 19	596 44 44	531 57 50	502 46 33	712 4	851 7 3	436 40 20	501 82	15 61 109
	703	684	638	581	716	861	496	583	185
Flesh-forming ingredients.	95 7	59 5	44 5	120 35	123	36	264	117	29 28
	102	64	49	155	123	36	264	117	57
	10	4	4	11	90	1	12		113
Fixed oil									Ozotized matter 151 443 Resin 25
Soluble phosphates	3	7	6	42	12	4	20	44	
Husk	140	136	170	108	59	48	83	100	
									Colouring matter 25 25 Coat 1
Water	42	105	130	108		50	125	156	
	1000	1000	1000	1000	1000	1000	1000	1000	1000

TABLE OF THE VALUE OF VARIOUS KINDS OF FOOD—(continued).

	Potatoes	Swedes	White turnips	Cabbage	White clover	Red clover	Lucern	Lentils	Common vetch	Hemp-seed
Starch	150	53	72	60	10	14	22	400	26	
Gum	41	30	25	35	34	35	44	70	76	90
Sugar		90	80	90	15	21	8	15		16
	191	173	177	185	59	70	74	485	102	106
Albumen	14	20	25	25	15	20	19	Legumine 220	19	247
Starchy and } woody fibre }	70				115	139	143	120	104	50
Inorganic matter		5	5	5	8	10	8	25		Husk 383
Loss		2	3	5	Tar and resin 2	1	6	25		7
Fixed oil		800	790	780	800	760	750	125	775	191 Resin 16
Water	750									
	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

CHAPTER X.

THE COTTAGER'S PIG.

Cottager's Pig—Squire Sturt's Opinion—Mr. Chadwick's Objection to the Poor Man's Pig—Picture for Sturt, Kingsley, and S. G. O.—The Peasants' *Conversazione* at the Pig-sty—A Subject for Frith and Ansdel—Rules of the Yorkshire Society for the Cottagers' Pig Class—Advice on Choice of a Pig—Cobbett on Pig-feeding—Killing—Singeing and Salting Bacon—Smoking—Summary.

EVERY cottager with a family should purchase in the spring or summer a bacon pig, to cost about a sovereign (as old a pig as he can get for the money, of good breed), to be fed up to about four-and-twenty score at Christmas. The hams he can sell to buy another pig, and the rest will remain for his own consumption, without seeming to have cost anything. There is no savings bank for the labourer like a pig. Every week a shilling should be spent on meal, and this with *a pig of a good sort*, will make him grow and keep fresh, and require very little to finish off with at last. I heartily agree with the Dorsetshire squire Sturt's speech, at an agricultural dinner, in 1857: "The grunting of a hog in a cottager's sty, sounds sweeter than the song of a nightingale, and sides of bacon are the very best ornaments of the cottage walls." If landlords and farmers would take the trouble to secure to the labourer in every rural parish, a comfortable, convenient cottage, with pigsty and garden, and a well-bred boar for parish use, they would have less reason to complain of the want of labour. There is too much talk about putting down beer-houses without putting up something in their stead, for the comfort and amusement of a class who have neither the mental nor the physical resources of their employers.

There can scarcely be conceived a greater contrast than between the system of prizes given for cottagers' pigs and gardens in Yorkshire, and the system of giving a pound and coat for thirty years' long service, practised in

the south. It seems that it is quite as good a thing to win a fourth prize for a fat hog in Yorkshire as to live thirty years in one service without parish relief in Bucks and Berkshire ; and I am not at all sure that the fat hog is not a better evidence of industry, sobriety, intelligence, and the main qualities that go to make a respectable man, than the certificates on which the pound and the coat are often awarded to the worn-out smock-frock man.

It is true that, in 1842, Mr. Edwin Chadwick, C.B., in his first sanitary report, said that "pig-keeping and cow-keeping were injurious to the condition of the labourer ; that the labouring man pays more dearly for his bacon than he would if he purchased it ready made ; that the possession of a pig created a temptation to steal ; that a labourer had best depend on his wages alone,"—that is to say, have neither the amusement of a garden, nor the benefit of a live savings bank. But fortunately, since 1842 a reaction, almost an insurrection, has put an end to Mr. Chadwick's authority as paid commissioner and professional philanthropist, and stopped the circulation of social and sham-scientific fallacies at public expense. Most land-owners and farmers, and every country parson who knows his duty, stirred up by S. G. O., stimulated by the Rev. Charles Kingsley, and by the speeches of Tory squires, like Mr. Sturt, like to see a hog growing into money in a labourer's sty, even although it does not exactly exhale a spice-island perfume, and may invite a little "mendicancy," to use a hard word for slops and wash, amongst the junior chaw-bacons. But the *Trapbois* class of philanthropists, anxious "*for a consideration*" to arrange the boarding, lodging, clothing, lighting, watering, and educating of the whole community on parallelogram plans, under the inspection of Boards, have very little sympathy with the rude and simple pleasures of the poor.

What a pleasant picture for Squire Sturt, or Parson Kingsley, or S. G. O., the Argus-eyed sharp-penned friend of the oppressed, wherever found, is the hard-working labourer, who, by denying himself many a pint of beer and many a pipe, by extra hours, and close economy on the part of the *missus*, has saved and bought a porker (one of the squire's

or the parson's own sort, on the side of the boar), who has built a sty with his own hands, and set the whole family to work to feed the grunting stranger, from the eldest lad who wheels the barrow laden with a tub of wash, down to the petticoated infants who toddle forth hand in hand to collect sow-thistles or acorns. Artists of renown might do worse than take for a subject the Sunday evening round the sty,—when, surrounded by his hard-fed young ones, daddy in his shirt-sleeves, smoking the “Sunday pipe,” discusses with missus in her best gown and cap—the last baby in her arms—the manifold good qualities, the form, the skin, the ears, the hair, the pork-making propensities of his one specimen of farm live-stock; calculates the weight of the sides of fat bacon, to be eaten with home-grown cabbage, into which piggy is sure to grow; and while pleasantly scratching his head, makes the children's mouths water with the promise of a feast of black pudding, fry, or even roast pork, with brown potatoes in the pan—to be enjoyed about Christmas time.

Then, again, in a pig-feeding village, there are all the delights and extravagances of the lending system, by which, practically, every pig-owner has a share in his neighbour's pig, each lending the other lights, or chitterlings, or even a spare-rib, repaid as each kills his own pig. These make up to the villager the bank, the stock exchange, and the theatre, the concert-rooms of Canterbury Hall and the Britannia, which town-folk monopolize. As for the tragedy of the pig-killing, that is one of the great events, a perfect Victoria drama to the boys of our village.

The following is a copy of the Rules of the Yorkshire Society for encouraging pig-keeping among cottagers.

“RULES FOR COTTAGERS' CLASS.—PIG PRIZE.

“That this Society, being desirous of encouraging the feeding of good pigs among the industrious labourers of this neighbourhood, will allow cottagers living within — miles, to show gratis, by giving fourteen days' notice, previous to the day of exhibition (none will be eligible beyond the

distance specified). [The distance clause is introduced to guard against fraud as to age, as the cottagers of a parish will look sharp after each other].

"COTTAGERS' CLASS.

"The following prizes will be given, free of entrance, *but no publican, beerseller, shopkeeper, or hawker*, will be eligible to show in this class, being intended for the working cottager only (the present condition of the animals not to be taken into consideration). The pigs to have been in their possession two months previous, and not be under six, nor above fourteen months of age.

"For the best pig, large breed, £3 ; 2nd, £2 ; 3rd, £1. For the best middle, £3 ; 2nd, £2 ; 3rd, £1. For the best small, £3 ; 2nd, £2 ; 3rd, £1."

N.B. Some societies exclude *boar segs*, i.e., that have been kept for breeding, and sows that have had litters.

A cottager should not attempt to keep a breeding-sow, unless he has access to some extraordinary resource for feeding her. A sow may get a sufficient living on a waste or along green lanes, in charge of a small boy, until she is in pig ; but a sow that is to bring up a numerous healthy brood must live well both before and after farrowing. If the sow starves, all the piglings starve. Now, to rear pigs profitably they must never know want from the hour of their birth to the day of their death : if at three weeks old they are starved, they never recover, or come to any good. Nothing less than lots of good meal will keep a sow and her brood in good heart, and that must be continued for at least ten weeks ; then there is the expense of weaning. No ; it is safer and cheaper to buy a well-bred pig at twelve or sixteen weeks old, which is able to thrive on the refuse the industry of the cottage family can gather, as well as to graze along the wastes and green lanes. The old, slow breeds require from twelve months to two years to get to perfection and be ripe for making the best bacon ;—nay, a large sow of the old Cheshire breed did not *begin* to lay on fat until two years old, and their fat was never worth 4d. a pound.

A large old-fashioned pig will cost more than it can pay for, to get it ripe, and thus a six-pound pig will cost him seven pounds. One of the improved small or middle breed will generally pay best, grow to fourteen score without costing him five pounds.

It is the object of the cottager to kill in the winter, when the cold weather has fairly set in ; but he cannot always purchase at the most profitable age, because the price for a pig which has only four months to run before being ripe for killing, may be more than he can find in cash, and so he may have to buy a younger one of inferior kind. But cottagers should always keep in mind, in fattening, that time is money, and that it is worth while to make an effort to get a hog that will pay in meat, for every morsel of food ; a very young one consumes time and food in making bone.

The finishing or fattening must be done by degrees, and with solid food, barleymeal, Indian meal, peas (not too many), bran, with good wash ; bacon fed on grass and roots, boils away to grease.

Mast of beech, and acorns, when collected cheaply, do very well for feeding growing pigs, but in this country, quite spoil bacon if used up to the last. We presume that in southern countries the acorns contain more sugar than in our colder climate. A few well-bred small black pigs pay well to run during autumn in plantations of oaks or beech.

A cottager's pig cannot be too fat, but he must be fatted by degrees, or he will be liable to surfeit. The cottager must remember that the dung of a well-fed pig is much more valuable than of a half-starved one. It is a good plan to have the pig manure mixed with the contents of the privy, and well covered with ashes or earth until wanted for use.

A pig should be made quite fat for flitches. "If he can walk two hundred yards," said old Cobbett, and no one understood cottage economy better than he did in his day, "he is not fat." Let him eat as he sits. Lean bacon is the most wasteful thing any family can use—for, says the same plain speaker, "the man who cannot live on solid fat bacon, well fed and well cured, wants the sweet sauce of labour." "But then it must be *bacon*, the effect of meal and peas (not beans only), and not of whey, potatoes, or messes of any kind."

"About Christmas, in cold weather, is the time for killing a bacon pig—if the weather is very mild, it is better to wait and push on the fattening a little farther. It will be found cheaper to send for a butcher and pay him a shilling, than to trust to a new hand for killing a pig. Scalding is the usual mode of taking the hair off, but singeing is a much better plan. Scalding slackens the skin, opens all the pores, makes it loose and flabby by drawing out the roots of hair. Singeing contracts all the sinews and veins in the skin, makes it protect the meat better, and the flitch more solid. The reputation of the Hampshire bacon is partly due to the practice of singeing prevailing in that county, which makes the meat better."

"As the hair is to be burned off, it must be dry, and care must be taken that the pig be kept on dry litter for some days previous to killing. When killed, he is laid upon a narrow bed of wheat straw, not more than two or three inches thick, and not wider than his carcass; he is then covered thinly with straw, and a light put at the end toward which the wind first blows, so as to carry the flame and spread it regularly over the carcass—it will require two or three coverings and some knack to burn off all the hair without burning any part of the skin. When the hair is all burned off, the pig is to be scraped clean, but not touched with water; when one side is finished, the carcass must be turned and the other side treated in like manner; this work must be begun and finished early on a moonlight morning before dawn, as you cannot see so well in the daylight as in the dark whether the hair is burned off; of course singeing does not do for fresh pork. The entrails are taken out next, and here, pig's-fry, black-puddings, chitterlings, and materials for sausages—something for broth, as well as to fry. Now is the time for making a present, or repaying a kindness to a friend. The next step is the cutting up, and there again is a feast of pork for roasting and boiling, and, if not considered extravagant, for pork pies.

"The house is filled with meat, souse griskins, blade-bones, thigh-bones, spareribs, chines, belly-pieces, cheeks. And the good wife has something to do in rendering down the lard."

The cutting up is a butcher's business, but every sensible labourer's son will look on and learn how to do it himself. We have told in a separate chapter "How to cut up a Pig," for the benefit of colonists who may have to turn Jacks-of-all-trades.

But every cottager should know how to preserve his own bacon ; so we give, out of many recipes, Cobbett's, which is plain and sensible :—

"Take the two sides, or flitches ; rub them with the best salt on their insides, and then place them one on the other, the flesh-side uppermost, in a salting-trough, *which has a gutter round its edges to drain away the brine.* The flitches must be always dry while curing ; if they lie sopping in brine, they will become, not savoury bacon, but bad pickled pork ; therefore change the salt often ; it is cheap enough, while good bacon is dear. Every four days change the salt ; let it melt and sink in ; but let it not lie too long. Change the flitches, too, putting that at the bottom that was at the top. Do this twice. The time for finishing the flitches depends on the thickness of the flitch and the state of the weather ; the salt takes more quickly in damp than in dry weather. The place for salting should be like a dairy—cool, with a free circulation of air. A close place, even although cool, will rapidly taint meat. Ventilation is equally necessary for live creatures and dead meat. The flitches of a hog of twelve score, in average weather, neither very dry nor damp, will do in six weeks."

Bacon is smoked in many parts of the country, in order to make it dry. There is a good deal of knack in the operation ; and, where you can, the best way is to get some experienced hand to show how it is done. A wide chimney is needed, where the flitches can be hung high enough up, and yet not be exposed to rain. The smoke must be of wood—oak, beech, ash—but not of pine or deal. Over-smoking makes bacon *rusty*. Before smoking, the fat side of the flitch should be well covered with the sawdust of some dry wood—not deal or fir. Bran would do, and form the needful crust. A flitch should be dry, yet not too dry. When dry, instead of hanging them up, some people lay the flitches in

a wooden box, one by one, carefully buried in wood ashes, peat ashes, or even very dry sand, or anything else that will keep out the air ; each flitch to be covered separately. If the ashes become damp by imbibing the salt, they must be taken out and replaced by other dry material.

"All this will take time and trouble ; but it will be well worth it," says Cobbett ; for "bacon is always ready, as good hot as cold, in busy times demanding the pot only to be boiled once a week, has twice as much strength in it as any other thing of the same weight, and, in short, has in it every quality that tends to make a labourer's family able to work well." But it must be well fed. One pound of well-fed bacon will weigh as much as a pound and a half of slopped bacon, *when they both come out of the pot.*

No cottager's allotment is complete without a pig-sty and a good pig : for the pig, first, eats all the refuse ; secondly, supplies three or four loads of good dung ; and, thirdly, gives not only a relish, but a great addition to boiled cabbage, peas, and beans. Beans without bacon boiled with them are positively unwholesome ; while a very large cabbage, cut in half, then tied in, and with a bit of fat bacon the size of a lemon in the middle, and well boiled, is a dish for an emperor—if ever emperors are hungry.

To recapitulate, the cottager should have,—

1. A pig-sty facing the south, well-drained, well-ventilated in the sleeping compartment, warm, and perfectly dry.
2. A well-bred pig.
3. A wife who has education enough, or wit enough to learn how to cure and cook the bacon.

CHAPTER XI.

BREEDERS OF PRIZE WINNERS—HINTS ON PRIZES.

Berkshires—Large Yorkshires—Prizes to Small Breeds—Names of Breeders—Mistake in R.A.S.'s Pig Classes—Tyrrell's Opinion—Yorkshire Advice on "Pens of Three Sows"—Arrangement of Yard—Berkshires to have a Separate Class.

It was part of my original plan to give a list of the principal pig-breeders who have received prizes during the last twenty years from the Royal Agricultural Society, but after much labour, I found that such a list would be full of repetitions, take up a great deal of space, and from the studied mystery of many of the entries, convey very little information in proportion to the space occupied.

Some very successful exhibitors are not breeders at all ; they select judiciously and feed skilfully.

Mr. William Hewer, of Sevenhampton, Mr. William Sadler, of Bentham, both in Wiltshire, and Mr. Edward Bowley, of Siddington House, Cirencester, occupy a prominent position as breeders of improved Berkshires.

The **BERKSHIRES** took the prizes for large-breed boars, first and second ; for a pen of three sows, under eight months old, in 1854 ; for a pen of three sows in 1855 ; for boar (first prize) and three sows, large breed, in 1856 ; for the best pen of three sows in 1858 ; for the second prize boar and third prize sow, and second prize for best pen of three sows, the first prize going to a half-bred black-and-white Berkshire and Yorkshire pen.

The **LARGE WHITE YORKSHIRE** took the prizes first and second for boars, and first for a sow, in 1855 ; the second boar and first sow in 1856 ; the first and second boars in 1857 ; the first and second boars and first sow in 1858 ; the first and third boars and the second sow in 1859. In 1854, the second prize went to a white boar from Notts breed,

not named, and the first sow to a "large Cheshire," which no doubt was of York-Lancaster blood.

The **SMALL-BREED PIGS** went, in 1854, to a black improved Leicester, the first prize boar; the second prize boar to a York; the sow to a York; the pen of sows to a Coleshill, *i.e.*, York; in 1855, first boar to a York; second, to a Devon-Essex; first sow to a Cumberland; best pen of three to Cumberlands. In 1856, first prize boar to a black (Mr. Crisp's); second, to a York; first sow to a York-Cumberland (Mr. Hayward calls them Sussex); pen of three sows to Cumberlands. In 1857, the first and second boars to York; first sow to Cumberland-York; best pen of three sows, Cumberland-York. In 1858, the first and second boars to Cumberland-York; first sow, York; best pen of sows, York. In 1859, first prize boar, York-Cumberland (Windsor); second boar, Mr. Crisp's black (breed unknown); first sow, Crisp's black; best pen of sows, Windsor-Yorks; second best pen, Cumberland.

From this it will be seen that in large breeds the Berkshire and large Yorkshire very evenly divide the honours for boar and sow prizes; for young sows, the Berkshires have the advantage.

In small breeds the success of the Cumberland-Yorks, York-Cumberlands, is overwhelming.

Mr. Carswell, of Park House, Butley, near Macclesfield, and Mr. Wainman, of Carhead, near Leeds, seem to be very prominent as breeders of the large Yorkshires. In small Yorkshires the following are leading breeders:—

Mr. Wiley, of Brandsby: he informed the reporter and steward of the Royal Agricultural Society's Meeting at Warwick that he had bred a number of first-class pigs out of a sow he obtained in 1817, from the celebrated founder of the Short-Horns, Robert Collings, of Brampton, and had kept up a true pedigree from that date. As I have before mentioned, Mr. Wiley exhibited his pigs as improved white Leicesters up to 1847.

In 1854, I find the late Mr. Marriott, of Floore, Northamptonshire, who was successful in winning prizes, commended by the Royal Agricultural Society for several entries of "Leicester-Yorks bred by S. Wiley, of Brandsby;"

but Mr. Wiley now exhibits his pigs as Yorkshire small-breed.

Mr. R. H. Watson, of Bolton Park, Wigton, Cumberland, has a great reputation, and has won prizes almost every year with his small Cumberlands. At Carlisle he produced his sows, "Faith," "Hope," "Charity;" at Chelmsford, "Friendship," "Love," and "Truth;" at Salisbury, "We," "Must," "Win,"—and did win with his "We's" on each occasion.

Mr. George Mangles, whom I have already mentioned more than once, has been a large and successful exhibitor of York-Cumberlands* of the small breed.

Mr. Umbers, of Wappenbury, near Leamington, has received repeated commendations for his Yorks of the small breed.

Mr. Brown's (of Aspatia) services to the Cumberland small breed I have already mentioned.

There are, probably, other breeders of merit whose names have not come under my notice; but the names contained in this and the previous chapter on breeds will be a sufficient guide to the foreigner who requires the pure blood of York or York-Cumberland, Berskshire, Essex, or black pigs, partaking of both Berks and Essex blood.

Mr. Strafford, the editor and owner of the "Short-horn Herd Book," generally has some good Yorkshire pigs (small breed) for sale at his farm at Willesden, near London, and so has his neighbour Peat.

I have not thought it necessary to say anything about preparing and feeding prize-winning pigs. That requires the assistance of a skilled servant, and an apprenticeship to the trade into the bargain.

Prize pigs are usually over-fat, even at a breeding show, and are fed on everything that is good, including new milk and rum, apples, and London porter. A bottle of port wine is sometimes used to restore tone to an exhausted boar after a long journey.

In fact, prizes are oftener guide-posts than goals—they

* He has won forty-six prizes and forty commendations since 1853, from the Royal, the Highland, and divers local shows.

show where to go and get what you want. The boar may be too heavy or the sow too fat ; but the brother or sister blood will serve the purpose well.

HINTS ON PRIZES.

The conditions of the competition for the pig prizes offered by the Royal Agricultural Society of England have recently been altered ; but they might be still further amended with advantage.

The prizes were formerly offered—For large breeds, boars and sows ; small breeds, boars and sows, without distinction of colour.

For 1860 the prize list runs thus :—1. Large breeds. 2. Small white. 3. Small black. 4. Pigs of any colour not eligible for the other classes.

It is quite certain that a Yorkshire judge will never give a large-breed prize to a Berkshire ; and equally certain that a Berkshire or West of England judge will only give prizes to a black pig.

It seems that at the two last exhibitions of the Bath and West of England Society Berkshire and black pigs carried off all the prizes, black being, as before observed, the colour considered suitable for profitable grazing in the western district.

Mr. Tyrrell, a West of England pig-fancier, two years ago called attention to the absurdity of giving prizes for pigs which, to win, must be farrowed in November, December, or January, the three coldest months in the year—the three months that every practical farmer would avoid in arranging the farrowings of his sows.

One of my Yorkshire correspondents gives additional and strong reasons for changing these pig prize conditions.

“No pigs under seven or eight months old have any chance in the classes ‘for three breeding sows above four and under eight months old,’ unless they are at least seven or eight months old, and at that age they can be got so fat—and must be, to win—that they are generally for ever after spoiled for breeding purposes. The age should be

above two and under four months old for either young sows or boars. Well-bred sows come into 'season' at four months, and therefore they should not be kept in the same pen with the boars any longer.

"The result of the change would no doubt be a great increase in the entries in the store classes; intending purchasers could select breeding pigs of both sexes from good *spring* litters of a convenient size to send by rail."

A confusion of classes is now produced by the arrangement of putting all the boars, and then all the sows, together, or rather in sequence. Visitors can hardly tell where one begins and another finishes. It would simplify the arrangements very much if, instead of the medley of large and small, black and white, they were arranged—"boars of a large breed, sows of a large breed, pens of three sows of large breed, &c.; then boars of small breed, sows of small breed, and pens of three of the same breed." The exhibitors would be able to concentrate their assistants' and their own attention, and the visitors would be able to view all the ages of a family at once.

There is another point worth consideration. "The sale of young pigs at agricultural shows is enormous. To meet this demand, breeders often enter an indifferent sow with eight or ten pigs of two or three months old. These are squeezed into a pen intended for one sow only, and are nearly trampled to death, until the steward of the yard interferes and accommodates the family by spoiling the symmetry of the yard with projecting hurdles. These broods would be reduced in number by diminishing the age in the class before mentioned; but it would be well to make a specific charge for every pigling that was not an absolute sucker, and provide space according to the payment. For settling this question, it need not be necessary to investigate the age; it would be a more simple plan to rule that every pigling *more than so many inches long* should be subject to rent.

There can be no doubt that the Royal Shows are as important and useful as places of sale as places of competition, and the only way to keep down inferior entries is to make the charge for space sufficiently high.

The more carefully the prize lists and commendations are

examined, the more clear does it seem that a separate class should be created for Berkshires and for large white pigs. It seems agreed among all feeders that the Berkshire is most profitable as a middle breed ; but it constantly appears at breeding-shows in the large classes of a size that few farmers would retain for profit. This is one of the abuses of the prize system. The Berkshire has been improved by being reduced in size ; and now prizes are offered for boars either too old or too big.

A live-stock committee might be formed and sit with advantage for one evening during the annual meetings of the Royal Agricultural Society, to collect evidence and digest a report on the stock classes and prizes.

CHAPTER XII.

THE MEAT OF THE PIG.

Meat of the Pig—Sucking-Pigs—Killing—Preparing Dead—Cutting up—To Cure Bacon and Hams—Yorkshire—Hampshire—Berkshire—Buckinghamshire—Kent—Somerset—Wiltshire—Westmoreland—Scotland—Westphalia—Pickling Pork—Hamburgh Pickle.

SUCKING-PIGS.

SUCKING-PIGS pay well near fashionable markets. When this is the case, the best plan is to put a prolific sow of a large breed (there is none better than the large improved Yorkshire, as they are good mothers) to a small, well-bred boar. The Essex, and, I believe, the black Sussex suckers, are white, when properly scalded. Youatt quotes from Charles Lamb's "Essays of Elia," his admirable rhapsody on sucking-pigs:—

"Of all the delicacies of the whole *mundus edibilis*, I will maintain this to be the most delicate.

"I speak not of your grown porkers—things between pig and pork—these hobbydehoys; but a young and tender suckling, under a moon old, guiltless, as yet, of the sty; with no original speck of the *amor immunditie*, the hereditary failing of the first parent, as yet manifest; his voice has not yet broken, but something between a childish treble and a grumble, the mild forerunner or *prælude* of a grunt.

"*He must be roasted.* I am not ignorant that our ancestors ate them seethed or boiled; but what a sacrifice of the exterior tegument!

"There is no flavour comparable, I will contend, to that of the crisp, tawney, well-watched, not over-roasted *crackling*, as it is well called. The very teeth are invited to their share of the pleasure at this banquet, in overcoming the coy, brittle resistance with the adhesive oleaginous—oh, call it not fat! but an indefinable sweetness growing up to it—the

tender blossoming of fat—fat cropped in the bud—taken in the shoot—in the first innocence—the cream and quintessence of the child-pig's yet pure food. The lean ! no lean ; but a kind of animal manna, or, rather, fat and lean (if it must be so) so blended and running into each other, that both together make but one ambrosian result, or common substance.

“Behold him while he is doing !—it seemeth rather a refreshing warmth than a scorching heat that he is so passive to. How equally he twirleth round the string. Now he is just done. To see the extreme sensibility of that tender age : he hath wept out his pretty eyes—radiant jellies—shooting stars. See him in the dish, his second cradle ; how meek he lieth ! Wouldst thou have this innocent grow up to the grossness and indocility which too often accompany maturer swinehood ? Ten to one he would have proved a glutton, a sloven, an obstinate, disagreeable animal, wallowing in all filthy conversation ; from these sins he is, happily, snatched away :

Ere sin could blight or sorrow fade,
Death came with timely care.

His memory is odoriferous : no clown curseth whilst his stomach half ejecteth the rank bacon ; no coalheaver bolteth him in reeking sausages : he hath a fair sepulchre in the grateful stomach of the judicious epicure, and for such a tomb might be content to die.

“Pig—let me speak his praise—is no less provocative of the appetite than he is satisfactory to the criticalness of the censorious palate. The strong man may batten on him, and the weakling refuseth not his mild juices.

“Unlike to man's mixed characters, a bundle of virtues and vices, inexplicably intertwined and not to be unravelled without hazard, he is—good throughout. No part of him is better or worse than another. He helpeth, as far as his little means goeth, all around.”

Sucking-pigs should be killed at from a fortnight to three weeks old. They should be stuck ; all the blood suffered to drain out ; scalded and scraped gently ; and the bowels taken out, and the inside sponged dry and clean. Each

sucking-pig will weigh from nine to fourteen pounds. True dairy-fed pork is in perfection at from three months to seven months.

PIG-KILLING.

A pig that is to be killed should be kept without food for the last twelve or sixteen hours ; a little water must, however, be within his reach.

PREPARING THE DEAD PIG.

As soon as the hog is dead, if it is intended for pork let it be laid on a board or table, and scalded with water nearly but not quite on the boil, and well scraped to get off all the hair and bristles. Bacon hogs may be singed by enveloping the body in straw and setting the straw on fire, and then scraping it all over ; but when this is done care must be taken not to burn. (*See directions by Cobbett, in chapter on Cottager's Pig.*)

CUTTING UP A PIG.

Fresh pork is brought to market in two forms. In the first stage, in porklings, the carcasses weighing from 40lbs. to 80lbs. each. In this stage it is jointed into hams, hands, spareribs, loins, and belly-pieces.

The spareribs and loins are always used as roasting-pieces ; the hams indiscriminately for roasting and pickling. The hands and belly-pieces are always pickled. In this state the outside fat and skin, or crackling, is cut along with the lean part, and so served at table.

The other form in which fresh pork is sold is, when the pig has arrived at a pretty mature state, and is fit to make bacon. The only parts, however, sold as fresh meat, are the sparerib and loin, together with the steaks off the shoulder. Along with the loin and sparerib some persons

cut off the whole of the ribs. This is a bad practice, as the short ribs greatly aid in curing bacon, and should always be left on the side.

The ribs should be divided with a saw, midway between the breast and backbone. A sharp knife should be employed to cut out the lean or muscular part of the neck and loin from its exterior covering of fat, the cutter-up having previously divided with a saw the *aitch*, or haunch-bone.

He commences cutting at the neck, and makes a clean cut down to the loin, leaving only a thin portion of the muscle or lean part, about the thickness of a shilling, attached to the fat or back part. As many more cuts are made in the same direction as are required to separate the joint up to the point where the ribs had previously been divided by the saw.

Steak-pieces for frying, or sausages, or pies, may now be cut off the lean parts of the hand, which permits the shoulder being easily separated.

The foreshank may either be cut out or left in ; if for home use it had better be cut out, and used as pickled pork.

The ham can now be cut off, commencing where the ham joins the flank, and cutting so that the outside skin will form a circle or ellipse with the skin that lines the inside of the ham.

For home use, or where the retailer has a demand for bacon and hams, there is no method that economizes the meat so much : for the lean of the neck and loin lose greatly in weight during salting, especially if the bone be separated so as to leave it bare.

Lard.—Before preparing the carcass for bacon, the whole of the omentum, or lard, ought to be taken out. Some bacon-curers render down the caul with the lard. If the caul is taken out carefully, and well washed, this may be done without deteriorating the lard.

Lard is rendered down by being first cut up into pieces, and placed in a boiler with a little water. As it melts it is strained and poured off into bladders. It requires

great attention to melt it without burning it. When all is melted, the rest is pressed. What remains after pressing, is the stuff sold as greaves, to feed dogs and fowls.

TO CURE BACON AND HAMS.

There are endless recipes for curing hams and bacon : but in Cumberland, Westmoreland, and Yorkshire, no sugar is used, except in a paste outside, to protect against flies. The sweet taste of the hams arises from the butter-milk and oatmeal on which the pigs are fed. To have a ham in perfection, it is an old country saying that the hog ought to be three years old, and that will not pay the farmer. It is most important that bacon should be well dried before it is put away, and then kept dry, and not allowed to touch either wall or other fitches.

One pound and a half of salt and one oz. of saltpetre are enough to salt 14l bs. of meat, or 2 cwt. of meat will require 24 lbs. of salt.

For salting on a large scale we give the cottage directions in a separate chapter. The following is Mr. Rowlandson's plan :—

“Having cut up a well-fed hog, which absorbs much less salt than an ill-fed animal, and runs very little risk of being over-fed, salt and saltpetre, in the proportions above mentioned, must be sprinkled over the fitches, &c., and then they must be laid one over the other in a slate trough, or a wooden trough lined with lead, to the number of half a dozen ; in the course of twenty-four hours or forty-eight hours, according as the salt is converted into brine (and this will depend on the weather—in frosty weather the meat will not take the salt, and in moist weather it is apt to spoil), the sides are removed, rubbed, replaced in inverse order, the top at the bottom, with a little fresh salt sprinkled between each course, and the brine thrown over the whole. In favourable weather for curing, once turning and replacing will be found enough, and will not occupy more than a week. Packed dry, with layers of salt, and covered with canvas, bacon is thus prepared ‘green’ for the London

markets, and thence drawn to be smoked, as required for consumption.

"The West of England bacon is sent to London direct, because it travels by land. A sea-voyage spoils smoked bacon. Smoking is now a trade to describe which would be useless. For curing hams, they should be rubbed with a mixture of salt and saltpetre, then laid with the shank end lowest, at an angle of forty-five degrees, in the trough, and so on with every row : at the second or third day they should be well rubbed with brine and salt, set up as before, with a little fresh salt and saltpetre, in two more days they should be again rubbed and packed flat and as close as possible, the thick part of one row against the shanks of the next row, by which means they will be nearly covered with their own pickle. In a week or ten days they will be cured ready for drying, which should be done by taking them out of pickle, setting them upright with the shanks downwards, and a little dry salt thrown over the thick end. After being thus left for a week longer, they will be ready for hanging in the drying-house, which is, in fact, a slow stove.

"Women will succeed best in curing bacon or ham by using a brush like a horse-brush, fastened with a strap, instead of their bare hands, to rub in the salt. This rubbing is often overdone.

"Nothing makes better hams or bacon than a well-bred sow spayed after producing four or five litters."

In Hampshire and Berkshire the practice is to choose a dry day, when the wind is blowing from the north, and kill the hog early in the morning (it having fasted the day before). When dressed, hang him up in some airy place for twenty-four hours, then proceed to cut him up. This being done, lay the flitches on the ground, and sprinkle them with salt lightly, so let them remain for six or eight hours ; then turn them up edgeways, and let the brine run off. In the mean time take two or three gallons of best salt, and two ounces of saltpetre, pounded very fine, and well mixed together ; and the salting-bench being made of the best seasoned oak, proceed to salt the flitches by rubbing in the salt on the back side of the flitch. This being done,

turn the inside upwards, and lay on the salt about a quarter of an inch in thickness : in like manner treat every flitch. On the third day afterwards change the flitches, viz., take off the uppermost and reverse them, at the same time laying on salt a quarter of an inch in thickness. There will be no need of rubbing as before mentioned, neither should the saltpetre be repeated, otherwise the lean of the bacon will be hard. The changing and salting should be done every third day for six successive times, when the bacon will be sufficiently salt. Then proceed to rub off all the stale briny salt, and lay on each flitch a covering of clean fresh bran or sawdust, and take it to the drying-loft. It should be there hung by means of crooks fastened in the neck of the flitch, and remain for fourteen or sixteen days. The fuel most proper for drying bacon is cleft oak or ash, what is commonly called cord wood.

In Buckinghamshire, as soon as the flitches are cut from the hog they lay them on a form or table in a slanting position, and, supposing the whole hog to have weighed 12 or 14 score, take a quarter of a pound of saltpetre, pounded very fine, and sprinkle it all over the flitches, rubbing it well, into the shoulder parts especially ; they then suffer them to remain twelve hours, after which they should be rubbed dry, and in the mean time seven pounds of salt mixed with one pound and a quarter of coarse brown sugar put into a frying-pan and heated on a clear fire, stirring it well, that it may all be of the same temperature. This mixture, as hot as the hand possibly can bear it, may now be rubbed well into the flitches, which are then put one upon the other and laid into a salting-pan or other contrivance, in order that the brine may form and be kept from wasting. The bacon must be kept in this situation four weeks, turning and basting it well with the brine twice or thrice a week. At the expiration of this time take it from the brine, hang it up to dry, and smoke it, if preferred, which, in the absence of a regular smokehouse, may be done as follows :—Hang up the bacon in a chimney or other orifice, then underneath put down a layer of dry straw, upon this a layer of mixed shavings, keeping out those from deal or fir, next a good layer of sawdust and some juniper-berries, or branches where

procurable, and over all a mantle of wet straw or litter, which makes the fire give out much smoke without burning away too rapidly. This smoking must be repeated three or four times, or till the bacon appears thoroughly dry, when it may be hung up in the kitchen, or any dry place convenient.

In Kent the hog is *swealed* or singed, in preference to scalding and scraping the skin, as this latter process, it is considered, tends to soften the rind and injure the firmness of the flesh. The flitches are rubbed with dry salt and saltpetre in the proportion of one-third of the latter to two of the former, and laid in a trough, and there each one sprinkled over with this mixture. Here they continue for three weeks or a month, according to their size, during which time they are taken out once in two or three days and well rubbed with the brine, and turned.

They are dried before a slow fire, and this process occupies about the same time that the salting has done. When it is completed, the flitches are either hung up in a dry place, or deposited on stone slabs until wanted for domestic use.

In Somerset and Wiltshire the following is the common process:—

When the hogs are prepared, the sides are first laid in large wooden troughs and sprinkled over with rock-salt, and there left unmoved for four-and-twenty hours, in order to let all the blood and other superfluous juices be completely drained off from them.

After this they are taken up and thoroughly wiped, and some fresh bay-salt, previously heated in an iron frying-pan, is rubbed into the flesh until it has absorbed a sufficient quantity. This rubbing is continued for four successive days, during which the flitches are usually turned every second day. Where the large hogs are killed it becomes necessary to keep the flitches in brine for three weeks, and after that interval to turn them out and dry them in the common manner.

In the county of Westmoreland, which is celebrated for the flavour of its hams, the following method prevails:—First they are thoroughly rubbed, usually with bay-salt alone, after which some curers advise that they shall be closely covered up, while others leave them on a stone for

the purpose of draining off the brine. At the expiration of five days this friction is repeated with equal diligence, but the bay-salt is then combined with somewhat more than an ounce of saltpetre to each ham. They are next suffered to lie about a week either in hogsheds among the brine, or on stone benches, after which they are hung up in the chimney to dry. In this last part of the process there is a difference of practice. By some they are suspended so that they shall be dried solely by the heat arising from the fire below, without being exposed at all to the smoke; while by others they are hung up in the midst of the smoke, whether this arises from coals or peat.

In Yorkshire, after the pig has been killed, it is allowed to hang twenty-four hours previous to being cut up; one pound of saltpetre is then rubbed into a twenty-stone pig (of fourteen pounds to the stone), and one and a half or two stones of common salt, taking care that it is well rubbed in; it is then put into a tub kept for the purpose. After having lain a fortnight it is turned over, and a little more salt applied—say half a stone. It then remains a fortnight longer in the pickle-tub; whence it is taken and hung up in the kitchen, where it remains two months to dry; but should the winter be far advanced, and dry weather set in, a shorter period might suffice. After being taken from the top of the kitchen, the inside is washed over with quicklime and water to preserve it from the fly; it is then removed into a room not used by the family, away from heat, and where it will be kept perfectly dry and is ready for use at pleasure. The smoking system is rarely adopted.

Mr. Henderson, in his "Treatise on Swine," gives the following account of the mode of curing bacon and hams in Scotland:—

"In killing a number of swine, what sides you may have dressed the first day lay upon some flags or boards, piling them across each other, and giving each fitch a powdering of saltpetre, and then covering it with salt. Proceed in the same manner with the hams themselves, and do not omit giving them a little saltpetre, as it opens the pores of the flesh to receive the salt, and, besides, gives the ham a pleasant flavour, and makes it more juicy. Let them lie in

this state about a week, then turn those on the top undermost, giving them a fresh salting. After lying two or three weeks longer, they may be hung up to dry in some chimney or smoke-house ; or, if the curer chooses, he may turn them over again, without giving them any more salt ; in which state they may lie for a month or two, without catching any harm, until he has convenience for drying them. I practised for many years the custom of carting my flitches and hams through the country to farm-houses, and used to hang them in their chimneys, and other parts of the house, to dry, some seasons to the amount of five hundred carcasses. This plan I soon found was attended by a number of inconveniences, yet it is still common in Dumfriesshire.

“About twenty years ago I contrived a small smoke-house of a very simple construction. It is about twelve feet square, and the walls about seven feet high. One of these huts requires six joists across, one close to each wall, the other four laid asunder at proper distances. To receive five rows of flitches, they must be laid on the top of the wall. A piece of wood, strong enough to bear the weight of one flitch of bacon, must be fixed across the belly end of the flitch by two strings, as the neck end must hang downwards. The piece of wood must be longer than the flitch is wide, so that each end may rest upon a beam. They may be put so near to each other as not to touch. The width of it will hold twenty-four flitches in a row, and there will be five rows, which will contain one hundred and twenty flitches. As many hams may be hung at the same time above the flitches, contrived in the best manner one can. The lower end of the flitches will be within two and a half or three feet of the floor, which must be covered five or six inches thick with sawdust, which must be kindled at two different sides. It will burn, but not cause any flame, to injure the bacon. The door must be kept close, and the hut must have a small hole in the roof, so that part of the smoke may ascend. That lot of bacon and hams will be ready to pack up in a hogshead, to send off, in eight or ten days, or a little longer if required, with very little loss of weight. After the bacon is salted, it may lie in the salt-house, as described, until an order is received.

"I found the smoke-house to be a great saving, not only in the expense and trouble of employing men to cart and hang it through the country, but it did not lose nearly so much weight by this process. It may be remarked, that whatever is shipped for the London market, or any other, both bacon and hams, must be knocked hard, and packed into a sugar-hogshead, or something similar, to hold about ten hundredweight. Bacon can only be cured from the middle of September until the middle of April."

The annexed system is the one usually pursued in Westphalia :—

"Six pounds of rock salt, two pounds of powdered loaf sugar, three ounces of saltpetre, and three gallons of spring or pure water, are boiled together. This should be skimmed when boiling, and when quite cold poured over the meat, every part of which must be covered with this brine. Small pork will be sufficiently cured in four or five days ; hams, intended for drying, will be cured in four or five weeks, unless they are very large. This pickle may be used again and again, if it is fresh boiled up each time with a small addition to the ingredients. Before, however, putting the meat into the brine, it must be washed in water, the blood pressed out, and the whole wiped clean.

"Pickling-tubs should be larger at the bottom than at the top, by which means, when well packed, the pork will retain its place until the last layer is exhausted. When the pork is cool, it may be cut up, the hams and shoulders reserved for bacon, and the remainder salted. The bottom of the tub or barrel should be covered with rock salt, and on it a layer of meat placed, and so on until the tub is filled. The salt should be used liberally, and the barrel filled with strong brine boiled and skimmed, and then cooled.

"The goodness and preservation of hams and shoulders depends on their smoking as well as their salting. Owing to some misconstruction of the smoke-house, and to the surface of the meat not being properly freed from saline matter, or other causes, it not unfrequently happens that during the process of smoking the meat is constantly moist, and imbibes a pyroligneous acid taste and smell, destructive of its good qualities.

"The requisites of a smoke-house are, that it should be perfectly dry ; not warmed by the fire that makes the smoke ; so far from the fire, that any vapour thrown off in the smoke may be condensed before reaching the meat ; so close as to exclude all flies, mice, &c., and yet capable of ventilation and admitting the escape of smoke.

"The Westphalian hams, the most celebrated in Europe, are principally cured at and exported from Hamburg. The smoking of these is performed in extensive chambers, in the upper stories of high buildings. Some are four or five stories high, and the smoke is conveyed to these rooms from fires in the cellar through tubes, on which the vapour is condensed and the heat absorbed, so that the smoke is both dry and cool when it comes in contact with the meat. They are thus kept perfectly dry, and acquire a colour and flavour unknown to those smoked in the common method.

"Hams, after being smoked, may be kept any length of time by being packed in dry ashes or powdered charcoal, or by being kept in the smoke-house if that is secure against theft, or a smoke is made under them once a week. When meat is fully smoked or dried, it may be kept hung up in any dry room by slipping over it a cotton bag, the neck of which is closely tied around the string that supports the meat, and thus excludes the bacon-bug, fly, &c. The small part of a ham or shoulder should always be hung downward in the process of smoking, or when suspended for preservation."

PICKLING PORK.

For pickling pork the sides should be rubbed over with sugar and salt, and then laid in a brine-tub, in which a thick layer of salt has already been strewn, and a slighter one of sugar ; the pork must be cut into such pieces as will admit of its lying quite flat in the tub ; the rind must be placed downwards, and between each layer of pork a layer of salt and sugar. When the tub is quite full, a layer of salt sufficiently thick to exclude the air must be spread over the whole, and the tub covered closely up and left for a week or

ten days ; if by this time the brine has not begun to rise, warm water should be sprinkled over the top layer.

Pork pickled in this way will be ready for use in about three months, and with proper care will be as good at the end of two years as it was when first begun. The sugar is considered to impart a finer and richer flavour than saltpetre, although the latter is most commonly used. There is no reason why both sugar and saltpetre may not be advantageously combined with the salt in pickling pork as well as in salting beef ; for in this latter process there can be no question that a pickle composed of three parts salt, one part saltpetre, and one sugar, is the very best that can be used, making the meat tender, juicy, well-flavoured, and fine-coloured.

HAMBURG PICKLE.

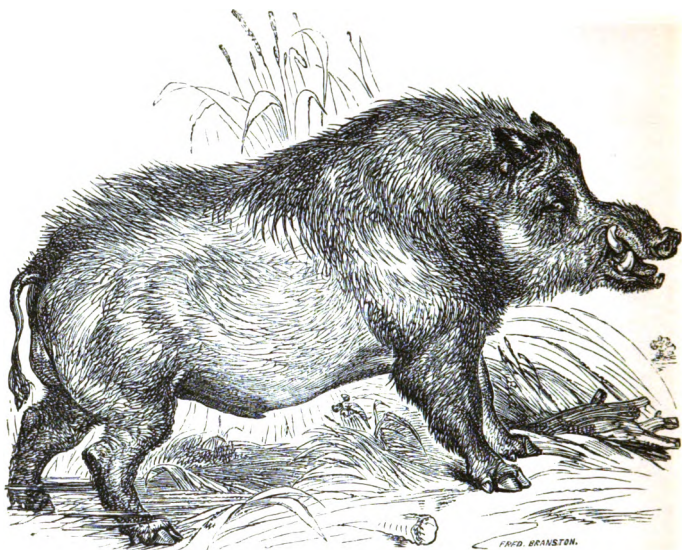
The following excellent pickle, for either pork or beef for domestic use, the editor can recommend from long personal experience :—Half a pound of salt, two ounces of brown sugar, one ounce of saltpetre, one gallon of pump-water : boil all together ; when cold, pour over the meat. From a fortnight to three weeks will make it delicious, and of a beautiful pink colour, yet not hard.

END OF PART THE FIRST.

PART II.



ANCIENT HISTORY AND NATURAL HISTORY OF THE HOG.



WILD BOAR.

Page 117.



OLD ENGLISH HOG.

Page 4.

CHAPTER I

1. The first Definition of a language is that it is a system of signs, the form of which is determined by the nature of the signs themselves, and the sense of which is determined by the nature of the things which they signify.

The first thing which is to be considered in the study of language is the question of the origin of language. According to Chomsky, language is a system of signs, the form of which is determined by the nature of the signs themselves, and the sense of which is determined by the nature of the things which they signify.

The second thing which is to be considered in the study of language is the question of the structure of language. According to Chomsky, language is a system of signs, the form of which is determined by the nature of the signs themselves, and the sense of which is determined by the nature of the things which they signify.

The third thing which is to be considered in the study of language is the question of the function of language. According to Chomsky, language is a system of signs, the form of which is determined by the nature of the signs themselves, and the sense of which is determined by the nature of the things which they signify.

The fourth thing which is to be considered in the study of language is the question of the acquisition of language. According to Chomsky, language is a system of signs, the form of which is determined by the nature of the signs themselves, and the sense of which is determined by the nature of the things which they signify.

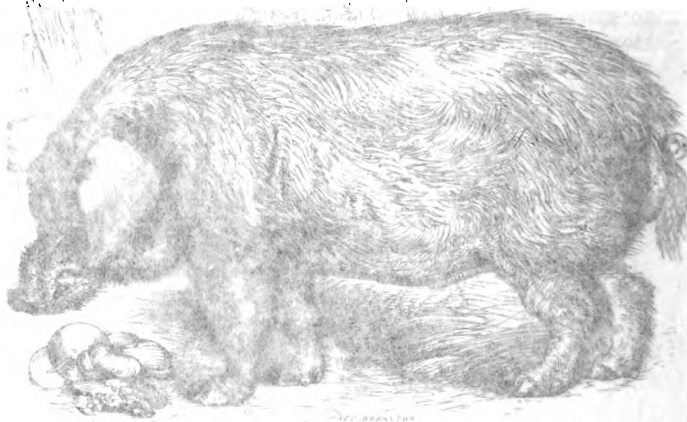
The fifth thing which is to be considered in the study of language is the question of the development of language. According to Chomsky, language is a system of signs, the form of which is determined by the nature of the signs themselves, and the sense of which is determined by the nature of the things which they signify.

1914. Annual Meeting



WILD BOAR.

PLATE I.



WILD BOAR.

PLATE II.

CHAPTER I.

Zoological Definition of the Pig—The Order Pachydermata—Derivation of the Term “Hog”—The Hog was greatly esteemed by the Romans—Worshipped by some of the Ancients—Swine’s Flesh prohibited by the Law of Moses—By that of Mohammed—Despised by the Egyptians.

THE Hog (*Suidæ Sus* of the ancients and Linnæus), according to Cuvier, belongs to “the class MAMMALIA, order PACHYDERMATA, genus SUIDÆ or SUS, having on each foot two large principal toes shod with stout hoofs, and two lateral toes much shorter and scarcely touching the earth; the incisors variable in number, the lower incisors all levelled forwards; the canines projected from the mouth and recurved upwards; the muzzle terminated by a truncated snout fitted for turning up the ground; the stomach but little divided; the body square and thick, and more or less covered with bristles and hairs; the neck strong and muscular; the legs short and stout.”* All this species feed on plants, and especially on roots, which their snout or trunk enables them to grub out of the earth; they will devour animal substances, but rarely hunt or destroy animals for the purpose of devouring them. They are thick-skinned; said to be obtuse in most of their faculties, excepting in the olfactory and oral senses; voracious; bold in defending themselves; and delight in humid and shady places.

To this order belong the elephant, the rhinoceros, the hippopotamus, &c., the general characteristics of all of which are very similar.

The term Hog is stated by Carpenter to be derived from the Hebrew word חזיר, by which this animal was designated among the Hebrews, a word derived from חָוֵר, to *encompass* or *surround*, suggested by the round figure of this animal

* Cuvier’s “Animal Kingdom.”

when in his fat and most natural state. Bochart and Schultens, however, are more inclined to refer the Hebrew noun to the Arabic sense of the verb, viz., *to have narrow eyes*, and there is much of probability in their supposition. The swine seem to form an intermediate link between other writers' four-footed and cloven-footed animals, and in account of the same ground between the cloven-footed digestion, and li but look on them in what point of view was forbidden. Animals present various peculiar characteristics, and are of vast importance, as affording the means of sustenance to millions of human beings in all parts of the world. The hog is a perfect cosmopolite, adapting itself to almost every climate; increasing rapidly, being more prolific than any other domestic animal, with the exception of the rabbit; easily susceptible of improvement; and quickly attaining to maturity.

As far back as the records of history enable us to go, the hog appears to have been known, and his flesh made use of as food. 1491 years before Christ, Moses gave those laws to the Israelites which have occasioned so much discussion, and given rise to the many opinions which we shall presently have to speak of; and it is quite evident that had not pork then been the prevailing food of that nation, such stringent commandments and prohibitions would not have been necessary. The various allusions to this kind of meat, which occur again and again in the writings of the old Greek authors, plainly testify the esteem in which it was held among this nation; and it appears that the Romans actually made the art of breeding, rearing, and fattening pigs a study, which they designated *Porculatio*. Every art was put in practice to impart a finer and more delicate flavour to the flesh: the poor animals were fed, and crammed, and tortured to death in various ways, many of them too horrible to be described, in order to gratify the epicurism and gluttony of this people. Pliny informs us that they fed swine on dried figs, and drenched them to repletion with honeyed wine, in order to produce a diseased and monstrous-sized liver. The *Porcus Trojanus*, so called in allusion to the Trojan horse, was a very celebrated dish, and one that eventually became so extravagantly expensive that a sumptuary law was passed

respecting it. This dish consisted in a whole hog, with the entrails drawn out, and the inside stuffed with thrushes, larks, beccaficoes, oysters, nightingales, and delicacies of every kind, and the whole bathed in wine and rich sauce. Another great dish was a hog served whole; the one were permitted the other boiled.

Varro states that the Gauls produced a sight of God as a finest swine's flesh that was brought equal and disgusting according to Strabo, in the reign of Augustus. They were in Rome and nearly all Italy with gammons, hog-pudding, hams, and sausages. This nation and the Spaniards appear to have kept immense droves of swine, but scarcely any other kind of live stock; and various authors mention swine as forming a part of the live stock of most Roman farms.

In fact, the hog was held in very high esteem among the early nations of Europe, and some of the ancients have even paid it divine honours: in the island of Crete it was regarded as sacred. This animal was always sacrificed to Ceres at the beginning of the harvest, and to Bacchus at the commencement of the vintage, by the Greeks; probably, it has been suggested, "because this animal is equally hostile to the growing corn and the ripening grape."

The Jews, the Egyptians, and the followers of Mohammed alone appear to have abstained from it. To the former nation it is expressly forbidden by the laws of Moses: Leviticus xi. 7, says: "And the swine, though he divideth the hoof, and be cloven-footed, yet he cheweth not the cud, he is unclean unto you." Mohammed probably founded his prohibition on this one, or was induced, by the prejudices of his followers, to make it. Numerous theories have been advanced by different authors to account for this remarkable prohibition uttered by Moses against a species of food generally so wholesome and nutritious as the flesh of the hog. Maimonides says: "The principal reason why the law prohibited the swine was, because of their extreme filthiness, and their eating so many impurities; for it is well known with what care and precision the law forbids all filthiness and dirt, even in the fields and in the camp, not to mention in the cities. Now, had swine been permitted, the public

places, and streets, and houses, would have been made nuisances." *

Tacitus states that the Jews abstained from it in consequence of a leprosy by which they had formerly severely suffered, and to which the hog is very subject. And several other writers concur in this view, stating that it was on account of the flesh being strong, oleaginous, difficult of digestion, and liable to produce cutaneous diseases, that it was forbidden. Michaëlis observes, that throughout the whole climate under which Palestine is situated, leprosy is an endemic disease; and the Israelites being overrun with it at the period of their quitting Egypt, Moses found it necessary to enact a variety of laws respecting it, and the prohibiting the use of swine was one of these.†

M. Sonnini states that in Egypt, Syria, and even the southern parts of Greece, swine's flesh, although white and delicate, is so flabby and surcharged with fat as to disagree with the strongest stomachs,‡ and this will account for its prohibition by the priests and legislators of hot climates, such an abstinence being absolutely necessary to health beneath the burning suns of Egypt and Arabia. "The Egyptians," he says, "were only allowed to eat pork once in the year, on the feast-day of the moon, and then they sacrificed a number of these animals to that planet. If at any other time an Egyptian even touched a hog, he was obliged to plunge into the Nile, clothes and all, to purify himself. The swineherds formed an isolated race, outcasts from society, forbidden to enter a temple or intermarry with other families."§ Hence it probably is, that in the beautiful parable of the Prodigal Son this unhappy young man is represented as being reduced to the office of a swineherd, that being considered as the lowest possible degradation.

Others are of opinion that this and many other of the prohibitions and ordinances established by Moses were solely for the purpose of distinguishing the Jews from

* "More Nevochim," part iii. c. 8.

† "Commentaries on the Law of Moses," art. 203, vol. ii.

‡ Plutarch (*de Iside*) affirms that those who drank the milk of swine became blotchy and leprous.

§ Sonnini's "Voyage dans la Haute et Basse Egypte," vol. iii.

other nations, and making them, what they are to this day in all countries and under all climates, "a peculiar people." Others, again, assert that it was with a view to correct their gross and gluttonous habits that none but the simplest and mildest kinds of animal food were permitted to the Jews. And, lastly, another maintains that the swine was thus declared an abomination in the sight of God as a lesson to the Jews to abstain from the sensual and disgusting habits to which this animal is given.*

This aversion to swine has descended to the Jews, Egyptians, and followers of Mohammed of modern times. The Copts rear no pigs; indeed, this animal is scarcely known in most of the cities of Lower Egypt; and the poorest Jew would sooner starve than touch a morsel of this forbidden food, even though the presumed cause of the prohibition has long ceased to exist, and he is removed to colder climes, where pork is both wholesome and nutritious.

By the precepts, warnings, and threatenings of the prophets, we read that so great was the detestation excited in the minds of the Jewish nation against this animal, that they would not even pollute their lips by pronouncing its name, but always alluded to it as "that beast," "that thing;" and we read, in the history of the Maccabees, that Eleazer, a principal scribe, being compelled by Antiochus Epiphanes to open his mouth and receive swine's flesh, spat it forth, and went of his own accord to the torment, choosing rather to suffer death than break the divine law and offend his nation.†

And yet it is well known that immense numbers of swine were reared in the country of the Jews, probably for the purpose of gain, and in order to supply strangers and the neighbouring idolaters; and it has been supposed‡ that it was in order to punish this violation of the divine commandments that our Saviour permitted the herd of swine to be affected with that sudden disorder which caused them to rush headlong into the lake of Genesareth. §

* Lactantius, *Inst.*

† 2 Maccabees, vi. 18, vii. 1.

‡ Farmer's *Essay on Dæmoniacks*, and Bishop Pearce's "*Miracles of Jesus vindicated*."

§ Matt. viii. 32.

CHAPTER II.

The Early History of Swine—Legendary and authentic Records respecting the keeping of them in England—Ancient Welsh Laws relative to Swine—The Forests of England—Swineherds: their Mode of managing their Herds—Calabrian Swineherds—Horn used to assemble the Grunting Troop—The Schwein-General—Herds of Swine kept in France—Value of Pigs—Some Vindication of them—Anecdotes proving their Teachability—Sagacity of a Pig—Some Demonstrations of Memory in one—Attachment to Individuals—Swine not innately filthy Animals—They are possessed of more Docility than they usually have credit for—Their exquisite Sense of Smell—Pigs said to foretell Rain and Wind.

IN our own country the keeping of large herds of swine can be traced back to 863 years before Christ,—at least if any reliance may be placed on the ancient and legendary history of Bath; for there it is recorded that, about 2709 years ago, a numerous herd of swine was kept by a British prince in the neighbourhood of Bath, to whom we owe the discovery of the medicinal qualities of the hot springs there. “Baldred, eldest son of Lord Hudibras (then king of Britain), it is said, having spent eleven years at Athens in study, came home leprous, and was in consequence confined, to prevent infection. Having effected his escape, however, he went very remote from his father’s court, into an untravelled part of the country, and offered his services in any common employment. He entered into service at Learwick, a small village three miles from Bath, where his business was to take care of pigs, which he was to drive from place to place for their advantage in feeding upon acorns, haws, &c. While at his usual employment one morning, a part of the drove of swine, as if seized with a frenzy, ran down the side of the hill into an elder-moor, till they reached the spot of ground where the hot springs of Bath now boil up, and from thence returned, covered with black mud. The prince being of a thoughtful turn, was very desirous to find out the reason why pigs that wallowed in the mire in summer to cool

themselves, should do the same in winter ; at length he perceived a steam arise from the place where they had wallowed, and making his way to it, found it warm. Having thus satisfied himself that it was for the benefit of the heat that the pigs resorted hither, he observed, that after a while they became whole and smooth from their scabs and eruptions by often wallowing in this mud. Upon this, he considered within himself why he should not receive the same benefit by the like means. He tried the experiment with success, and finding himself cured of his leprosy, declared who he was. His master, though incredulous at first, being at last persuaded to believe him, went with him to court, where he was owned ; and upon succeeding to his father, he erected the baths. In one of these baths there is at the present time a statue of King Baldred, which was erected in 1699, under which is the following inscription on copper : "Baldred, son of Lord Hudibras, eighth King of the Britons from Brute, a great philosopher and mathematician, bred at Athens, and recorded the first discoverer and founder of these baths, 863 years before Christ."

In Greece and the neighbouring islands it would seem that swine were also common at even an earlier period, and were kept in large droves by swineherds ; for we read in Homer's "Odyssey," which is supposed to have been written upwards of 900 years B.C., that Ulysses, on his return from the Trojan war, first sought the dwelling of Eumæus, his faithful servant, and the keeper of his swine : and that office must then have been held in higher esteem than it subsequently became, or was in other countries, or it would not have been performed by that wise and good old man, himself a descendant of princes.

" But he, deep-musing, o'er the mountains stray'd,
Through mazy thickets of the woodland shade
And cavern'd ways, the shaggy coast along,
With cliffs and nodding forests overhung.
Eumæus at his sylvan lodge he sought,
A faithful servant and without a fault.
Ulysses found him busied, as he sate,
Before the threshold of his rustic gate ;
Around the mansion in a circle shone
A rural portico of rugged stone ;

(In absence of his lord, with honest toil
 His own industrious hands had raised the pile)—
 The wall was stone from neighbouring quarries borne,
 Encircled with a fence of native thorn,
 And strong with pales, by many a weary stroke
 Of stubborn labour hewn from heart of oak—
 Frequent and thick. Within the space were rear'd
 Twelve ample cells, the lodgments of his herd.
 Full fifty pregnant females each contain'd,
 The males without (a smaller race) remain'd ;
 Doom'd to supply the suitors' wasteful feast,
 A stock by daily luxury decreased,
 Now scarce four hundred left. Those to defend,
 Four savage dogs, a watchful guard, attend.
 Here sat Eumæus, and his cares applied
 To form strong buskins of well-season'd hide.
 Of four assistants who his labour share,
 Three now were absent on the rural care ;
 The fourth drove victims to the suitor train ;
 But he of ancient faith a simple swain,
 Sigh'd while he furnish'd the luxurious board,
 And wearied heaven with wishes for his lord."

xiv. 1-30.

The rude tables of the ancient Britons were chiefly supplied from their herds of swine, and the flesh of these animals furnished them with a great variety of dishes.*

Sharon Turner, in his "History of the Anglo-Saxons," while enumerating their live stock, states that they had "great abundance of swine ;" and adds, that although horned cattle are occasionally mentioned in grants, wills, and exchanges of property, swine are most frequently spoken of.

The country then abounded with woods and forests, and these are seldom particularized without some mention being made of the swine fed in them. These animals appear in fact to have constituted a considerable item in the wealth of an individual, for legacies of them often occur in wills. Thus Alfred, a nobleman, bequeaths to his relatives a hide of land with one hundred swine, and directs that another hundred shall be given for masses for the benefit of his soul ; and to his daughters he leaves two thousand. So Elfhelm left land to St. Peter's at Westminster, on the express

* Cæsar, book i. chap. 1.

condition that they should feed a herd of two hundred swine for the use of his wife.*

In the original Domesday Book for Hampshire, where an estimate of the value of the lands and forests belonging to the king, the monasteries, the hundreds, and other divisions, is given, the number of hogs which can be fed on each separate portion is invariably specified.†

In the oldest of the Welsh Triads (which treat of the events of Britain in general) we find evidence of the early domestication of swine; for one of these contains a recital of the actions of three powerful swineherds in the Isle of Britain, "over whom it was not possible to prevail or gain," and who restored the swine to their owners with increase. Some of the fabulous narrations blended with the history of these swineherds have been attributed by antiquarians to a period antecedent to Christianity.

In the laws of Howel, or (as some write it) Hoel Dha, there is a chapter on the value of animals, in which it is stated "that the price of a little pig from the time it is born until it grows to burrow, is one penny; when it ceases sucking, which is at the end of three months, it is worth two pence; from that time it goes to the wood with the swine, and it is considered as a swine, and its value is four pence; from the feast of St. John unto the 1st day of January, its value is fifteen pence; from the 1st day of January unto the feast of St. John, its value is twenty-four pence; and from that time forward its value shall be thirty pence, the same as its mother."

"The qualities of a sow are, that she breeds pigs and do not devour her young ones. The seller must also warrant her sound against the quinsy for three days and nights after she is sold. If she should not possess these qualities, one third of her price must be returned. The value of a boar is equal to the value of three sows."‡

There are several enactments in these same laws of Hoel Dha, which regulate the compensation for corn spoiled or damaged by the trespassing of swine; and it is stated in

* Sharon Turner's "Hist. of Anglo-Saxons," vol. iv.

† Warner's "History of Hampshire."

‡ "Hoel Dha,—Leges Wallicæ," 41.

that part of the code, that "little pigs, from the time they turn up the cow-dung with their noses, are subject to the same law as their mothers." The following seems more singular than just : " If swine enter a house and scatter about the fire, so as to set the house on fire, and the swine escape, let the owner of the swine pay for the act. If the swine be burnt, then both house and swine are equal, for both are stupid ; therefore as both have equally suffered according to law, there is nothing to be redressed, but the injury of the one must be set against the injury of the other." This appears rather hard, seeing that the swine came to the fire, and not the fire to the swine.

In a paper by Dr. Hibbert,* entitled "Illustrations of the Customs of a Manor in the North of England," &c., there is the following notice regarding swine, derived from an ancient court-roll of the manor of Ashton-under-Lyne, in Lancashire, dated A.D. 1422.

"Attached to these ordinances was a covenant between Sir John of Assheton and his tenants, relative to the keeping of swine. These animals were allowed to range in the demesnes of the town from the latter end of August until sowing-time, provided that they were properly ringed, and did no harm ; in default whereof the owner was to *loose* him to the lord four pence, or by this sum redeem the animal from poundage. The brewer who brewed to sell, and the miller, were allowed to keep three swine ; the tenants who had land in the fields, two swine ; and he who held no land might have one swine."

In a chapter on "The King's Entertainment from the Manors," it is stated that among various rents which vassal manors must grant the king is a three-year old swine in winter. And among the articles which form the king's entertainment from a free manor in winter, are enumerated "a three-years old swine and a fitch of bacon salted, being three fingers in thickness."

The British forests, which formerly occupied the greater part of England, were peopled by the swinish multitude. Hertfordshire was nearly covered with wood and forest land ;

* "Transactions of the Antiquarian Society of Scotland," vol. iii.

Buckinghamshire boasted its magnificent Bern Wood ; Hampshire, its extensive New Forest ; nor were the other counties destitute of these sylvan retreats, which have latterly vanished before the axe of the woodman and the industry of the husbandman. The "Merrie green wood" has given place to pasture and cultivated fields ; shepherds now feed their flocks where the swineherd formerly drove his grunting troop ; and waving corn displays its golden harvest where once acorns and—

" The falling mast
For greedy swine provides a rich repast."

In 1646 Norwood in Surrey is described as containing 830 acres, from which the inhabitants of Croydon "have herbage for all kinds of cattle, and mastage for swine without stint."

The right of forest borderers to fatten their swine in the various forests, formerly royal property, is very ancient, being evidently anterior to the Conquest. At first a small tax or fee was paid by those holding this right ; but whether this went to the crown, or consisted in a certain gratuity to the forest ranger or the swineherd, is nowhere specified in the records. This privilege, like all others, was greatly abused ; for many of the keepers availed themselves of it, and kept large herds of swine which they suffered to run the forests during the whole of the year, doing exceeding damage to the timber as well as to the land.

The actual period for which it was lawful to turn swine into the royal woods and forests for *masting* was from fifteen days before Michaelmas to forty days afterwards,* and this was termed the pawnage month.

The method of treating hogs at this season of migration and reducing a large herd of these unmanageable brutes to order and obedience, is thus graphically described by Gilpin :—

" The first step the swineherd takes is to seek out some close sheltered part of the forest where there is a conveniency of water, and plenty of oak or beech mast ; the former of which he prefers when he can have it in abundance.

* Manwood's "Forest Law."

"He next fixes on some spreading tree, round the bole of which he wattles a slight circular fence of the dimensions he wants, and, covering it roughly with boughs and soda, he fills it plentifully with straw or fern.

"Having made this preparation, he collects his colony among the farmers, and will get together perhaps a herd of five or six hundred hogs. Having driven them to their destined habitation, he gives a plentiful supper of acorns or of beech-mast which he had already provided, sounding his horn during the repast. He then turns them into the litter, where, after a long journey and a hearty meal, they sleep soundly.

"On the next morning he suffers them to look around, shows them the pool or stream where they may occasionally drink, leaves them to gather the offals of the last night's meal, gives them another plentiful repast under the neighbouring trees — that almost rain acorns upon them — for a considerable time to the sound of his horn, and then sends them once more to sleep.

"On the following day he is perhaps at the pains of procuring them another meal, with music playing as before. He then leaves them a little more to themselves, keeping his eye, however, on them about evening ; when their bellies are full, they seldom wander far from home, but commonly retire orderly and early to bed.

"After this he throws his sty open, and leaves them to cater for themselves, and henceforward has little more trouble with them during the whole time of their migration.

"Now and then, in calm weather, when mast falls sparingly, he perhaps calls them together by the music of his horn to a gratuitous meal ; but they require very little further teaching, but return home regularly every evening, although they sometimes stray two or three miles from their sty. There are always experienced leaders among the herd, who, having led this rambling life before, are competent to instruct their juniors in the method of it. By this management, the herd is carried home to its owners in such a condition that a little dry meat will soon fatten them.

"I would not, however, have it supposed that all the

swineherds in the forest can manage their colonies with such exactness. The hog is commonly supposed to be an obstinate, headstrong beast, and he may perhaps have a degree of positiveness in his temper ; but if properly managed, he is, or may be made, an orderly docile animal. When your meanings are fair, and friendly, and intelligible, he may be led with a straw ; nor is he without his social feelings, when he is at liberty to indulge them.

"During his migrations in the forest, it is commonly observed that of whatever number the herd consists before setting forth on their daily excursions, they generally separate themselves into parties, and may thus be met with in those friendly groups, some earlier and some later, according as they have been more or less fortunate in the pursuits of the day.

"Beside the hogs thus led out in the mast-season to fatten, there are others, the property of forest-keepers, who spend the whole year in similar societies.

"After the mast-season is over, the indigenous forest hog depends chiefly for his livelihood on the roots of fern, and he would find this food very nourishing if he could have it in abundance ; but he is obliged to procure it by so laborious an operation, that his meals are rarely accompanied by satiety. He continues, however, by great industry, to obtain a tolerable subsistence through the winter, except in frosty weather ; and he must then perish if he does not, in some degree, experience his master's care.

"Beside these stationary hogs, there are others in some of the desolate parts of the forest that are bred wild, and left to themselves without any settled habitation, and as they cost nothing in their food, their owners are content with the precarious profits of such as they are able to reclaim."*

Our readers must forgive us if we add yet another view of this picture, given in the truthful and simply descriptive lines of our rural poet Bloomfield :—

"From oak to oak they run with eager haste,
And, wrangling, share the first delicious taste

* Gilpin's "Forest Scenery."

Of fallen acorns—yet but thinly found
 Till the strong gale has shook them to the ground.
 It comes, and roaring woods obedient wave ;
 Their home, well pleased, the joint adventurers leave.
 The trudging sow leads forth her numerous young,
 Playful, and white, and clean, the briers among ;
 Till briers and thorns, increasing, force them round
 Where last year's mouldering leaves bestrew the ground,
 And o'er their heads, loud lash'd by furious squalls,
 Bright from their cups, the rattling treasure falls.
 Hot, thirsty food ; whence doubly sweet and cool
 The welcome margin of some rush-grown pool."

Nor was the practice of feeding swine in herds, and accustoming them to assemble at the sound of the horn, peculiar to this country. In Calabria they are grazed in herds, and the keeper uses a kind of bagpipe, the tones of which, when the period arrives for their being driven home, quickly collect the scattered groups from every part. In Tuscany it is the same.

Barna Goge, in commending the use of the horn to all keepers of swine, gives the following ludicrous anecdote :—
 "Certain pirates, who seem not well to have learned their business, since they were unable to swim, landed on the coast of Tuscany, and carried off a number of swine to their boats, and were just paddling off, when the swineherd, missing some of his charges, winded his horn. At the well-known sound up started all the grunTERS *unâ et vivâ voce*, and crowding to one side of the boat upset it, and swam ashore to their keeper, leaving the unfortunate thieves floundering in the sea."

In Germany almost every village has its swineherd, who at break of day goes from house to house collecting his noisy troop, blowing his still more noisy cow-horn, and cracking his clumsy whip, until the place echoes with the din. The following very amusing account of that important personage, the *Schwein-General*, is given in Sir Francis Head's "Bubbles from the Brunnens."

"Every morning, at half-past five o'clock, I hear, as I am dressing, the sudden blast of an immense long wooden horn, from which always proceed the same four notes. I have got quite accustomed to this wild *réveille*, and the

vibration has scarcely subsided, it is still ringing among the distant hills, when, leisurely proceeding from almost every door in the street, behold a pig! Some, from their jaded, careworn appearance, are evidently leaving behind them a numerous litter; others are great, tall, monastic, melancholy-looking animals, which seem to have no other object left in this wretched world than to become bacon; while others are thin, tiny, light-hearted, brisk, petulant piglings, with the world and all its loves and sorrows before them. Of their own accord these creatures proceed down the street to join the herdsman, who occasionally continues to repeat the sorrowful blast from his horn.

"Gregarious, or naturally fond of society, with one curl in their tails, and with their noses almost touching the ground, the pigs trot on grunting to themselves and to their comrades, halting only whenever they come to anything they can manage to swallow.

"I have observed that the old ones pass all the carcasses which, trailing to the ground, are hanging before the butchers' shops, as if they were on a sort of *parole d'honneur* not to touch them; the middle-aged ones wistfully eye the meat, yet jog on also; while the piglings, who (so like mankind) have more appetite than judgment, can rarely resist taking a nibble. Yet no sooner does the dead calf begin again to move, than, from the window immediately above, out pops the head of a butcher, who, drinking his coffee whip in hand, inflicts a prompt punishment, sounding quite equal to the offence.

"As I have stated, the pigs, generally speaking, proceed of their own accord; but shortly after they have passed, there comes down our street a little bare-headed, bare-footed, stunted drab of a child, about eleven years old—fibbertigibbet sort of creature, which in a drawing one would express by a couple of blots, the small one for her head, and the other for her body, while, streaming from the latter, there would be a long line ending in a flourish, to express the immense whip which the child carries in its hand. This little goblin page, the whipper-in, attendant, or aide-de-camp of the old pig-driver, facetiously called at Langenschwalbach the 'Schwein-General,' is a being no one looks

at, and who looks at nobody. But such a pair of eyes for a pig have seldom perhaps beamed from human sockets ! The little intelligent urchin knows every house from which a pig ought to have proceeded : she can tell by the door being open or shut, or even by footmarks, whether the creature has joined the herd, or whether, having overslept itself, it is still snoring in its sty. A single glance determines whether she shall pass a yard or enter it ; and if a pig, from indolence or greediness, be loitering on the road, the sting of the wasp cannot be sharper or more spiteful than the cut she gives it. As soon as she has finished with our street, she joins her general in the main road. The herd slowly proceed down the town.

“ As I followed them this morning, they really appeared to have no hams at all ; their bodies were as flat as if they had been squeezed in a vice ; and when they turned sideways their long sharp noses and tucked-up bellies gave to their profile the appearance of starved greyhounds.

“ Besides the little girl, who brought up the rear, the herd was preceded by a boy of about fourteen, whose duty it was not to let the foremost, the most enterprising, or, in other words, the most empty pig, advance too fast. In the middle of the drove, surrounded like a shepherd by his flock, slowly stalked the ‘ Schwein-General,’ a wan, spectre-looking old man, worn out, or nearly so, by the arduous and everyday duty of conducting against their wills a gang of exactly the most obstinate animals in creation. A single glance at his jaundiced, ill-natured countenance was sufficient to satisfy one that his temper had been soured by the vexatious contrarieties and ‘ untoward events’ it had met with. In his left hand he held a staff to help himself onwards, while round his right shoulder hung one of those terrific whips which must be seen to be imagined. At the end of a short handle, turning upon a swivel, there was a lash about nine feet long, formed like the vertebræ of a snake, each joint being an iron ring, which, decreasing in size, was closely connected with its neighbour by a band of hard greasy leather. The pliability, the weight, and the force of this iron whip, rendered it an argument which the obstinacy even of the pig was unable to resist ; yet, as the old man proceeded down

the town, he endeavoured to speak kindly to the herd ; and as the bulk of them preceded him, he occasionally exclaimed, in a low, hollow, worn-out tone of encouragement, 'Nina ! Anina !' (drawling, of course, very long on the last syllable).

"If any little savoury morsel caused a contention, stoppage, or constipation, on the march, the old fellow slowly unwound his dreadful whip, and by merely whirling it round his head, like reading the Riot Act, generally succeeded in dispersing the crowd ; but if they neglected this solemn warning—if their stomachs proved stronger than their judgments—and if the group of greedy pigs still continued to stagnate, 'Arriff !' the old fellow exclaimed ; and, rushing forwards, the lash whirling round his head, he inflicted, with strength which no one would have fancied he possessed, a smack that seemed absolutely to electrify the leader. As lightning shoots across the heavens I observed the culprit fly forwards, and for many yards continuing to sidle towards the left ; it was quite evident that the thorn was still smarting in his side ; and no wonder, poor fellow, for the blow he received would almost have cut a piece out of a door.

"As soon as the herd got out of the town, they began gradually to ascend the rocky barren mountain which appeared towering above them ; and then the labours of the *Schwein-General* and his staff became greater than ever ; for as the animals from their solid column began to extend or deploy themselves into line, it was necessary constantly to ascend and descend the slippery hill, in order to outflank them. 'Arriff !' cried the old man, striding after one of his rebellious subjects ; 'Arriff !' in a shrill tone of voice was re-echoed by the lad, as he ran after another. However, in due time the drove reached the ground which was devoted for that day's exercise, the whole mountain being thus taken in regular succession.

"The *Schwein-General* now halted, and the pigs being no longer called upon to advance, but left entirely to their own notions, I became exceedingly attentive in observing them.

"No wonder, poor reflecting creatures ! that they had come unwillingly to such a spot, for there appeared literally

nothing for them to eat but hot stones and dust ; however, making the best of the bargain, they all very vigorously set themselves to work. Looking up the hill, they dexterously began to lift up with their snouts the largest of the loose stones, and then grubbing their noses into the cool ground. I watched their proceedings for a very long time. Their tough wet snouts seemed to be sensible of the quality of everything they touched, and thus out of the apparently barren ground they managed to get fibres of roots, to say nothing of worms, beetles, or any other travelling insects they met with. As they slowly advanced, working up the hill, their ears most philosophically shading their eyes from the hot sun, I could not help feeling how little we appreciate the delicacy of several of their senses, and the extreme acuteness of their instinct.

"There exists, perhaps, in creation no animal which has less justice and more injustice done to him than the pig. Gifted with every faculty of supplying himself, and of providing even against the approaching storm, which no creature is better capable of foretelling than a pig, we begin by putting an iron ring through the cartilage of his nose ; and having thus barbarously deprived him of the power of searching for and analyzing his food, we generally condemn him for the rest of his life to the solitary confinement of a sty.

"While his faculties are still his own, only observe how, with a bark or snort, he starts if you approach him, and mark what shrewd intelligence there is in his bright twinkling little eye ; but with pigs, as with mankind, idleness is the root of all evil. The poor animal, finding that he has absolutely nothing to do, having no enjoyment—nothing to look forward to but the pail which feeds him,—naturally most eagerly, or, as we accuse him, most greedily, greets its arrival. Having no natural business or diversion, nothing to occupy his brain, the whole powers of his system are directed to the digestion of a superabundance of food. To encourage this, nature assists him with sleep, which, lulling his better faculties, leads his stomach to become the ruling power of his system—a tyrant that can bear no one's presence but his own. The poor pig thus treated gorges himself—sleeps—eats again—awakens in a fright—screams—struggles against

the blue apron—screams fainter and fainter—turns up the whites of his little eyes—and dies !

“ But to return to the *Schwein-General*, whom we left sitting with horn and whip by the side of the mountain.

“ In this situation do the pigs remain every morning for four hours, enjoying little else but air and exercise. At about nine or ten o'clock they begin their march homewards, and nothing can form a greater contrast than their entry does to their exit from their native town.

“ Their eager anxiety to get to the dinner-trough that awaits them is almost ungovernable, and they no sooner reach the first houses of the town than a sort of ‘*saute qui peut*’ motion takes place ; away each starts towards his *dulce domum* ; and it is really curious to stand still and watch how quickly they canter by, greedily grunting and snuffing, as if they could smell with their stomachs as well as their noses the savoury food which was awaiting them.

“ At half-past four the same four notes of the same horn are heard again ; the pigs once more assemble, once more tumble over the hot stones on the mountains, once more remain there for four hours, and in the evening once again return to their sties.

“ Such is the life of the pigs, not only of Langen-Schwalbach, but those of every village throughout a great part of Germany : every day of their existence, summer and winter, is spent in the way I have described. The squad consists here of about 156, and for each pig the poor old *Schwein-General* receives 46 kreuzers (about 1s. 1d.) for six months’ drilling of each recruit. The income, therefore, is about £26 a year, out of which he has to pay the board, lodging, and clothing of his two aides-de-camp ; and when one considers how unremittingly these poor creatures have to contend with the gross appetites, sulky tempers, and pig-headed dispositions of the swinish multitude, surely not even the most niggardly reformer would wish to curtail his emoluments.”*

In France, again, swine are kept in herds, and in many districts the feeding of them in the woods and forests (*le*

* “ Bubbles from the Brunnen.”

glamdage), under certain conditions and restrictions, has been a source of no inconsiderable emolument to the forester. Indeed, to such an extent was it carried in certain localities, that it became an object of political economy. But of late years it has much diminished; the progress of agriculture is fast sweeping away those immense tracts of woodland country which formerly existed both in England and France, and with them depart the denizens of the forest, whether wild or tame, and the privileges and offices of foresters, rangers, &c.

Nature evidently designed the hog to fulfil many important functions in a forest country. By his burrowing after roots and such-like, he turns up and destroys the larvæ of innumerable insects that would otherwise injure the trees as well as their fruit and roots. He greedily destroys the slug, the snail, the snake, and the adder; and thus not only rids the forest of these injurious and unpleasant inhabitants, but also makes them subservient to his own nourishment, and thus to the benefit of mankind. The fruits, too, which he eats, are such as would otherwise rot on the ground and be wasted, or yield nutriment to vermin; and his digging for earth-nuts, &c., loosens the soil and benefits the roots of the trees. Hence, under proper restrictions, the *appanage* of hogs in forest-land may be regarded as eminently beneficial, and it is only the abuse of it which is to be feared. The celebrated German agriculturist, Thaër, does not, however, advocate the forest-feeding of swine unless they are kept in the woods day and night, and carefully sheltered; as he conceives that the bringing them home at night heats their blood, and nullifies the good effects of the day's feeding. He likewise considers that, although acorns produce good firm flesh, beech-mast makes unsound oily fat.

But if he is a useful animal in this public point of view, how much more so is he to individuals! Among the poorer classes of society, how often is the pig their chief source of profit, of wealth, if we may so speak. In Ireland is this especially the case: there he is emphatically "*the gentleman what pays the rent*," better treated often than the peasant's own children. The small cost at which these animals can

be reared and fattened, and their fecundity and wonderful powers of thriving under disadvantages, render them an actual blessing to many a poor cotter, who, with his little savings, buys a young and ill-conditioned pig, fattens it on all the refuse he can beg or spare, or collect, and sells it at a good profit, or occasionally, perhaps, kills it for the use of his family, who thus obtain an ample supply of cheap nutritious diet.

Were it not for this animal, many of the labouring poor would scarcely be able to keep a roof over their heads; therefore we may with justice designate the hog "the poor man's friend."

With the exception of the rabbit, swine are the most prolific of all domesticated animals; and this is another argument in their favour. Nor does its value cease with its life; there is scarcely a portion of the pig that is not available for some useful purpose. The flesh takes the salt more kindly than that of any other animal, and, whether dried as bacon or salted down as pickled pork, forms an excellent and nutritious food, exceedingly valuable for all kinds of stores. The fat or lard is useful for numerous purposes—the housewife, the apothecary, and the perfumer in particular know how to value it;—the head, the feet, and great part of the intestines, all are esteemed as delicacies. Brawn, that far-famed domestic preparation—which is evidently no recently-invented dish, for at the marriage of Henry IV., in 1403, and of Henry V., in 1419, we find, among other records quoted by Strutt, that brawn and a kind of hashed pork formed the staple dishes—is made from the pig. The bristles, too, are another important item in the matters furnished by swine; they are used by brush-makers, and are necessary to the shoemaker; and some idea may be formed of the extent to which they form an article of use and of commerce, when we state that, in the year 1828 alone, 1,748,921 lbs. of hog's bristles were imported into England from Russia and Prussia, each of which cannot have weighed less than two grains. From this we may fairly conjecture that 13,431,713,280 bristles were imported that year. As these are only taken from the top of the hog's back, each hog cannot be supposed to have supplied

more than 7,680, which, reckoning each bristle to weigh two grains, will be one pound. Thus in Russia and Prussia, in 1828, 1,748,921 hogs and boars were killed to supply the consumption of bristles in England. The skin is formed into pocket-books, employed in the manufacture of saddles, and of various other things, and even the ears are eaten in pies.

It has been too much the custom to regard the hog as a stupid, brutal, rapacious, and filthy animal, grovelling and disgusting in all its habits; intractable and obstinate in its temper. But may not much of these evil qualities be attributable to the life he leads? In a native state swine seem by no means destitute of natural affections; they are gregarious, assemble together in defence of each other, herd together for warmth, and appear to have feelings in common; no mother is more tender of her young than the sow, or more resolute in their defence. Besides, neglected as this animal has ever been by authors, there are not wanting records of many anecdotes illustrative of their sagacity, tractability, and susceptibility of affection. How often among the peasantry, where the pig is, in a manner of speaking, one of the family, may this animal be seen following his master from place to place, and grunting his recognition of his protectors.

The well-authenticated account of the sow trained by Toomer, a gamekeeper to Sir Henry Mildmay, testifies to the teachability of these animals; and, therefore, as it is our intention to defend them from many of the aspersions cast upon them, we will quote it.

"Toomer (formerly one of the king's keepers in the New Forest, and afterwards gamekeeper to Sir Henry Mildmay) actually broke a *black sow* to find game, and to back and stand. 'Slut' was bred in, and was of that sort which maintain themselves in the New Forest without regular feeding, except when they have young, and then but for a few weeks, and was given, when about three months old, to be a breeding sow, by Mr. Thomas to Mr. Richard Toomer, both at that time keepers in the forest. From having no young she was not fed or taken much notice of, and, until about eighteen months old, was seldom observed near the

lodge, but chanced to be seen one day when Mr. Edward Toomer was there. The brothers were concerned together in breaking pointers and setters, some of their own breeding, and others sent to be broke by different gentlemen : of the latter, although they would stand and back, many were so indifferent that they would neither hunt, nor express any satisfaction when birds were killed and put before them. The slackness of these dogs first suggested the idea that, by the same method, any other animal might be made to stand, and do as well as any of those huntless and inactive pointers. At this instant the sow passed by, and was remarked as being very handsome. R. Toomer threw her a piece or two of oatmeal roll, for which she appeared grateful, and approached very near ; from that time they were determined to make a *sporting pig* of her. The first step was to give her a name, and that of Slut (given in consequence of soiling herself in a bog) she acknowledged in the course of the day, and never afterwards forgot. Within a fortnight she would find and point partridges or rabbits, and her training was much forwarded by the abundance of both which were near the lodge ; she daily improved, and in a few weeks would retrieve birds that had run as well as the best pointer, nay, her nose was superior to the best pointer they ever possessed, and no two men in England had better. She hunted principally on the moors and heaths. Slut has stood partridges, black-game, pheasants, snipes, and rabbits, in the same day, but was never known to point a hare. She was seldom taken by choice more than a mile or two from the lodge, but has frequently joined them when out with their pointers, and continued with them several hours. She has sometimes stood a jack-snipe when all the pointers had passed by it : she would back the dogs when they pointed, but the dogs refused to back her until spoke to, their dogs being all trained to make a general halt when the word was given, whether any dog pointed or not, so that she has been frequently standing in the midst of a field of pointers. In consequence of the dogs not liking to hunt when she was with them (for they dropped their sterns and showed symptoms of jealousy), she did not very often accompany them, except for the novelty, or when she

accidentally joined them in the forest. Her pace was mostly a trot, was seldom known to gallop, except when called to go out shooting; she would then come home off the forest at full stretch, for she was never shut up but to prevent her being out of the sound of the call or whistle when a party of gentlemen had appointed to see her out the next day, and which call she obeyed as regularly as a dog, and was as much elevated as a dog upon being shown the gun. She always expressed great pleasure when game, either dead or alive was placed before her. She has frequently stood a single partridge at forty yards' distance, her nose in an exact line, and would continue in that position until the game moved: if it took wing, she would come up to the place, and put her nose down two or three times; but if a bird ran off, she would get up and go to the place, and draw slowly after it, and when the bird stopped she would stand it as before. The two Mr. Toomers lived about seven miles apart, at Rhinefield and Broomey Lodges; Slut has many times gone by herself from one lodge to the other, as if to court the being taken out shooting. She was about five years old when her master died, and, at the auction of his pointers, &c., was bought in at ten guineas. Sir Henry Mildmay having expressed a wish to have her, she was sent to Dogmersfield Park, where she remained some years. She was last in the possession of Colonel Sykes, and was then ten years old, and had become fat and slothful, but could point game as well as ever. She was not often used, excepting to show her to strangers, as the pointers refused to act when out with her. When killed, she weighed 700 lbs. Her death-warrant was signed in consequence of her having been accused of being instrumental to the disappearance of sundry missing lambs." *

Colonel Thornton also had a sow which was regularly taught to hunt, quarter the ground, and back the other pointers.

Some thirty years since it was mentioned in the public papers that a gentleman had trained swine to run in his carriage, and drove four-in-hand through London with these

* Daniel's "Rural Sports."

curious steeds. And not long since the market-place of St. Albans was completely crowded in consequence of an eccentric old farmer, who resided a few miles off, having entered it in a small chaise-cart drawn by four hogs at a brisk trot, which pace they kept up a few times round the area of the market-place. They were then driven to the Woolpack yard, and after being unharnessed were regaled with a trough of beans and wash.

A gentleman present offered £50 for the whole concern as it stood, but his offer was indignantly declined. In about two hours the animals were re-harnessed, and the old farmer drove off with his extraordinary team. He stated that he had been six months in training them.

Nor are these cases without parallel; for Montfaucon informs us that Heliogabalus, the Roman emperor, trained boars, stags, and asses to run in his chariot; and Pennant states that in Minorca, and that part of Murray which lies between the Spey and Elgin, swine have been converted into beasts of draught, and that it is by no means unusual to see a cow, a sow, and two young horses yoked together in a plough, and that the sow is the best drawer of the four. In Minorca, the ass and hog may be regularly seen working together in turning up land.

Henderson gives another, and a very simple account, illustrative of the tractability of swine.

"About twenty-five years ago my father farmed very extensively in various parts of the kingdom, and, upon one of his farms in Redkirk, in the parish of Greta Green, Dumfriesshire, kept at times upwards of one hundred swine. It so happened that the keeper of that flock was either taken unwell or abruptly left his service one harvest, when every creature able to work was employed in reaping. A brother and I, being the only idlers about the premises, the above flock was given in charge to us for a few days, until a proper keeper was found; we were then reluctantly obliged to march off with our 'hirsels' early every morning to a clover-field, about a mile distant, with our dinners, books, and great-coats, &c., packed upon our backs; we, however, soon began to think it was a great hardship for us to be groaning under our loads while so many stout able ponies were trotting

along before us at their ease, and immediately set about training one of them to relieve us of our burdens, which we accomplished in a few days by occasionally scratching the animal, and feeding it with bread, &c., out of our hands. It became at last so docile as to stand every morning until it received the burden girthed upon it, and then marched on in the rear, which place it was trained to keep, as we had more than once lost our dinners when it was allowed to join the herd; and in the same manner we soon trained two or three more into carrying the baggage in turns. Having been so successful in this training exploit, we then thought it would be turning our punishment into pleasure if we could train each of us one to ride. This was no sooner thought of than commenced; and although we received many a tumble, yet we soon accomplished our design, and succeeded in breaking in each two or three chargers. At length our system became so complete, that we not only rode to and from the field; but whenever any of the herd were likely to stray, or go into some adjoining field of corn, &c., each alternately mounted his charger, and went off at full gallop to turn back and punish the transgressors.

"Such as were trained seldom or never went astray, being always about-hand, and in readiness to be mounted; in short, on such days as my father was from home, it was not unusual for a group of servants to receive amusement from my brother and I running set matches with our steeds, which were determined in the usual manner, with whip and spur; and in this latter management there was no such thing as bolting or tumbling going on, which occurred frequently during the training season. This system, however, came at length to my father's ears, from one or two of the racers happening to die in consequence of too severe heats, or too much weight; when we were immediately disbanded from our office, and (our holidays being expired) ordered off to school again, which we set about with as much reluctance as we did the first morning in driving the hundred swine to the clover-field." *

The learned pig is another illustration of this same quality.

* Henderson's "Practical Grazier."

This creature had been taught to pick up letters, written upon pieces of card, at command, and arrange them into words. It was first exhibited in the vicinity of Pall-Mall, in 1789, at 5s. each person. The price of admission was afterwards reduced to 2s. 6d., and finally to 1s.

The showman stated that he had lost three pigs in the course of training. Since then there have been many successors of the "learned pig" exhibited at different places, but none equal in talent to the original.

The next thing which we shall claim for our porcine clients is sagacity; nor are we here in want of illustrative evidences of their possession of it. But in general there is nothing in the life of a pig, in his domesticated state at least, which calls for any exercise of reasoning powers. His sole business is to eat, drink, sleep, and get fat; all his wants are anticipated, and his world is limited to the precincts of his sty, or of the farm-yard. Yet even in this state of luxurious ease, individuals have shown extraordinary intelligence.

Mr. Craven relates the following anecdote of an American sow:—"This animal passed her days in the woods, with a numerous litter of pigs, but returned regularly to the house in the evening, to share with her family a substantial supper. One of her pigs was, however, quietly slipped away to be roasted; in a day or two afterwards another; and then a third. It would appear that this careful mother knew the number of her offspring, and missed those that were taken from her; for after this she came alone to her evening meal. This occurring repeatedly, she was watched out of the wood, and observed to drive back her pigs from its extremity, grunting with much earnestness, in a manner so intelligible, that they retired at her command, and waited patiently for her return."

Surely this must be the result of something very like reasoning powers?

"A gentleman residing at Caversham bought two pigs at Reading market, which were conveyed to his house in a sack, and turned into his yard, which lies on the banks of the river Thames.

"The next morning the pigs were missing. A hue and cry was immediately raised, and towards the afternoon a

person gave information that two pigs had been seen swimming across the river at nearly its broadest part.

"They were afterwards observed trotting along the Pangbourn road, and in one place, where the road branches off, putting their noses together as if in deep consultation. The result was their safe return to the place from which they had originally been conveyed to Reading—a distance of nine miles, and by cross roads.

"The farmer from whom they had been purchased brought them back to their owner; but they took the very first opportunity again to escape, recrossing the water like two dogs, thus removing the stigma on their race which proverbially disqualifies them for 'swimming without cutting their own throats,' and never stopped until they found themselves at their first home."

Here we see difficulties overcome, and a strange element encountered, in order to arrive at a far-distant spot—the home to which the animals were attached. Some recollection of that place or some association of ideas must have influenced the proceedings of these animals; but to what faculty shall we attribute their swimming the river in a direct line with their old master's house, and then finding their way so immediately thither? And how shall we account for their thus acting in concert, if pigs are to be considered as the stupid obtuse brutes most persons are in the habit of designating them? Such instances of sagacity in the dog and the horse scarcely astonish us, because we allow to them a certain degree of reasoning power. But is not the great development of it in them as much arising from their intercourse, if such we may term it, with man? —from their being his companions, educated and ordered by him? "I have observed great sagacity in swine," observes Darwin in his "Zoonomia;" "but the short lives we allow them, and their general confinement, prevent their improvement, which would otherwise probably equal that of the dog."

The "Naturalist's Library" gives another anecdote of a pig, which is indicative of no small degree of instinct or intelligence:—

"Early in the month, a pig that had been kept several

days a close prisoner to his sty was let out for the purpose of its being cleaned and his bed replenished. On opening the sty-door, he anticipated the purpose of his liberation by running to the stable, from which he carried several sheaves of straw to his sty, holding them in his mouth by the band. The straw being intended for another purpose, it was carried back to the stable ; but our porter, seizing a more favourable opportunity, regained it, to the amazement of several persons, who were pleased to observe the extraordinary instinct of this wonderful pig."

Swine have also been repeatedly known to attach themselves to individuals, and to other animals, and to manifest great docility, gentleness, and affection.

Mr. Henderson says, "I have a young sow of a good breed, so docile that she will suffer my youngest son, three years of age, to climb upon her back and ride her about for half an hour at a time, and more ; when she is tired of the fun, she lays herself down, carefully avoiding hurting her young jockey. He often shares his bread and meat with her."*

A pig belonging to a baker in Kinghorn, county Fife, became so attached to a bull-dog, that it would follow and sport with him, and follow her master, when he was accompanied by this dog, for five or six miles. The dog was fond of swimming, and the pig imitated this propensity ; and if anything was thrown into the water for the dog to fetch out, the pig would follow and dispute the prize with him very cleverly and energetically. These two animals invariably slept together.

M. de Dieskau tells us "that he made a wild boar so tame that the animal, although nearly three years old, would go up-stairs to his apartment, fawn upon him like a dog, and eat from his hand. He also endeavoured to bring up one which he caught very young, and which formed such an attachment to a young lady in the house, that he accompanied her wherever she went, and slept upon her bed. Once he attacked her maid as she was undressing her mistress, and, had he been strong enough, would have done her

* Henderson on Swine.

some mortal injury. This lady was the only person in the house for whom the creature showed any affection, and yet he was not fed by her. At last he fretted himself to death on account of a fox which had been taken into the house to be tamed."

A very amusing account of a "pet pig" is given by a lady in "Chambers's Edinburgh Journal:"—

"Being at a loss what to do with the refuse of our garden, Aunt Mary suggested that a pig should be purchased. Accordingly, our little damsel Annette was despatched to a neighbouring farmer, and in exchange for a few shillings she brought home a fat, fair, round pig, just six weeks old; and in her haste to display her bargain, she tumbled it out in the sitting-room. Nothing daunted by the splendour of its new abode, the pig ran up and down, snorting and snuffing at every chair and table in the room, overturning with its snout my aunt's footstool, and trying its teeth on her new straw work-basket. After the pig had been duly admired and commented on, Annette was desired to instal it in its own domicile; but this was more easily said than done; for being, I suppose, pleased with his quarters, Toby—for so we named him—ran hither and thither, now scudding behind a chair or table, now whisking under the sofa; at length Annette succeeded in dragging him from his hiding-place, while he roared out 'Murder!' as plain as a pig could speak. Annette was very fond of dumb creatures, as she called them; the pig became her darling, and for want of a companion of her own species, Toby became her constant associate; and finding his visits to the kitchen were winked at, he made use of the privilege, and would bask himself at full length before the fire. He even ventured occasionally to follow her into the front lobby; and if, as sometimes was the case, she put him into the yard, he would kick up such a row at the kitchen door to be let in, thumping on it with his snout, that she was fain to admit him to his old quarters. Toby was of a very social disposition, and so fond of Annette, and so grateful for her kindness, that he would follow her about everywhere; indeed, to my great surprise, one day I found him standing sentry over her while she was putting down the stair carpet, and he seemed to be watching her proceedings with a very sagacious air. In

process of time there came another proof that the course of true love never did run smooth. Annette fell into bad health, and returned to her home; the damsel who replaced her had no taste for the society of pigs; so she thumped Toby away from the kitchen door, and many were the blows he got from her broom, or whatever missile came first to hand. Toby was now exiled to his sty, much against his inclination, for he evidently would have preferred bivouacking in the back premises. We seldom passed to the garden without throwing him some comfort in the shape of a few cabbage-leaves, a handful of acorns, or a bunch of turnip-tops. It was truly amusing to see Toby make his bed. As the straw which was furnished for it was rather long and coarse, Toby used to take it bunch by bunch in his teeth, and run into a corner, breaking it into small pieces, and having accomplished this feat, he proceeded to arrange his couch in the most methodical manner.

One day, Betty having omitted to give him his dinner, Toby, in a great passion, jumped out of his sty, and came running to the kitchen door to see what was the reason of his being so shamefully neglected, and loud and long were his remonstrances on the subject. Finding it difficult to get the poor animal properly attended to, he was transferred to a neighbour; and we never gave him a successor, as we scarcely expected to find in another of his species that gratitude for kindness and affection for his friends which shone so conspicuous in the character of poor Toby.*

It may appear absurd to claim cleanliness as a swinish virtue; but in point of actual fact the pig is a much more cleanly animal than most of his calumniators give him credit for being. He is fond of a good cleanly bed; and often, when this is not provided for him, it is curious to see the degree of sagacity with which he will forage for himself. "A hog is the cleanliest of all creatures, and will never dung or stale in his sty if he can get forth," says a quaint old writer of the sixteenth century, and we are very much of his opinion. But it is so much the habit to believe that this animal may be kept in any state of filth and neglect, that

* "Chambers's Edinburgh Journal," vol. v.

"pig" and "pig sty" are terms usually regarded as synonymous with all that is dirty and disgusting.

His rolling in the mud is alleged against him as a proof of his filthy habits; if so, the same accusation applies to the elephant, the rhinoceros, and other of the Pachydermata. May this not rather be for the purpose of cooling themselves, and keeping off flies, as we admit it to be in the case of the animals above mentioned? Savages cover themselves with grease in hot climates in order to protect their skins; may not instinct teach animals to roll themselves in mud for a similar purpose?*

Pigs are exceedingly fond of comfort and warmth, and will nestle together in order to obtain the latter, and often struggle vehemently to secure the warmest berth.

They are eminently sensitive of approaching changes in the weather, and may often be observed suddenly to leave the places in which they had formerly been quietly feeding, and run off to their sties at full speed, making loud outcries. When storms are overhanging, they collect straw in their mouths, and run about as if inviting their companions to do the same; and if there is a shed or shelter near at hand, may be seen to carry and deposit it there, as if for the purpose of preparing a bed. Hence has arisen the common Wiltshire saying, "Pigs see the wind." Virgil, in enumerating the signs of settled fine weather, notices this peculiarity in swine:—

"Nor sows unclean are mindful to provide
Their nestling beds of *mouth-collected straw*!"

Foster says—"When hogs shake the stalks of corn, and thereby spoil them, it indicates rain; and when they run squeaking about and throw up their heads with a peculiar jerk, windy weather is about to commence."

Darwin observes—"It is a sure sign of a cold wind when

* "The hog, tho' he tumble in the dirte in the summer, is not a filthie animal. He doeth it, partlie to coole himselfe, partlie to kill his lice; for when the dirte is drie he rubbeth it off, and thereby destroyeth the lice."—*Hartlieb's Last Legacie*.

pigs collect straw in their mouths, and run about crying loudly. They would carry it to their beds for warmth, and by their calls invite their companions to do the same, and add to the warmth by numerous bedfellows.”*

In their domesticated state swine certainly are very greedy animals ; eating is the business of their lives ; nor do they appear to be very delicate as to the kind or quality of the food which is set before them. Although naturally herbivorous animals, they have been known to devour carrion with all the voracity of beasts of prey, to tear and mangle infants, and even to gorge their appetites with the living limbs of their own young.

Low, however, says—“ Instances have occurred in which a sow has been known to devour her young ; but rarely, if ever, does this happen in a state of nature. It is not unreasonable to believe that when an act so revolting does occur, it arises more from the pain and irritation produced by the state of confinement, and often filth, in which she is kept, and the disturbances to which she is subjected, than from any actual ferocity ; for it is well known that a sow is always unusually irritable at this period, snapping at all animals that approach her. If she is gently treated, properly supplied with sustenance, and sequestered from all annoyance, there is little danger of this ever happening.”†

Roots and fruits are the natural food of the hog, in a wild as well as a domesticated state ; and it is evident that, however omnivorous this animal may occasionally appear, its palate is by no means insensible to the difference of eatables ; for whenever it finds variety, it will be found to select the best with as much cleverness as other quadrupeds. “ In the peach-tree orchards of North America,” says Pennant, “ where hogs have plenty of delicious food, they have been observed to neglect the fruit that has lain a few hours on the ground, and patiently wait for a considerable time for a fresh windfall.”

According to Linnæus, the hog is more nice in the selection

* Darwin’s “ Zoonomia.”

† “ Domesticated Animals of the British Islands.”

of his vegetable diet than any of our other domesticated herbivorous animals. This great naturalist states that—

The Cow	eats	276 plants	and rejects	218
„ Goat	„	449	„	126
„ Sheep	„	387	„	141
„ Horse	„	262	„	212
but that the Hog only	„	72	„	171

They are gifted with an exquisite sense of smell as well as touch, residing in the snout, and this enables them to discover roots, acorns, earth-nuts, or other delicacies suitable to their palates, which may be buried in the ground.

In some parts of Italy swine are employed in hunting for truffles that grow some inches below the surface of the soil, and form those pickles and sauces so highly esteemed by epicures. A pig is driven into a field, and there suffered to pursue his own course. Wherever he stops and begins to root with his nose, truffles will invariably be found.

The last charge which we shall endeavour to refute is that of intractability. All the offences which swine commit are attributed to an innately bad disposition ; whereas they too often arise solely from bad management or total neglect. Would horses or cattle behave one iota better, were they treated as pigs too often are ? They are legitimate objects for the sport of idle boys, hunted with dogs, pelted with stones, often neglected and obliged to find a meal for themselves, or wander about half-starved. Can we wonder that, under such circumstances, they should be wild, unmanageable brutes ? Look at the swine in a well-regulated farm-yard—they are as peaceable and as little disposed to wander or trespass as any of the other animals that it contains. Here, as in many other things, man is but too willing to attribute the faults which are essentially of his own causing, to any other than their true source.

CHAPTER III.

The Wild Boar—Description of him—Characteristics—The Female and her Young—Hunting the Wild Boar—Homer's Description of a Boar-hunt—Roman Festivals and Games—The Wild Boar in England and Scotland—In France—In Germany—Mode of Hunting the Boar in Germany—Wild-Boar Park of the Emperor of Austria—Present Wild Breed in Germany—In Hungary—In the Styrian Alps—In Russia and Sweden—In the East—Habits of the Wild Hog in India—Wild Hog Hunting in India—The Wild Breed in America—Fearful Conflict with a Wild Herd in Columbia—The Wild Boar the Parent Stock of all Domesticated Breeds—Resemblances between—Alterations produced by Domestication—Resumption of Old Habits on again becoming Free from Control of Man.

THE wild boar (*Sus scrofa*, var. *aper*) is generally asserted to be the parent of the stock from which all our domesticated breeds and varieties have sprung. This animal is generally of a dusky brown or iron-grey colour, inclining to black, and diversified with black spots or streaks. The body is covered with coarse hairs, intermixed with a downy wool; these hairs become bristles as they approach the neck and shoulders, and are here so long as to form a species of mane, which the animal erects when irritated. The head is short, the forehead broad and flat, the ears short, rounded at the tips and inclined towards the neck, the jaw armed with sharp crooked tusks which curve slightly upwards, and are capable of inflicting fearful wounds, the eye full, the neck thick and muscular, the shoulders high, the loins broad, the tail stiff, and finished off with a tuft of bristles at the tip, the haunch well turned, and the legs strong.*

The wild boar is a very active and powerful animal, and becomes fiercer as he grows older. When he exists in a state of nature, he will usually be found in moist, shady, and well-wooded situations, not far remote from streams or

* A full-grown wild boar in India averages from thirty to forty inches in height at the shoulder. The African wild boar is about twenty-eight or thirty inches high. Four hundred pounds is considered a good weight for a wild boar on favourable feeding-ground.

water. In India they are found in the thick jungles, in plantations of sugar-canes, rice, or rhur, or in the thick patches of high long grass.* In England, France, Germany, Italy, and Spain, their resorts have been in the woods and forests. This animal is naturally herbivorous, and appears to feed by choice upon plants, fruits, and roots. He will, however, eat the worms and larvæ which he finds in the ground, also snakes and other such reptiles, and the eggs of birds; and Buffon states that wild boars have been seen to devour the flesh of dead horses, while other authors accuse them of devouring hares, leverets, partridges, and indeed all kinds of small game, and feeding greedily upon carrion; but this has also been asserted to be only the case when they are pressed by hunger. They seldom quit their coverts during the day, but prowl about in search of food during twilight and the night. Their acute sense of smell enables them to detect the presence of roots or fruits deeply imbedded in the soil, and they often do considerable mischief by ploughing up the ground in search of them, particularly as they do not, like the common hog, root up a little spot here and there, but plough long continuous furrows.

The wild boar, properly so called, is neither a solitary nor a gregarious animal. For the first two or three years the whole herd follows the sow, and all unite in defence against any enemies, calling upon each other with loud cries in case

* The wild hog delights in cultivated situations, but will not remain where water is not at hand in which he can quench his thirst and wallow at his ease, nor will he resort a second season to a spot that does not afford ample cover, either of heavy grass or underwood jungle, within a certain distance, for him to fly to in case of molestation; and especially to serve as a retreat during the hot season, as otherwise he would find no shelter. The sugar-cane is his great delight, both as affording his favourite food and yielding a high, impervious, and unfrequented situation. In these the hogs, and the breeding-sows especially, commit great devastation, for the latter not only devour but cut the canes for a litter, and to throw up a species of hut, which they do with much art, leaving a small entrance which they can stop up at pleasure. Sows never quit their young pigs without completely shutting them up. This is, however, only requisite for a few days, after which, the little ones may be seen following their mother at a good round pace, though evidently not more than a week or ten days old.—Williamson's "Oriental Field Sports."

of emergency, and forming in regular line of battle, the weakest occupying the rear. But when arrived at maturity the animals wander alone, as if in perfect consciousness of their strength, and appear as if they neither sought nor avoided any living creature. They are said to live about thirty years; as they grow old the hair becomes grey, and the tusks begin to show symptoms of decay. Old boars are rarely found associating with a herd, but seem to keep apart from the rest, and from each other.

The female produces but one litter in the year, and her litters are much smaller in number than those of the domestic pig; she carries her young sixteen or twenty weeks, and generally is only seen with the male during the rutting season. She suckles her young for several months, and continues to protect them for some time afterwards; if attacked then, she will defend herself and them with exceeding courage and fierceness. Many sows will often be found herding together, each followed by her litter of young ones; and in such parties they are exceedingly formidable to man and beast. Neither they nor the boar, however, appear to want to attack anything, but only when roused by aggression, or disturbed in their retreat, do they turn upon their enemies and manifest that mighty strength with which nature has endowed them; otherwise they pursue their way in a kind of solitary savage majesty. Occasionally, when two males encounter each other, a fierce and furious battle will ensue, especially if this happens during the rutting season, when their passions are inflamed.

When attacked by dogs, the wild boar at first sullenly retreats, turning upon them from time to time, and menacing them with his tusks; but gradually his ire rises, and at length he stands at bay, fights furiously for his life, and tears and rends his persecutors. He has even been observed to single out the most tormenting of them, and rush savagely upon him.

Hunting the wild boar has been a favourite sport, in almost all the countries in which this animal was found, from the earliest ages. In all the ancient Grecian and Roman classical writers, some allusions to this animal will

be found.* Homer, whose vivid portraitures of the actions and habits of princes and warriors nearly thirty centuries ago are known to almost every scholar, again and again refers to this savage denizen of the forests, nor can we deny ourselves the pleasure of extracting the following graphic lines :—

“ Soon as the morn, new roll'd in purple light,
Pierced with her golden shafts the rear of night ;
Ulysses, and his brave maternal race
The young Autolici, essay the chase ;
Parnassus, thick perplex'd with horrid shades,
With deep-mouth'd hounds the hunter troop invades
What time the sun from ocean's peaceful stream
Darts o'er the lawn his horizontal beam,
The pack impatient snuff the tainted gale ;
The thorny wilds the woodmen fierce assail ;
And foremost of the train, his cornel spear
Ulysses waved to rouse the savage war ;
Deep in the rough recesses of the wood,
A lofty copse, the growth of ages, stood ;
Nor winter's boreal blast, nor thund'rous shower,
Nor solar ray could pierce the shady bower,

* In hunting the wild boar, javelins and large nets were used. “The recent prints of the animal's feet on the ground, the impression of his teeth on the bark of the trees, and other indications, led us to a thick wood (Xenoph. ‘Exped. Cyr.’ lib. 5). We loosened a dog of Laconia, who followed the scent and brought a cry of his discovery. We immediately retired and prepared our nets, and occupied our respective places. The wild boar first comes on our side: far from being entangled in the net, he paused, and for a moment sustained the attack of the whole pack; but their baiting, and the attempts of the hunters to wound him with arrows and stones, caused him to re-enter the forest. He very soon met with Moschion, who awaited him with the intention of spearing him, but the spear glided over the shoulder of the animal and fell from the hands of the hunter, who instantly threw himself down with his face on the ground. I thought that he was lost. Already was the beast about to trample him under foot, when he saw Diodorus, who flew to the aid of his companion. He immediately sprung on this new enemy, who, more skilful or more fortunate, plunged his spear into the joint of the shoulder. We then had a dreadful example of the ferocity of this animal, who, although wounded, continued to advance furiously towards Diodorus, who also kept up the conflict. Several of the dogs were wounded and escaped, but Diodorus was more fortunate.”—Vid. Xenoph. “de Venat.” vol. v. 999, and “Voyage du Jeune Anacharsis,” vol. iv. 6.

With wither'd foliage strew'd, a happy store !
 The warm pavilion of a dreadful boar.
 Roused by the hounds and hunters' mingling cries,
 The savage from his leafy shelter flies,
 With fiery glare his sanguine eyeballs shine,
 And bristles high impale his horrid chine.
 Young Ithacus advanced, defies the foe,
 Poising his lifted lance in act to throw :
 The savage renders vain the wound decreed,
 And springs impetuous with opponent speed !
 His tusks oblique he aim'd, the knee to gore ;
 Aslope they glanced, the sinewy fibres tore,
 And bared the bone. Ulysses, undismay'd,
 Soon with redoubled force the wound repaid ;
 To the right shoulder-joint the spear applied,
 His further flank with streaming purple dyed :
 On earth he rush'd with agonizing pain,
 With joy, and vast surprise, the applauding train
 View'd his enormous back extended on the plain.*

The wild boar formed part of the sports, pageants, and wild-beast shows and fights of the Romans. On the return of Severus from Arabia and Egypt, in the tenth year of his reign, sixty wild boars fought each other ; and in the year that Gordian the First was ædile, he entertained the people of Rome, at his own expense, once a month ; and "on the sixth month there were two hundred stags, thirty wild horses, one hundred wild sheep, twenty elks, one hundred Cyprian bulls, three hundred red Barbary ostriches, thirty wild asses, and one hundred and fifty wild boars," given out to be hunted by the populace, and become the property of whosoever was fortunate enough to catch them.†

During the middle ages, hunting the wild boar formed one of the chief amusements of the nobility, in most European countries. The dogs provided for this sport were of the slow heavy kind, anciently known by the name of the "boarhound." None but the largest and oldest boars were hunted, and these afforded a very exciting and often dangerous sport, lasting for many hours ; for when first the animal was "*reared*," he contented himself with slowly going

* Homer's "Odyssey," xix. 501.

† "Augustan History," vol. ii.

away, just keeping ahead of his pursuers, and apparently caring but little for them, and pausing every half-mile to rest himself, and give battle to his assailants, who are, however, too wary to advance upon him until he becomes tired ; then he takes his final stand, and dogs and hunters close around him, and a mortal combat ensues, in which the beast eventually falls a victim.

In treatises on venery and hunting, the technical term for the boar in the first year is "a pig of the sounder ;" in the second, "a hog ;" in the third, "a hog-steer ;" and in the fourth, "a boar."

Many of the forests in our own country were infested by wild boars. The Anglo-Saxons seem, from the rude frescoes and prints which are handed down to us, to have hunted this animal on foot with no other weapon but the boar-spear, and attended by powerful dogs ; and apparently with such success, that at the Norman conquest William the First thought it necessary to make some strict laws for the preservation of this beast of the chase. The period for hunting the wild boar among the Anglo-Saxons was in September. Howel Dha, the celebrated Welsh lawgiver, gave permission to his chief huntsman to chase the boar from the middle of November until the end of December.*

These animals continued to linger in the forests of England and Scotland for several centuries after the Norman conquest, and many tracts of land have derived their name from this occurrence, while instances of valour in their destruction are recorded in the heraldic devices of many a noble family.† Fitzstephen, a writer of the twelfth century, informs us that wild boars, stags, fallow-deer, and bulls, abounded in the vast forests which existed on the northern side of London in the time of Henry II. The learned Whitaker informs us that this animal roved at liberty over the woods of the parish of Manchester for many centuries after the Romans departed from that station, and hence the name of Barlow (*boar-ground*) came to be assigned to a district in the south-western

* "Leges Wallicæ."

† The ancient crest of the family of Edgcumbe was a boar's head crowned with bays upon a charger.

portion. In Cumberland the appellation "Wild Boar's Fell" still points out the haunts of this animal. The forests of Bernwood in Buckinghamshire, of Stainmore in Westmoreland, and those extensive woody districts which once existed in Hertfordshire and over the Chiltern Hills, were formerly peopled with wild boars, wolves, stags, and wild bulls. Many ancient Scottish writers, too, speak of the existence of this animal in the woods of Caledonia. In the county of Fife there exists a tract of country formerly called *Muckross* (which in the Celtic signifies Boar's Promontory); it is said to have been famous as the haunt of wild boars. One part of it was called the Boar Hills, which name has since been corrupted into Byro Hills. It lies in the vicinity of St. Andrew's; and in the cathedral church of that city two enormous boar's tusks were formerly to be seen chained to the high altar, in commemoration of an immense brute slain by the inhabitants, after it had long ravaged the surrounding country.*

The precise period at which the wild boar became exterminated in England and Scotland cannot be correctly ascertained. Master John Gifford and William Twety, who lived in the reign of Edward II., composed a book on the craft of hunting, part in verse and part in prose; and among the beasts mentioned as those hunted we find,—

"To venery I cast me fyrst to go
Of whiche foure besats there be; that is to say,
The hare, the herte, the wulfhe, the wild boor also."

In the time of Charles I. they had evidently been long extinct, for he endeavoured to re-introduce them, and was at considerable expense in order to procure a wild boar and his mate from Germany. These are said to have been turned into the New Forest, where they propagated greatly. Certain it is that the breed commonly called "forest pigs" are very different from the true Hampshire, and have many of the characteristics of the wild boar.

Throughout the whole of England the boar's head was formerly a standard Christmas dish, served with many

* See Martine's "Reliquiæ Divi," and Sibbald's "Hist. of Fife."

ceremonies, and ushered in by an ancient chorus, chanted by all present, the words of which are preserved in "Ritson's Ancient Songs :"—

"The bore's heed in hand bring I,
 With 'garlands' gay and rosemary,
 I pray you all synge merily,
Qui estis in convivio.
 The bore's heed, I understande,
 Is the 'chefe' servyce in the lande ;
 Loke where ever it be founde,
Servite cum cantico.

Be gladde, lordes, bothe more and lasse,
 For this hath ordeyned our stewarde,
 To chere you all this Christmasse,
 The bore's heed with mustarde."

Queen Margaret, wife of James IV. of Scotland, "at the first course of her wedding dinner," was served with "a wyld bore's head gylt within a fayr platter."

King Henry II. himself bore this ancient dish into the hall, attended with trumpeters and great ceremony, when his son was crowned.

The boar's head is to the present day placed upon the table in Queen's College, Oxford, on Christmas-day ; but now it is neatly carved in wood, instead of being the actual head of the animal. This ceremony is said to have originated in a tabendar belonging to that college having slain a wild boar on Christmas-day, which had long infested the neighbourhood of Oxford. He is said to have been going to serve at church when he met the animal, and to have slain him by thrusting a copy of Aristotle down his throat.

The abbot of St. Germain, in Yorkshire, was bound to send yearly a present of a boar's head to the hangman, which a monk was obliged to carry on his own. This rent was paid yearly, at the feast of St. Vincent, the patron of the Benedictines ; and on that day the executioner took precedence in the procession of monks.

France, too, formerly had its trackless forests, through which the grisly boar roved in savage grandeur—its boar-hunts—its legends of sanguinary combats with these monsters. The "wild boar of Ardennes" has been the

theme of many a lay and romance. But civilization, the increase of population, and the progress of agriculture, have here too been at work. Still, however, in the large tracts of forest-land which yet exist and supply the towns with fuel, boars are even now occasionally to be met with, although they cannot be regarded as so wild or ferocious as the ancient breed. At Chantilly, within forty miles of Paris, the late Prince of Condé, who died in 1830, kept a pack of hounds expressly for the purpose of hunting the boar; and some English gentlemen who visited the hunting-palace in the summer of 1830, were informed by the huntsmen that a few days previously he had seen no less than fourteen wild hogs at one time. But the good old "wild-boar hunt," as it once existed, with all its perils and excitements, is now extinct in France as well as in Germany. Where any traces of it remain, they resolve themselves into a battue of a most harmless description, which takes place in the parks of the princes or nobles. The drivers beat up the woods, the wild swine run until they come in contact with a fence stretched across the park for the purpose, and about the centre of which, at an opening in the wood, a sort of stage is raised, on which the sportsmen stand and fire at the swine as they run past.

Germany, being a country boasting forests of immense extent, was once the most celebrated of all nations for its wild boars and boar-hunts; and in many parts wild hogs are still abundant, and various methods are adopted to destroy them, as well for amusement as to turn their carcasses to account, which furnish those finely-flavoured hams called Westphalian, and generally supposed to be bears' hams.

The most simple and effectual way is to find out the haunts of the boar, and place a firelock on rests, well charged, and concealed by brambles near it. A rope is attached to the trigger, and carried below the rests to the trunk of a tree at some little distance, so as to intersect the animal's path to the forest. Over this the hog inevitably stumbles, and thus discharges the piece and receives the ball in the neck or shoulder.

The ordinary method of shooting the hog in Germany is as follows:—

The huntsman, or *jäger*, goes out with an ugly but useful animal not unlike a shepherd's dog, but smaller, which is in German language called a "sow-finder." The business of this creature is to seek the hog, and so well trained is he that no other animal will turn him from that particular scent. On meeting with the object of his search he gives tongue incessantly, and with active but cautious irritation pursues the boar till he is at bay ; then, by continual teasing, he manages to turn him sideways to his master, the shoulder affording the best aim for readily disabling him. In this situation the sagacious dog contrives to keep him until his master fires ; then if the wounded boar makes off, the boarhound (a species of blood-hound) is let loose, who pursues him for miles, giving tongue ; nor will he leave him even if other boars come in the way.*

At the wild-boar park of the Emperor of Austria, which is at Hüttelsdorf, near Vienna, Mr. Howitt states that he saw "numbers of swine of all ages and sizes, from the grizzly old boar to the sow and her troop of sucking young ones. Here some grim old fellow, as black as jet, or of a sunburnt and savage grey, lay basking in the deep grass, and at our approach uttered a deep guff, and, starting up, bolted into the wood. Others were lying their length under the broad trees, others scampering about with cocked tails. The sows and their young seemed most savage and impatient of our presence. Some were tame enough to come at the whistle of the keeper, and scores ran voraciously when he shook one of the wild cornel trees, which grew plentifully in the forest. This is a tree as large as an apple tree, bearing in autumn fruit of about the size of cherries, and of a coral-red colour. The swine are very fond of it ; and as the trees were shook and it pattered to the ground, they came running on all sides, and stood in the thickets eager for our departure, when they rushed ravenously forward and devoured it.

"After all," he continues, "the wild swine here can present but a faint idea of what they were in their ancient wilds. They are all of the true breed, and cannot for a moment be confounded with the tame variety : there is the tusked

* "Foreign Field Sports."

mouth, the thick fore-quarter, the narrow hind-quarter, the mane, the coarse bristles, the speed of gait, indicative of the wild breed, but they appeared tame and pigmy in comparison with the huge savage monsters bred in the obscure recesses of deep forests, and unacquainted with the sight of man.

"Hunters tell us that, notwithstanding the orders of government to exterminate swine in the open forests, on account of the mischief they do to cultivated land, there are numbers in the forests of Hanover and Westphalia, huge, gaunt, and ferocious as ever. These will snuff the most distant approach of danger, and with terrific noises rush into the densest woods; or, surrounding a solitary and unarmed individual, especially a woman or a child, will scour round and round them, coming nearer and nearer at every circle, until at last, bursting in upon them, they tear them limb from limb and devour them. Tame swine, which are herded in these forests and become mixed in breed with the wild, acquire the same bloodthirsty propensities, and will in their herds surround and devour persons in a similar manner." *

The wild breed abound in Upper Austria, on the Styrian Alps, and in many parts of Hungary. In the latter country, a recent author, speaking of them, says:—"These animals have lost some little of their natural ferocity, but they still fly at the approach of strangers, and in their form and habits preserve all the characteristics of the true wild boar, from which stock they are descended without intermixture of any other breed. I am told, too, that their flesh has all the peculiar flavour of the wild boar. This animal, in a completely savage state, is now becoming very scarce in Hungary, and is only met with in the most secluded forests and in the recesses of the Carpathian mountains." †

The forests of Poland, Spain, Russia, and Sweden ‡ still

* Howitt's "Rural Life in Germany."

† Bright's "Travels through Germany and Lower Hungary."

‡ Lloyd, in his "Field Sports of Northern Europe," gives the following account of an encounter with a wild sow:—"One day, in the depth of winter, accompanied by my Irish servant, I struck into the forest, in the vicinity of that place, for the purpose of shooting capercali. On this occasion, however, we had no other guide than my pocket compass. Towards evening, and when seven or eight miles from home, we came to a small hamlet, situated in the recesses of the

contain animals of the wild boar tribe, and the inhabitants of these countries hunt them with hounds, or attack them with firearms or with the proper boar-spear.

But the most exciting accounts we now have of this sport are furnished by our countrymen in the East, who diversify their other hunts and field sports by occasionally chasing the wild hog. Captain Williamson, in his graphic volume, gives some very animated accounts of the perils of this chase, as does also Mr. Johnson; and if anything could reconcile us to the pursuing, tormenting, and shedding the blood of an animal who only puts forth his strength in self-defence, it would be the bravery and presence of mind exhibited by some of the huntsmen. One or two quotations will illustrate the habits of the wild hogs of India, as well as the mode in which they are hunted.

"The pace and powers of 'the wild hog' are not to be estimated by any comparison with those of the tame one. Persons unacquainted with the vigour and speed of the jungle hog will be surprised to learn that it requires a good horse to keep near a moderately-sized hog, and that it is by no means uncommon to see what is considered as a moderately-sized animal overthrow many horses in succession.

forest; here an old wild sow and her progeny made a determined dash at a brace of very valuable pointers I at that time had along with me, who naturally took shelter behind us. My man had a light spear in his hand, similar to those used by our Lancers; this I took possession of, and directing him to throw the dogs over a fence, in the angle of which we were cooped up, I placed myself between the dogs and their pursuers. The sow, nevertheless, still pressed forward, and it was only by giving her a severe blow across the snout with the butt end of the spear, that I stopped her further career. Nothing daunted, however, by this reception, she directed her next attack against myself, when, in self-defence, I was obliged to give her a home-thrust with the point of the spear. These attacks she repeated three several times, and as often got the spear up to the hilt either in her head or neck. She then slowly retreated, bleeding at all pores: so savage and ferocious a beast I never saw in my life. In the fray I broke my spear, which was as well, for it was by no means strong enough to answer the purpose for which it was intended.

"This was not a solitary instance of the ferocity of the wild swine. It was the same throughout Sweden; whenever they caught sight of my dogs, they generally charged, and if they came up with them, would tumble them over and over again with their snouts."

The fact is, that from April to November, during which period the canes and corn are off the grounds, the wild hogs are compelled to wander from the copses and long grass-jungles in which they take refuge, to greater distances, in search of food, by which means they are not only kept low in flesh, but, from their daily exercise, get confirmed in good wind, and seem rather to attack the hunter than to run away; and this is not merely during the space of a few hundred yards, but for a considerable distance. I recollect being one of four well-mounted riders, who were completely distanced in a chace of about three miles.

"In crossing the country early in June, about sunrise, we saw, at a considerable distance, a hog trotting over a plain to his cover, which was a large extent of brambles and copse, from which we could not hope to drive him. As there appeared no chance of overtaking him, we agreed to let him proceed unmolested, and to be at the place whence he had come by daybreak on the next morning. We accordingly were up early on the following morning, anticipating the pleasure of being at his heels, but on arriving at the spot in which we had observed him on the preceeding day we found him nearer to his cover than before.

"Knowing that when hogs take the alarm they are apt to change their route and their hours, we were not surprised at this manœuvring. We were still earlier on the third morning, when we took our positions nearer his place of nightly resort, and had the satisfaction to find that we were in time to bear him company homeward. Here, however, some delay took place. The hog on his first breaking from the small jungle where we awaited him, and through which he had to pass, after glutting himself in a swamp among some rye, sown extremely thick for transplanting, found that he was watched. He therefore, after trotting out a hundred yards, gave a sort of snort, and returned. This was precisely what we wished for.

"It was not yet day, and the desire to intercept our prey had made us push forward so as to place our people far behind. They, however, came up, to the number of a hundred, and after beating the cover for a short time, our friend took fairly to the plain.

"As we were careful not to dispirit, and had cautiously kept from that side on which we wished him to bolt, he gained upon us a little. He had to go at least three miles, and the whole of the plain was laid out in *paddy*, or rice fields.

"The hog kept ahead the whole way, so that there was no possibility of our throwing a distant spear.

"The swine generally establish themselves in cane or grain plantations, when these are high and afford good shelter, and here they live for several months; but about the middle of March, or, at the latest, the beginning of April, they are obliged to shift their quarters, as the cane and grains are generally cut about that time. However, they often retain possession to the last moment, disputing every inch with the reapers, and not rarely causing them to leave parts uncut, in the hope that the hogs will evacuate them, which, if the jungles to which they must betake themselves happen to be remote, they feel no great disposition to do, for at this season the hog is indolent and heavy, in consequence of the abundance of the excellent food to which he has for five or six months been habituated.

"Hogs are often found in March with three or four inches of fat on the chines and shoulders.

"It usually requires a great number of persons to drive the hogs out of the sugar-canes, on account of their extent. The beaters should not be more than five or six yards distant from each other, or they will turn back and rush through the intervals. Small drums should be used to frighten them out; sometimes this will be troublesome; it is particularly so with a sow that has 'pigs:' she will frequently come to the edge, and dash through the line of beaters again and again. The hog is generally hunted on horseback, but elephants are likewise employed in this sport, in which tigers are not unfrequently dislodged from their retreats.

"The hog, being forced from his covert, is crowded on by several horsemen with spears, which they use in the manner of javelins. They pursue the animal at speed as he makes his way to the nearest cover, darting their spears into his body as they come up to him. Those horsemen," says

Captain Williamson, "who are placed at the nearest situation, should gallop round to watch the hog passing, and giving the loud halloo, should dash at him at full speed, spearing as they come up. Some hogs, however, are aware of the plot, having been hunted before.

"Many may be seen with scars, evidently the result of wounds received on former occasions, and such are extremely difficult to deal with. They will break out of the line repeatedly, dash at all they meet with, and eventually create such terror as effectually to discourage the beaters, who thence get into groups, and, though they continue their vociferation, act so timorously, as to render it expedient to withdraw them for the purpose of trying a fresh cover. It is very common to see a plough at work at the very edge of the canes where the villagers are beating for hogs; and as the bullocks employed are extremely skittish and wild, it often happens that they take fright and run off with the plough which frequently is broken to pieces. The ploughman, alarmed equally with his cattle, also takes to flight, as do all the peasants who may see the bristling animal galloping from his haunt."*

Mr. Johnston describes another scene eminently characteristic of the desperate fierceness and strength of the wild hog. He was one of a party of eight persons, on a sporting excursion near Patna on the banks of the Soane. Returning one morning from shooting, they met with a very large boar, which they did not fire at or molest, as, although several of the party were fond of hunting, they had no spears with them. The next morning they all sallied forth in search of him, and just as they had arrived at the spot where they had seen him the day before, they discovered him at some distance galloping off towards a grass jungle on the banks of the river. They pressed their horses as fast as possible, and were nearly up with him when he disappeared all at once.

The horses were then nearly at their full speed, and four of them could not be pulled up in time to prevent their going into a deep branch of the river, the banks of which were at least fourteen or fifteen feet high. Happily there

* Williamson's "Oriental Field Sports."

was no water in, or anything but fine sand, and no person was hurt. One of the horses, that was exceedingly vicious, got loose, attacked the others, and obliged them, and all the rest, to recede.

A few days afterwards they went again, early in the morning, in pursuit of the same hog, and found him farther off from the grass jungle, in a rhur-field, from which with much difficulty they drove him into a plain, where he stood at bay challenging the whole party, and boldly charging every horse that came within fifty yards of him, grunting loudly as he advanced.

"The horse I rode," says Mr. Johnston, "would not go near him; and when I was at a considerable distance off, he charged another horse with such ferocity, that mine reared and plunged in so violent a manner as to throw me off. Two or three others were dismounted at nearly the same time; and though there were many horses present that had been long accustomed to the sport, not one of them would stand his charges. He fairly drove the whole party off the field, and gently trotted on to the grass jungle, foaming and grinding his tusks." *

In Morocco the wild boar is the most common and prolific of all the ferocious animals found there; the sow produces several large litters in the year; and were it not that the young form the favourite food of the lion, the country would be overrun with these animals.

In the woods of America there are abundance of wild swine, possessing all the ferocity of the boar. The following fearful scene occurred in Columbia. A party of six hunters had gone out on a sporting expedition. They fell in with a herd of swine, upon which four of them, less experienced than the others, immediately fired, and the swine advanced fiercely to attack them. The four young men, intimidated, took to flight without warning their companions, or considering the danger to which they were exposed. They climbed up into some trees; but the other two were quickly surrounded by the swine. They made a long and desperate defence with their lances, but were at length dragged down.

* Johnston's "Indian Field Sports."

One of them was torn to pieces, and the other dreadfully lacerated and left for dead by the swine, who now watched the four fugitives in the trees until sunset; then, probably yielding to the calls of nature, they retired. The surviving hunters then came down and assisted their wounded companion into the canoe, and carried off the remains of the unfortunate man who had fallen in this horrible encounter.*

We have entered thus much at length into the history of the wild boar, because no one can for a moment doubt that it is the parent stock from which the domesticated breeds of swine originally sprung; the well-known fact that all kinds breed with the boar is in itself a sufficient testimony; but to this we can add that the period of gestation is the same in the wild and tame sow; the anatomical structure is identical; the general form bears the same characters; and the habits, so far as they are not altered by domestication, remain the same.

Where individuals of the pure wild race have been caught young, and subjected to the same treatment as the domestic pig, their fierceness has disappeared, they have become more social and less nocturnal in their habits, lost their activity, and lived more to eat. In the course of one or two generations even the form undergoes certain modifications; the body becomes larger and heavier; the legs shorter and less adapted for exercise; the formidable tusks of the boar, being no longer needed as weapons of defence, disappear; the shape of the head and neck alters; and in character as well as in form the animal adapts itself to its new position. Nor does it appear that a return to their native wilds restores to them their original appearance, for in whatever country pigs have escaped from the control of man and bred in the woods and wildernesses, *there does not appear to be a single instance recorded by any naturalist in which they have resumed the habits and form of the wild boar. They become fierce, wild, gaunt, and grizzly, and live upon roots and fruits; but they are still merely degenerated swine, and they still associate together in herds, nor "walk the glade in savage solitary grandeur," like their grim ancestors.*†

* Cochrane's "Columbia," vol. i.

† A very strong evidence that the domesticated and wild breeds of swine were originally distinct.—S. S.

CHAPTER IV.

Swine in America—In large Towns—Original Breed—Improved Breeds—Hebrides—In the South-Sea Islands—Swine in Asia—In China and Japan—Ceylon—Hindustan—Turkey and Arabia—In Malta—In Italy—In Germany—In Hungary—In Russia—In Sweden—In France.

AMERICA.

THROUGHOUT the whole of this quarter of the globe swine appear to abound. They are not, however, indigenous, but were doubtless originally carried thither by the early English settlers ; and the breed thus introduced still may be distinguished by the traces they retain of their parent stock ; but France, Spain, and, during the slave-trade, Africa, have also combined to supply America with varieties of this animal, so useful to the settler in the wilds and woods, and so much esteemed, throughout the whole of the country, as furnishing a valuable article of food.

It appears that the American zoologists describe no fewer than six species of the hog, some of them so entirely distinct in their general habits and appearance as to prevent their ever breeding or even associating together. Five of these species need only be regarded as objects of curiosity ; the sixth is the common wild hog of the western continent—which we will describe, in order to illustrate the difference between a good and a bad animal of the same variety ; they have long-peaked snouts, coarse heads, thin chests, narrow shoulders, sharp backs, slab sides, meagre diminutive hams, big legs, clumped feet, the hide of a rhinoceros, the hair and bristles of a porcupine, and as thick and shaggy as a bear's ; they have no capacity for digesting and concocting their food in the stomach for nourishment ; there is nothing but offal, bones, rind, bristles, and hair, with a narrow streak of gristle underneath, and a still narrower line of lean, as tough and as rank as white leather—their snouts against every man,

and every man's hand against them. No reasonable fence can stop them ; but, ever restive and uneasy, they rove about, seeking for plunder, swilling, grunting, rooting, pawing—always in mischief and always destroying. The more a man possesses of such stock, the worse is he off ; and he had far better sell his produce at any price, than to put it into such totally worthless creatures.

In large towns, too, they are apparently as much at home and as common as in the forests, pacing the streets instead of the glades, and feeding upon the offal and filth rejected by man, instead of the fresh and wholesome fruits supplied by the hand of nature. One of our countrymen gives an amusing, graphic account of the swinish multitude in some of the large towns through which he passed.

“We are going to cross here. Take care of the pigs. Two portly sows are trotting up behind this carriage, and a select party of half a dozen gentlemen hogs have just now turned the corner. Here is a solitary swine, lounging homewards by himself ; he has only one ear, having parted with the other to vagrant dogs in the course of his city rambles ; but he gets on very well without it, and leads a roving, gentlemanly, vagabond kind of life, somewhat answering to that of our clubmen at home. He leaves his lodgings every morning at a certain hour, throws himself upon the town, gets through his day in some manner quite satisfactory to himself, and regularly appears at the door of his own house again at night, like the mysterious master of *Gil Blas* ; he is a free-and-easy, careless, indifferent kind of pig, having a very large acquaintance among other pigs of the same character, whom he rather knows by sight than conversation, as he seldom troubles himself to stop and exchange civilities, but goes grunting down the kennel, turning up the news and small-talk of the city, in the shape of cabbage-stalks and offal, and bearing no *tails* but his own, which is a very short one, for his old enemies the dogs have been at that too, and have left him hardly enough to swear by ; he is in every respect a republican pig, going wherever he pleases, and mingling with the best society, on an equal if not superior footing, for every one makes way when he appears, and the haughtiest give him the wall if he prefer it ; he is a great

philosopher, and seldom moved unless by the dogs before mentioned ; sometimes, indeed, you may see his small eye twinkling on a slaughtered friend, whose carcass garnishes a butcher's door-post ; but he grunts out, 'Such is life—all flesh is pork !' buries his nose in the mire again, and waddles down the gutter, comforting himself with the reflection that there is one snout the less to anticipate stray cabbage-stalks, at any rate.

"They are the city scavengers, these pigs ; ugly brutes they are, having for the most part scanty brown backs, like the lids of old horse-hair trunks, spotted with unwholesome black blotches ; they have long gaunt legs, too, and such peaked snouts, that if one of them could be persuaded to sit for his profile, nobody would recognize it for a pig's likeness ; they are never attended upon, or fed, or driven, or caught, but are thrown upon their own resources in early life, and become preternaturally knowing in consequence. Every pig knows where he lives much better than anybody could tell him. At this hour, just as evening is closing in, you will see them roaming towards bed by scores, eating their way to the last. Occasionally some youth among them, who has over-eaten himself, or has been worried by dogs, trots shrinkingly homeward, like a prodigal son ; but this is a rare case ; perfect self-possession and self-reliance, and immovable composure, being their foremost attributes."*

And Mrs. Trollope piteously exclaims—"I am sure I should have liked Cincinnati much better if the people had not dealt so very largely in hogs ! The immense quantity of business done in this line would hardly be believed by those who had not witnessed it. I never saw a newspaper without remarking such advertisements as the following : 'Wanted, immediately, 4,000 fat hogs.' 'For sale, 2,000 barrels of prime pork.' But the annoyance came nearer than this. If I determined upon a walk up Main Street, the chances were five hundred to one against my reaching the shady side without brushing by a snout or two, fresh dripping from the kennel. When we had screwed up our courage to the enterprise of mounting a certain noble-looking sugar-loaf

* Dickens's "American Notes."

hill, that promised pure air and a fine view, we found the brook we had to cross at its foot red with blood from a pig slaughter-house ; while our noses, instead of meeting 'the thyme that loves the green hill's breast,' were greeted by odours that I will not describe, and which I heartily hope my readers cannot imagine ; our feet, that on leaving the city had expected to press the flowery sod, literally got entangled in pigs' tails and jaw-bones ; and thus the prettiest walk in the neighbourhood was interdicted for ever." *

The common breed may for the most part be described as large, rough, long-nosed, big-boned, thin-backed, slab-sided, long-legged, ravenous, ugly animals. But latterly great improvements have been made in it by judicious crossing with the Chinese and British breeds.

SOUTH-SEA ISLANDS.

The South-Sea Islands, on their discovery by Europeans, were found to be well stocked with a small, black, short-legged hog : the traditionary belief of the human natives was, that these animals were as anciently descended as themselves. The hog, in fact, is in these islands the principal quadruped, and is of all others the most carefully cultivated. The bread-fruit tree, either in the form of a sour paste or in its natural condition, constitutes its favourite food, and its additional choice of yams, eddoes, and other nutritive vegetables, renders its flesh most juicy and delicious ; its fat, though rich, being at the same time (so says Foster) not less delicate and agreeable than the finest butter. Before our missionary labours had proved so signally successful in these once forlorn and benighted regions, by substituting the mild spirit of Christianity for the sanguinary forms of a delusive and degrading worship, the Otahetians and other South-Sea Islanders were in the habit of presenting roasted pigs at the *morais*, as the most savoury and acceptable offering to their deities which they could bestow.

* "Domestic Manners of the Americans."

ASIA.

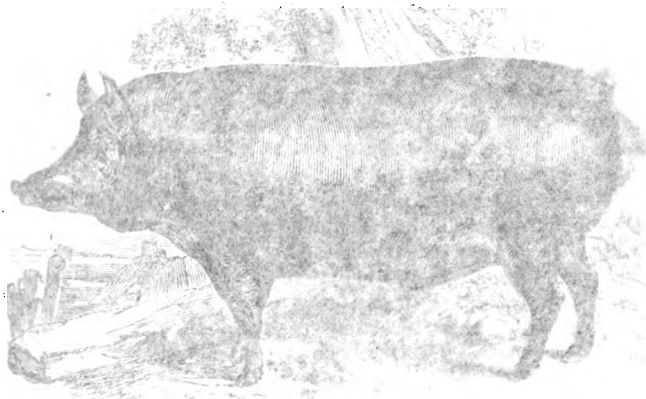
Throughout the greater part of Asia swine are to be found. The extensive and magnificent forests which cover much of the Burmese Empire, Siam, Cochin China, and other kingdoms of the south-east, abound with hogs, as well as other pachydermatous animals.

Here are found the celebrated Siamese or Chinese breed, so much esteemed throughout all parts of the world to which they have been exported: distinguished for their small size, fine head and snout, compact deep carcass, large hams and shoulders, short limbs, delicate feet, fine hair and skin, aptitude to fatten and grow, and the sweet delicate meat they yield. On the Hills in British India the soldiers make a business of feeding pigs and curing hams and bacon for the Calcutta market.

CHINA AND JAPAN.

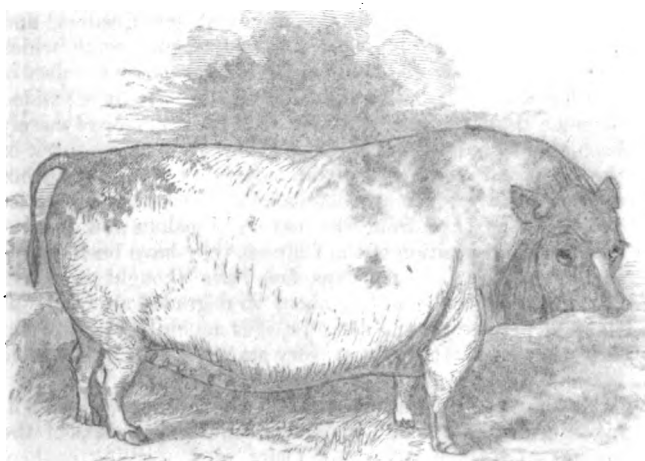
The Chinese and Japanese are great pig-breeders, and make the art of crossing, breeding, and rearing swine, which furnish them with their principal animal food, an object of peculiar attention and study. Merchants who have resided for some time in China, and even travellers who have merely been able to bestow a superficial glance on matters, speak of the great care bestowed upon this point; but no author appears to have given any details as to the course of practice adopted. Perhaps from the naturally jealous and uncommunicative disposition of the Chinese, they have been unable to acquire any; and, perhaps, few have thought it worth while to trouble themselves about so degraded an animal as the pig. However this may be, it is much to be regretted that the information is so very scanty, for many valuable hints might probably have been thus obtained.

Tradescent Lay, the naturalist in Beechey's expedition, in his interesting work on China, thus amusingly speaks of the natives and their swine:—"There is a striking analogy between these two. A Chinese admires a round face and



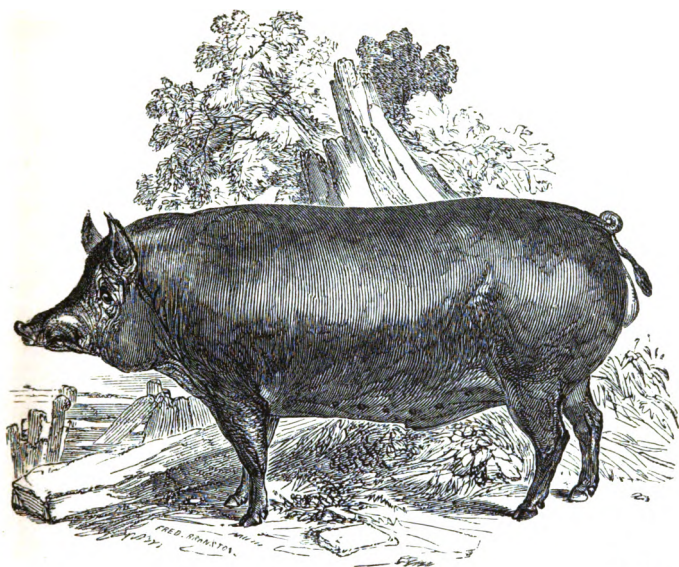
LOD WESTERS

1870



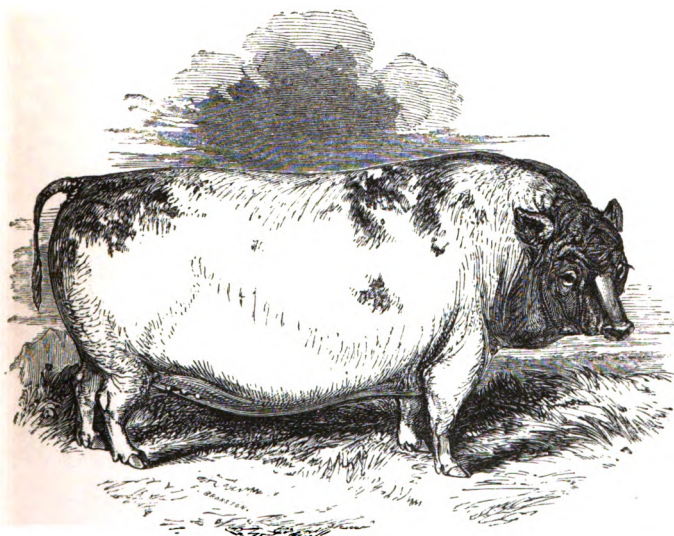
A CHINESE SOW

1870



LORD WESTERN'S ESSEX.

Page 30.



A CHINESE SOW.

Pages 45, 46.

the smooth curvatures of a tun-belly, and where opportunity serves, cultivates these additions to personal beauty in himself. The Chinese pig is fashioned on the same model. At an early period the back becomes convex, the belly protuberant, and the visage shows a remarkable disposition to rotundity. Nor is the resemblance merely personal ; in the moral character there is an amusing similitude, contrariety and obstinacy being the prevailing characteristics of both men and brutes."

This same author informs us that swine are rarely driven or made to walk in China, but conveyed from place to place in a species of a cradle suspended upon a pole, carried by two men. But he says, "the difficulty is to get the animal into this conveyance, and this is accomplished by the cradle being placed in front of the pig, and the owner then vigorously pulling at 'porky's tail,' and in the spirit of opposition the animal darts into the place they have prepared for him. At the journey's end the bearers dislodge him by spitting in his face."

Mr. Lay states that "pork is very plentiful in China, but never agreeable to the European eye, from its shining, flabby appearance ; it does not taste, either, like our pork, and is only tolerable when cut into thin slices and fried in soy to correct the grossness of the natural juices. The natives cut it in long slices or rashers, and dry it in the sun, and thus prepared it is not unpleasant in flavour, although it is then by no means easy to distinguish it from dogs' or cats' flesh similarly prepared."*

CEYLON.

In speaking of Ceylon and its neighbourhood, an intelligent traveller says :—"The swine here are a long-legged ugly breed, allowed to run wild and pick up whatever food they can get. I never saw at any native cottage or farm a pig penned or put up to fatten, and yet the natives are very

* "The Chinese as they are," by Tradescent Lay.

fond of hog's flesh, and never hold any feast or festival without this meat constituting the chief and most approved dishes."

TURKEY AND ARABIA.

In Turkey, Syria, Persia, Arabia, and the north-eastern parts of Asia, comparatively few pigs are found, and these are of iron-grey, black, and occasionally brown hue ; short-legged, small, round in the body, very apt to fatten, and attaining the weight of from 350 to 400 lbs.* And there are two ways of accounting for this, viz. : the prevalence of the Mohammedan religion, and the sandy open nature of the country ; for it is chiefly in well-wooded if not cultivated districts that we find swine, their nature and habits alike unfitting them for dry sandy deserts.

AFRICA.

In this quarter of the globe again we meet with but few swine, until we approach the south-eastern parts, and for the same reason which we have just given. In Abyssinia they are to be found, but they are not held in much estimation.

The Coast of Guinea used to possess a breed of swine which have been exported thence as an article of commerce, especially to the new settlements in America and to some parts of the East Indies, and were held in high estimation at that time. But the cessation of the intercourse induced by the slave-trade, and the discovery of more valuable breeds, have rendered these almost forgotten. These animals were large in size, square in form, of a reddish colour, the body covered with short bristly hair, and smoother and more shiny than almost any other variety of the porcine race ; the tail very long, and the ears long, narrow, and terminating in a point.

* Mr. Coate, of Hamoon, Dorset, traces pigs to a Turkish breed.

MALTA.

Coming up the Mediterranean Sea we find the small black Maltese breed, the bodies of which are almost bare and smooth, and which fatten so aptly and afford such delicate pork. Spain then offers its breeds, none of which are, however, held in great estimation out of their native country. The chief of these is a short-headed, long, yet round-bodied, dumpty-legged variety, of a reddish brown or copper colour; the skin fine and the bristles slender; it is small in size, very prolific, and may easily be fattened to an enormous weight. This breed is also found in Portugal and some parts of the south of Italy; it closely resembles the Siamese pigs, and has doubtless originally sprung from them. The far-famed Bologna sausages are made from the flesh of this animal.

ITALY.

Italy too is in some degree celebrated for its pigs, the best breeds of which, like the Maltese, are small, black, destitute of bristles, and delicate in flesh. The Neapolitan breed has been extensively exported, for the purpose of crossing with other kinds, and has found considerable favour in many parts of England. In themselves these pigs are not sufficiently hardy for general use, but, crossed with rougher breeds, they yield a valuable progeny, fine in form, delicate in flesh, and easy to fatten. There is a much larger race of swine bred in the Duchy of Parma, and generally considered to be the finest breed in Italy, in every point of view.

In Palermo, the environs of Rome, and the neighbourhood of Bologna, pigs are kept. On the Apennines, a good breed exists, which the farmers fatten on chestnuts and milk, housing them in the winter and suffering them to run over the mountains during the summer. At one farm a traveller found a herd of 2,000 pigs, of the domestic breed, and black. They run all the year on the immense tract of land which extends towards the sea, are fatted on nuts and

acorns, and yield excellent meat. They are not indigenous, but have been brought thither to stock the woods. On the wild plains and marshes round Rome wild boars are found in perfection.

The pigs found on the marshy plains of Polesino, between Bologna and Ferrara, are large, lean, thin-flanked, and long-limbed animals.*

In some of the towns of Italy certain swine are made privileged animals, by undergoing some ceremonies; they are then, to all intents and purposes, citizens, and may roam the streets unmolested, seeking their daily food. Among the ancient statutes of Trieste, some of which are now abrogated, the following may still be found:—"It shall be also lawful for two pigs of the fraternity of St. Anthony to wander in the city, they having one ear cut off and the other slit. But when they have procreated, the superior or stewards of the said fraternity shall provide that all the young ones, except two only, be, within the month next ensuing, sold or sent out of the city, under a penalty of fifty livres. And if the said two pigs do any damage, the stewards shall be bound to make it good, and the party complaining shall be delivered on his oath, both as to the nature of the damage and its extent. And to every judge of the city it shall be lawful to hear and determine all such causes in a summary way, after one sole citation of the stewards."

GERMANY.

Pursuing our way to Germany we meet with totally different animals, submitted for the most part to an entirely different management. The common breeds of the country are everywhere described as huge, gaunt, long-legged, lean-bodied, greyhound-like animals, with exceedingly long snouts and coarse bristles, forming almost as much of a mane on the neck and shoulders as those of the wild boar.

In Prussia and many parts of Poland a rather smaller,

* "Chateauvieux's Letters from Italy."

but scarcely less uncouth, race are met with, of a yellow or reddish-brown colour.

Thäer, in his valuable work on agriculture, informs us, that "the chief breeds of pigs known in the north of Germany, and crossed in various different ways, are—the Moldavian, Wallachian, and Bothnian pigs, remarkable for their enormous size, iron-grey colour, and large lapping ears; and the Polish, or, properly speaking, the Podolian pigs, which are also very large, but are of a yellow colour, and have a broad brown stripe along the spine." These two breeds, he says, furnish the large pigs for fattening, but they require a proportionably large quantity of food, and besides are not very productive, the sows seldom bringing forth more than four or five at the most at a birth.

The Bavarian pigs, he states, are much esteemed for their smallness of bone and aptitude to fatten; but the flesh is not liked, it being too flabby and soft. This breed is usually marked with reddish-brown spots.

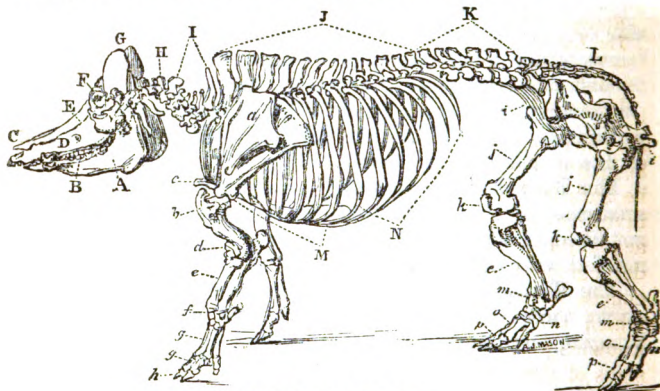
The Westphalian is another breed very generally met with: these animals are large in size, and very prolific, bringing forth ten or twelve at a litter.

FRANCE.

The original breeds of France are almost all coarse ungainly animals, for the most part white, excepting towards the south, and there we find the native breeds very much to resemble those of Italy. "In the time of Buffon, the greater proportion of the hogs in the north of France were white, as were likewise those of Vivarais; while in Dauphiny, which is not far distant, they were all black. Those of Languedoc and Provence were also of the latter colour. Black pigs still prevail both in Italy and Spain.

The race known abroad under the name of *Cochon de Siam*, or *Tonquin*, is the representative of our Chinese breed. Its ears are short, straight, and flexible; its body is covered with soft and somewhat silky hair, which is stiff and thick on the head and back of the neck, and frizzly on the cheeks

and under-jaw ; on the other parts it is thin, and for the most part hard and black. The skin is also black, except on the belly ; the eyes are surrounded by a slight tinge of flame-colour ; their tails measure nine inches in length ; their bodies three feet three inches ; their height at the shoulder is one foot eight inches (French). This breed appears to have spread extensively over most of the southern shores of the old continent.



SKELETON OF THE FIG.

THE HEAD.

- | | |
|---|--|
| A. Maxilla inferior, vel posterior—lower jaw. | D. Maxilla superior, vel anterior—upper jaw. |
| B. Dentes—the teeth. | E. Os frontis—the frontal bone. |
| C. Ossa nasi—the nasal bones. | F. Orbiculus—the orbit or socket of the eye. |
| | G. Os occipitis—the occipital bone. |

THE TRUNK.

- | | |
|---|---|
| H. Atlas—the first vertebra of the neck. | J. Vertebrae dorsi, vel dorsales—the vertebrae of the back. |
| I. Vertebrae colli, vel cervicales—the vertebrae of the neck. | K. Vertebrae lumborum, vel lumbales—the vertebrae of the loins. |
| | L. Ossa coccygis—the bones of the tail. |

FORE EXTREMITY.

- | | |
|-------------------------------------|---|
| a. Scapula—the shoulder blade. | f. Os naviculare—the navicular bone. |
| b. Humerus—the round shoulder bone. | g. g. Phalanges, vel ossa pedis—the first and second bones of the foot. |
| c. Sternum—the breast bone. | h. Phalanges, vel ossa pedis—the bones of the hoof. |
| d. Ulna—the elbow. | |
| e. Radius—the bone of the fore-arm. | |

HIND EXTREMITIES.

- | | |
|--|---|
| i. i. Pelvis (ossa innominata) — the haunch bones. | n. n. Os naviculare—the navicular bone. |
| j. j. Os femoris—the thigh-bone. | o. o. Digiti, vel phalanges (ossa pedis)—the first digits of the foot. |
| k. k. Patella—the stifle-bone. | p. p. Digiti, vel phalanges (ossa pedis)—the second digits of the foot. |
| l. l. Tibia—the upper bone of the leg. | |
| m. m. Tarsus (one of which is the (N) os calcis)—the hock bones. | |

CHAPTER V.

The Skeleton of the Hog—Skull and Snout—Teeth—Brain—Apoplexy—Inflammation of the Brain—Phrenitis—The Spinal Cord—Epilepsy—Palsy and Paralysis—Tetanus—Rabies—Nasal Catarrh—The Larynx—The Pharynx—The Os Hyoides—Strangles and Quinsy—The Chest—Diseased Valves of the Heart—The Bronchial Tubes—Inflammation of the Lungs, or Rising of the Lights—Pleuro-Pneumonia—Epidemics.

A VERY slight acquaintance with that complicated and beautiful structure which we term the animal economy will be sufficient to convince us that any rational method of investigating or treating disease must be founded upon an acquaintance with the general construction of the frame, the derangements and alterations to which it is liable, and a concise notion of the various systems or sets of organs of which the body is composed. Without this amount of knowledge it will be impossible correctly to interpret those signs of alteration of structure or function which constitute the symptoms of disease, and indicate its nature and seat.

If we would understand how to regulate the working of some complicated machine, we must not content ourselves with a mere cursory glance at its exterior, but closely inspect the different parts; make ourselves acquainted with their shape, situation, and arrangement; inquire into the principles upon which the whole is constructed,—its mode of action, and the offices which each part was destined to perform. Proceeding thus, we shall arrive at a knowledge of the best means of preserving it from injury, repairing any accident that may happen to it, and maintaining it in a fit state for the efficient discharge of the duties it was intended to perform.

The animal economy consists of parts or organs, differing from each other in structure and function, yet all so intimately connected together, and so mutually dependent upon each other, that the co-operation of the whole is necessary

to a state of perfect health ; and if any one part suffer injury the neighbouring organs sympathise with it to a greater or less extent, and the working of the whole system is impaired. In order to arrive at a proper understanding of the functions of any one part of the body, we must study the whole ; there is no other way of obtaining that insight into disease which will furnish us with a clear idea of the precise nature and seat of a malady, and the course of treatment most likely to be attended with success. The uninformed empiric who deals about his nostrums at random is far more liable to put an end to the life of his patient than to arrest the progress of the disorder. Such men should never be allowed to tamper with the meanest animal. It is only to those who, from close study and long practice, have acquired an accurate knowledge of the anatomy, diseases, habits, and general management of domesticated animals, that their medical treatment can with safety be entrusted.

It is, however, by no means our intention in this work to give a formal treatise on the anatomy, physiology, and diseases of the pig, but simply to lay before our readers a tolerably comprehensive sketch of the general structure of the animal, and the alterations and evils to which certain parts are liable, and this divested as much as possible of all the technicalities of professional language. A description of the different parts, their form, situation, action, and functions, as well as their admirable adaptation to the ends for which they were designed, will lead us to a consideration of the diseases incidental to them—to the treatment proper to be adopted—and to some account of the various operations which it may occasionally be requisite to perform. In short, we would present them with a practical digest of all that is yet known relative to this too much neglected branch of veterinary science ; one that shall serve as a book of reference in cases of doubt or emergency, and aid in introducing those great truths and leading doctrines which form the groundwork upon which the practice of every branch of medical science ought to be based, into the last strongholds of ignorance and empiricism.

In entering upon the anatomy and diseases of swine we may be said to take possession of a new and almost un-

trodden field, one as yet scarcely recognised as belonging to any earlier occupants ; and here, in the outset, it will be as well to observe that, careful and lucid as we shall endeavour to make our descriptions, we should only mislead the agriculturist or grazier if we were to encourage him to believe that they will enable him wholly to dispense with a veterinary surgeon. Far from it ; we would rather persuade him to seek at once the assistance of the well-educated and scientific practitioner, who, from close study, practical experience, and surgical skill, is qualified successfully to grapple with the most obscure and fatal diseases. We would enable him to assist the veterinary surgeon in his often arduous task, by giving him that information as to the previous symptoms, habits, &c., of the patient, which can alone enable him to proceed with certainty, and will tend to save the life of many a valuable animal ; and, lastly, we would warn him against empirics.

[There is something in Mr. Youatt's observations. But well-managed pigs suffer very little from disease, and the remedies are simple. The fact is, that when a pig was only worth a £1, the owner could not afford a doctor ; but when a sow or boar is worth £20 to £40, the best advice must be called in. Mr. Fisher, whose experience runs back for forty years, and who manages one of the largest and most valuable pig-breeding sheds in the kingdom, says, "*With ordinary care and under rational treatment, the pig is liable to very few diseases.* We never knew but one pig-doctor, and although he was said to be wondrous clever at his profession, and seldom lost a patient, yet he had very little practice ; the few he had, got well, and then got fat, while he starved and died, and when he departed, no one cared to catch his mantle. And we are afraid that very few veterinary surgeons think the pig worthy of their study. The few we have called in fought very shy, and all we could ever get out of the old doctors was, that 'mustard' was the best salve for pig-flesh, and 'yeast' the best physic for him."—S. S.]

Swine, from having been, until very lately, considered as a subordinate species of stock, have not yet, to any extent, become sharers in the benefits which the present advancing state of veterinary science has conferred upon other domesticated

animals. When anything goes wrong in the piggery, the farmer too often, instead of exercising that shrewd sense which he turns to so good an account in almost every other instance, either sends for the butcher, or consigns the sick tenants of the sty to the care of an ignorant "pig-doctor," whose whole pretensions to leech-craft rest on the possession of some antiquated recipe, which he uses indiscriminately as a grand panacea for "all the ills swine's flesh is heir to," or on the traditionary lore he inherits from some ancestor famous in his day for certain real or supposed wondrous cures. The treatment adopted in such a case is usually of a very summary nature: a drench is administered, the principal ingredients of which consist in whatever abominations happen to come to hand first when this learned practitioner is summoned. The unlucky patient's tail is next cut off, or he is bled "between the claws," and the "doctor," after some learned clinical remarks to the bystanders, swallows the customary mug of beer, and leaves his patient to contend with the disease and the remedy, one or the other of which in most cases speedily brings the matter to a conclusion, unless, with all the obstinacy inherent in a pig's nature, he lives on in spite of both. The following anecdote, which appeared in one of the daily papers, is strikingly illustrative of the rough practice of the "village pig-doctor":—

"A poor weaver laid the following complaint before the magistrate. He kept a pig, which, appearing to be unwell, he asked a pig-doctor to come and see it. The man came, examined the animal, stated that it had got 'a bit of a cold,' but he could soon give it a drink that would cure it. The price of this drink was to be 1s. 2d., and the poor man agreeing to pay for it, the pig-doctor gave the animal some warm water, and promised to bring the pig-medicine in the evening. So beneficial were the effects of the water, that the pig was shortly running about as brisk as ever he was in his life. The drink was sent in the evening in a broken-necked bottle, which was violently forced into the animal's mouth, in spite of the remonstrances of the owner. In the struggle the bottle was still more broken, and the pig's mouth bled very much. The poor man, however, paid the

1s. 2d. ; but on the following morning, on going into the pig-sty, found his pig lying dead. On its being opened, three pieces of the glass bottle were found sticking in the windpipe."

Many similar instances of barbarity as well as gross ignorance might be added, but a narration of them would be of no practical benefit, and therefore we proceed at once to our legitimate subject.

THE SKULL AND SNOUT.

As the skull of the hog differs in many respects from that of the horse, ox, sheep, or dog, we shall now proceed to notice those points of difference.

From the point of the occiput to the tip of the nasal bone the profile presents an almost unbroken sloping line. The position of the orbit of the eye is lateral, giving to the animal a side, rather than a forward range of vision. The space occupied by the orbital processes of the frontal bone in the ox and horse is in the hog supplied by a cartilage. The frontal bones unite together early, and the parietals appear to form but one piece. The frontal sinuses proceed to the occiput, and are only separated from each other by some longitudinal or somewhat oblique bony layers, which do not entirely intercept communication ; these and the sphenoidal sinuses render the cerebral cavity narrow ; in fact, the size of it is only half that of the cranium viewed from the exterior. The ethmoid and turbinated bones are larger and more fully developed in the hog than in the ox or sheep ; in fact, they occupy an intermediate grade between those of the horse and dog, being larger than those of the former, and smaller than those of the latter ; they are spiral, complicated, cellular, and offer an extensive surface for the expansion of the olfactory nerve ; the ethmoidal fossa is very much sunk, of moderate size, divided by a very salient crest, and riddled with numerous holes.

The nasal bones of the hog are situated low down in the face, flattened, and well adapted to the situation and wants of the animal. They are attached to the frontals in a

slightly curved direction across the face, by a strong denticulated suture. All communication between them and the lachrymal bones is cut off by the interposition of a projection of the frontals on either side; the suture between them and the superior maxillary is mortised; the anterior maxillary sends up a broad, deep process, more than half the length of the nasal bones, and the suture here is exceedingly strong. The bony nasal opening is but small, not one-sixth of the size of that of the sheep, and the apices of the bone form one sharp but rapidly-widening point, which is carried forward to the anterior extremity of the maxillary. The suture between the nasals themselves is often so intricate that before the animal is two years old the upper part of it is perfectly obliterated, and the nasal cavity appears as if only covered by one bone. A very slight comparison of the face of this animal with that of any other will prove that strength is the object here in view—strength towards the inferior part of the bone; in point of fact, the snout of the hog is his spade, with which, in his natural state, he digs and grubs in the ground for roots, earth-nuts, worms, &c. And to render his implement more perfect, an extra bone is added to the nasal bone. This one is short and trifacial, and placed directly before the nasal bones, with which, and with the edges of the anterior maxillary, it is connected by strong ligaments, cartilages, and muscles. This bone has been termed the *spade-bone*, snout-bone, and by some writers the *vomer*, from its supposed resemblance to a ploughshare. By it and its cartilaginous attachments is the snout rendered strong as well as flexible, and far more efficient than it could otherwise be; and the hog often contrives to give both farmers and gardeners very unpleasant proofs of its efficiency, by ploughing up deep furrows in newly-sown fields, and grubbing up the soil in all directions in search of his living and dead food.

The palatine bones constitute the crescentic and posterior border of the palate and nasal cavity; they do not advance further than just before the last molar tooth, instead of occupying a considerable portion of the palate. The palatine processes consist merely of bony laminae.

As roots and fruits buried in the earth form the natural food of the hog, his face terminates in a strong muscular snout, insensible at the extremity, and perfectly adapted for turning up the soil. There is a large plexus of nerves proceeding down each side of the nose, and ramifying over the nostril, and in these doubtless reside that peculiar power which enables the hog to detect his food though buried some inches below the surface of the ground. The olfactory nerve is large too, and occupies a middle rank between that of the herbivorous and carnivorous animals ; it is comparatively larger than that of the ox : indeed, few animals, with the exception of the dog, are gifted with a more acute sense of smell than the hog. We have already spoken of the sow which was taught to hunt partridges, and proved as sure a finder and as staunch a backer as any pointer ever bred. To the acute sense of the hog are epicures indebted for the truffles which form such a delicious sauce, for they are the actual finders. A pig is turned into a field and suffered to pursue his own course, and watched. He stops and begins to grub up the earth, the man hurries up, drives him away, and secures the truffle, which is invariably growing under that spot, and the poor pig goes off to sniff out another, and another, only now and then being allowed, by way of encouragement, to reap the fruits of his research. And how many a schoolboy has, by watching a hog along the hedge-sides, and driving him away just as he began to dig, secured a fine juicy earth-nut.

The muscles, too, of the snout of the hog require some notice. According to Cuvier, there are four principal muscles proceeding to it ; the superior of these proceeds from the lachrymal bone, which occupies a rather large rhomboidal space upon the cheek, and its tendon bears upon the snout, but does not approach sufficiently near to it to unite with it. The next two are situated immediately beneath, and proceed from the maxillary bone ; these are partially united, but their tendons pass on separately, one on the one side and one on the other of the extremity of the snout ; and the fourth and smallest passes obliquely beneath the tendons of the others, from the nasal bone towards the insertion of the second and third muscles.

These longitudinal muscles are enveloped in annular fibres, which appear to be a continuation of the *orbicularis* of the lips, and give to the snout its extreme flexibility.

THE TEETH, .

As Indicating the Age of the Pig.

The age of pigs becomes a matter of importance when they are exhibited for prizes. The roguery practised exceeds the belief of those who have been neither judges nor exhibitors. It is almost impossible to decide on the age of a pig without secondary evidence in the shape of a *regularly*-kept breedings book ; for the animal, especially when forced, varies in its dentition as much as children do ; and unscrupulous exhibitors take advantage of this fact to make very startling assertions as to age in their entries. In a speech at the dinner of the Smithfield Club, the honorary secretary, Mr. Brandreth Gibbes, who is not in the habit of making rash assertions, said that many of the pig exhibitors seemed, like the negro in Captain Marryat's novel, to have passed all their spare time in filing their (pigs) teeth.

The following extracts from a minute investigation into the age of pigs as indicated by their teeth, published by Professor Simonds in the fifteenth volume of the "Journal of the Royal Agricultural Society," is the best information we have on the subject ; but it is right to add, that pig-breeders of great experience and undoubted integrity differ materially from the Professor's conclusions, and maintain that there is as much variation in the teething of pigs as of children.

"Unlike the ox and sheep, the pig is born with a given number of teeth that have cut the gums ; these are always eight, four in each jaw, and well developed. They have very much the appearance of small tushes, are situated by the side of the mouth, and, consequently, do not injure the nipple of the sow when grasped in the act of sucking. The tongue of the young pig is fringed upon its border, and as in the act of sucking the organ is doubled along

its middle, these fringes overlap the nipple, and grasp so hard that, when the sow rises, the young thing will often be found hanging to the teat: this arrangement probably protects the teats of the sow against injury from the pointed teeth of the young. At one month old, in addition to the *foetal* teeth, four incisors appear, two above and two below, directly in front of the jaws; these belong to the temporary set, and are miniature portraits of those teeth which will succeed them. Within a few weeks their increase of size enables the young animal, by collecting its own food, to live comparatively independent of its dam; hence young pigs can safely be weaned at six or seven weeks old. Besides cutting the central incisors, the young pig has now three temporary molars on either side the jaw; the first of these in situation is generally less forward than the others, and not unfrequently at a month old has hardly cut the gum. At three months, two more temporary incisors are added to each jaw, making, exclusive of the foetal corner teeth, four in the lower jaw. The full number of temporary incisors is now complete, and the jaws, when examined, seem to be fairly filled with teeth. The middle incisors, as well as the foetal corner teeth, and the temporary tushes and molars, are by this time sufficiently grown, and the young animal can safely be left to shift for himself. No difficulty can exist in judging the age of the pig at this date, 'first dentition being completed.' From three to six months the size of the teeth increases with increasing age. At about six months the temporary incisors of the lower jaw will likewise have attained their greatest length. After this period the incisors will begin sensibly to diminish in length, from daily use. The amount and rate of progress will much depend on what the pig feeds on. If he has to work for his living and eat hard food, they will become short much more quickly than if fed on the usual soft food of a farm or a sty. In a practical point of view, the other changes, marking the attainment of six months, which are in the *molar* teeth, are of the first importance. About this age in most animals, but not in all, a small tooth comes up on either side of the lower jaw behind the temporary tushes, between them and the molars, and in the upper jaw *directly in front of the*

molars; these teeth have a very pointed appearance, and have, in consequence, not unfrequently been mistaken, especially in the lower jaw, for the permanent tushes. The pig has, therefore, been thought to be older than he really was, and the truth of the owner's certificate (in an entry for breeding-prizes) has been doubted. An error of this kind is more likely, should the temporary tusks be either broken off near the gum or worn away, a very common occurrence in pigs of this age.

"'Practical' men, which is often another self-praising term for ignorant men, have asserted that the pig cuts his tush at six months; they have mistaken the *pre-molars* for tusks.

"Another fact will assist an investigator into the age of pigs, namely, the putting up of the first *permanent* molar at the age of six months.

"At nine months old the foetal incisors and tusks, which rarely fall before this period, although they be worn to the gums, give place to permanent incisors and tusks. The first *permanent* incisor is a corner tooth; the permanent tushes also supplant the temporary. Near six months old, when the temporary incisors attain their full length, they begin to wear down: this fact assists the inquirers into a pig's age." Professor Simonds adds: "With pigs kept on hard food, by the time they are ten months old the lower incisor teeth are so worn away that in the front part of the mouth they seem toothless.

"The cutting of the permanent tushes cannot be relied on as a mark of age. Breed, sex, character of management, castration—all affect their size and form. In highly-bred pigs of small breed the tush is always small; in coarse, large breeds it is large: castration restricts the size of the tush. At nine months, besides the changes mentioned, an addition is made about this period to the number of molars, by cutting the fifth tooth in position, or second permanent molar.

"At twelve months the most important change is in the fall of the *middle* temporary incisors, and the occupation of their site by permanent teeth. They differ chiefly in being of a whiter colour than those they supplant."

From the preceding remarks it is evident that, in judging

of the age of a pig, he must notice not only the size of the tush, but the state of the incisor teeth. The lower tushes of an animal said to be a year old are often fully three-quarters of an inch long, but, by themselves, possess hardly any value in determining the question of age. In combination with the incisors they are of value ; but the condition of both must be taken together, or not at all. At twelve months old the pig will have only two *temporary* incisors, the lateral in either jaw. At the completion of the year, permanent molars replace the temporary or deciduous. The two anterior teeth are generally the first to fall, presently followed by the third.

The changes between twelve and eighteen months relate chiefly to the growth of the teeth. The permanent incisors occupying the front of the lower jaw have now attained their full length. The tushes are taking, as segments of a circle, a gentle sweep backwards. The corner teeth are likewise large, and the lateral *temporary* incisors still *in situ*. At eighteen months, or thereabouts, dentition may be said to be completed, by the cutting of the lateral incisors and of the last or sixth molar.

Between a year and a half and a year and three-quarters the permanent incisor teeth reach their full growth ; after this period their length in the lower jaw begins to lessen. After this time the age of a female can only be judged by the wear and tear of her teeth and general appearance. In the boar the tushes will not have attained their greatest size.

THE BRAIN.

This important organ is not so large as from an external view of the cranium we should be led to suppose, the frontal and sphenoidal sinuses contracting the limits of the cranial cavity and rendering it narrow ; it is, however, considerably larger, in proportion to the size of the animal, than that of the ox or sheep, being about 1-500th part of the weight of the animal, while that of the ox is only 1-800th part, and that of the sheep only 1-750th part. The irregularities of

the surface, or those prominences and depressions which define the organs in phrenology, are more marked in the pig than in the horse, taking the size of the animal into consideration, but not so much marked as in the dog.

The brain of the hog, like that of our other domesticated animals, is composed of two substances differing materially in appearance and structure ; the one is of a pale-grey or ashy hue, and termed the *cortical* or *cineritious substance*, and the other, from its pulpy nature and from being found deeper in the brain, the *medullary substance*.

These two distinct component parts of the brain are allowed by all scientific men to be intended for the discharge of two distinct functions. The mind or reasoning power is supposed to reside in the cineritious portion ; and hence the preponderance of that substance in the human brain ; while the medullary portion is merely the recipient of outward impressions upon the senses. There is very little difference between the proportions of these two substances in the brain of the hog and that of the sheep ; if anything, the hog has more of the cineritious portion than the ox ; a proof, physiologists would say, that his reasoning powers or moral faculties are greater. We have already endeavoured, we know not how successfully, to vindicate him from the charge of utter stupidity and unteachableness so generally brought against him, and pleaded the slight intercourse, compared with that enjoyed by other animals, which he has with man as the cause of it. A philanthropist once declared his intention of "bringing up a pig in such a way as should tend to develope his whole nature, and give him a fair chance of acting out his character, and showing what a pig was capable of being." We may smile at such an Utopian idea, but are we by any means certain that under different treatment swine might not become intelligent and capable of attachment ? There are anecdotes enough to prove them possessed of memory, attachment, and social qualities ; but at present the system of treatment affords no scope for the development of any but mere brute and gluttonous instincts.

APOPLEXY.

As this is a disease which is chiefly induced by plethora, laziness, want of exercise, high feeding, and suchlike causes, it is not to be wondered at that it is frequent among swine ; and in by far the majority of cases it is fatal, for either the animal dies suddenly without any precursory symptoms, or the progress of the attack is so rapid, that before help can be obtained or remedies administered all is over. Where, however, the apoplexy does not destroy its victim in a short space of time, it may be subdued and the animal temporarily cured, but only for a while ; it invariably dies soon afterwards of inflammation of the brain. Sometimes apoplexy will run, like an epidemic, through a whole piggery, and where this is the case the causes of it must be diligently sought out and carefully removed.

The precursory symptoms which prognosticate apoplexy are dulness, disinclination to move, heaviness of the head, an uncertain and staggering gait, wildness and inflammation of the eyes, with apparent loss of sight, no appetite, and general numbness. The treatment must be prompt and energetic : bleeding from the palate ; Epsom salts and sulphur as purgatives ; or emetic tartar dissolved in water to induce vomiting. Strict attention to diet will be requisite for some time afterwards. No stimulating food should be given ; the water should be slightly nitrated, and the animal bled at least every three months.

INFLAMMATION OF THE BRAIN.

Inflammation both of the substance and of the membranes of the brain is by no means of unfrequent occurrence, and almost invariably follows an attack of apoplexy. It is also induced by heating or exciting or indigestible food, as an over-feed of grains, of new corn, &c. The precursory symptoms are dulness, redness of the eyes, and disinclination to move ; but as the inflammation becomes more intense the animal runs wildly to and fro, seems blind and unconscious

where he is going, runs against everything; the pulse is small and rapid; and the breathing slightly accelerated. The first thing to be done is to bleed, from the palate if possible; if not, or if sufficient blood cannot be obtained from there, let incisions be made in the ears, and these repeatedly washed with warm water, as such a proceeding materially increases the bleeding. *Magn. sulph.* with ginger should be given internally as a purgative. Enemas (clysters) have also a beneficial effect, and then the animal should have repeated cooling doses of sulphur. Castor oil and jalap have been given as purgatives; and the system stimulated by the application of a blister to the throat.

PHRENTIS.

This is a disease very much resembling the last mentioned, and is often called brain-fever or frenzy; it arises pretty much from the same cause; all excitants of the system, all things which tend to drive the blood to the head, will induce it. The symptoms are prostration of strength, blindness, frenzy, and often convulsions. The treatment must consist in copious bleedings and strong purgatives, which should be followed up by doses of sulphur to keep the bowels open. Croton oil with tincture of ginger has been given in extreme cases, and with beneficial effects. The dose for a moderate-sized animal is about two minims of croton oil and one dram of tincture of ginger.

SPINAL CORD.

Next to the diseases of the brain follows a consideration of those arising from the spinal cord. This proceeds from the brain to the tail, and is divided by a central line on the upper and under surface throughout its whole extent, forming it into two separate columns, each of which has been proved to possess a distinct and separate function, the inferior surfaces being connected with voluntary motion, and the central ones on the upper surface with sensation.

EPILEPSY.

The pig occasionally exhibits all the symptoms of epilepsy in their most frightful intensity, and whoever has carefully marked the habits of swine when not confined to the sty will easily be able to account for this; for, obtuse and stupid as it is the custom to denominate them, there is more excitability and nervousness in these animals than in many that have the credit of being more delicately organised. Note the manner in which they are affected by the approach of wind or storms—how they run about in a state of highly nervous excitement with straw in their mouths; note the sympathy and terror a whole herd will exhibit while one of them is undergoing the operation of spaying or ringing, how they squeak in concert with his cries; see them at a fair under the irritation of strange scenes and noises, and we shall find sufficient indications of a susceptibility of impression to account for swine being peculiarly subject to epilepsy.

The prognostics are constant grunting, restlessness, acceleration of breathing, pallor of the skin, and a staggering gait. Then the animal suddenly falls as if struck by lightning, and for a few moments lies perfectly motionless; after which convulsions come on gradually, increasing in intensity until they are fearful to behold; the countenance is distorted; the neck curved in every direction; and the legs alternately drawn up to the body, and extended with momentarily increasing rapidity. The eyes protrude, the pupils are distended, and the balls roll about. The tongue is protruded and fixed between the clenched jaws; the teeth grind together, foam and saliva flow from the mouth. The pulse is wiry and small at first, then hard and bounding, and, as the intensity of the fit decreases, irregular and intermittent. Throughout the whole of the fit the animal remains perfectly unconscious, and as he recovers gets up, tries to hide himself in the litter or in a corner of the sty, and looks terrified and wild; then gradually the impression passes away, and he creeps out and begins to eat again. The seizure of one pig is often but the prelude to that of the greater number of those contained in the sty. The fits

often succeed each other rapidly, two or three occurring in one day ; and the cries uttered by the animals while in them are distressing in the extreme.

Medical treatment can only be resorted to in the intervals between the fits, and is seldom successful. It consists of cold effusions applied to the head, bleeding, and energetic purgatives, followed up by low diet, perfect quiet, and cooling medicines. The best way of keeping the head cool is to tie a piece of cloth about it, and then keep this constantly wet. A very efficient cold lotion for this purpose may be composed of a pint of vinegar to two quarts of water, and one ounce of *sal ammoniac*. Salts and calomel may be given as purgatives.

It is often difficult to determine what are the precise causes of epilepsy ; the immediate one is generally some excitant or stimulant acting on a system predisposed by cerebral inflammation, or by intestinal irritation, arising from worms, or other sources, to take on disease.

We quote a case communicated by Mr. Cartwright, of Whitchurch, to whom we are indebted for much useful information relative to the diseases of swine :—

“ In 1825 I saw a pig that was taken ill in the following manner :—He was a little stupid and dull, and now wandered about the sty unconsciously for a few minutes, and then appeared to be quite well ; but in a few days after he became worse : he would move forwards until he came to one wall, and then retreat backwards until he came to the other wall ; and made a grunting and squealing noise all the time the fit was on him, which was usually a few minutes, and sometimes longer ; and he had them every quarter of an hour, and even oftener. His fits continued to increase : when he had been thus for about five days, he began, after so backing himself, to fall down at full length, stretch out his legs and tumble about, and appear as if dying, and make a shrieking noise as if in great pain, and seem to be blind. His pulse was very quick and full during the fits, but subsided a great deal when they were over. He ate at intervals between the fits when food was *put* to him. He continued in this latter bad state for three or four days, and got well in a few days after. I gave him salts and calomel

during his illness, bled him in the tail and ears and between his claws ; but little blood, I fancy, was obtained from all the places ; and I kept his head wet with cold water.

“About the same time a miller in this neighbourhood lost five or six in a similar way ; but I had not an opportunity of opening any of them.”*

PALSY, OR PARALYSIS.

This is by no means a disease of frequent occurrence in our own country. It is treated of by French writers, who attribute it to low marshy situations, bad or damaged food, or to the avarice of the pig-owner, who, in order to fatten the animals more rapidly, gives them highly stimulating food, which irritates the intestinal canal, and through it the spinal cord. Eric Viborg, an authority quoted by Hurtrel D'Arboval, recommends wholesome food, clean straw, a dose of common salt as a purgative, and drenches of common salt and gentian.†

But there is a kind of partial palsy, which is caused by the presence of *cysticercus cellulosa*, a hydatid peculiar to the pig. M. Dupuy gives the following case, which came under his observation :—

“Palsy of the hind limbs, with loss both of motion and feeling, was observed in a pig eighteen months old. On carefully examining him after death the muscles were discoloured and softened. There were in the psoas muscles numerous cysts enclosing hydatids. Other cysts with their parietes more thickened and fibrous inhabited the muscles surrounding the trochanter, containing likewise hydatids. These parasites are also found in the lungs, the liver, and the cortical substance of the kidneys.

“Between the internal surface of the cyst and the hydatid was a fine white powder, resembling pulverized bones. The spinal marrow was softened about the lumbar and sacral

* “Veterinarian.”

† Hurtrel D'Arboval, “Dictionnaire de Médecine Vétérinaire.”

regions, and the membranes were slightly reddened, particularly about the roots of the lumbar nerves.”*

It is generally the hinder parts of the pig which are paralysed, either wholly or partially ; in the former case the animal is totally unable to rise, in the latter he totters in his gait, and falls when attempting to walk. Paralysis frequently accompanies chronic disease of the digestive organs, and is attended with loss of appetite, acceleration of the pulse, and swelling of the tongue. This disease is seldom obstinate ; a removal of the predisposing cause, good nourishing food, a clean and well-ventilated sty, moderate exercise, and gentle purgative or cooling medicine, will generally restore the animal to perfect health in a short space of time.

TETANUS.

This disease, which is commonly denominated *locked jaw*, is by no means an unfrequent malady among pigs. The symptoms are at first spasmodic motions of the head and of one or more of the extremities, grinding of the teeth, and rigidity of the jaws. This is soon followed by stiffness of the neck and greater part of the frame, and an unnatural upraised position of the head. The castration of young pigs will frequently produce this disease, especially if the animal is too well fed for a few days after the operation. It also often appears among pigs that are driven far to market, especially if, when heated by travelling or exposure to the sun, they are suffered to roll themselves in ditches or streams, as they will endeavour to do. Bleeding, warm baths, lotions, &c., friction with stimulating oils, purgatives if they can be got into the mouth, if not, enemas and anodynes, are the most efficient remedies. But the disease is too often fatal, and runs its course very speedily. If the animal survives the first twelve or eighteen hours, some hopes of his eventual recovery may be entertained.

* “Journal Théorétique et Pratique.”

RABIES.

Swine are by no means exempt from this frightful disease; there are numerous cases on record in which they have been inoculated by the bite of rabid dogs, and Hübner relates a case of inoculation from the bite of a rabid fox. The symptoms of rabies in the hog are peculiarly interesting at times, from the resemblance many of them bear to those of the human being. At first there is dulness and indisposition, and the pig is continually licking the bitten part. Subsequently some are exceedingly ferocious, snapping at everybody, gnawing everything which comes in their way, dashing themselves against walls, or leaping over all obstacles. Others, again, are dull, stupid, refuse their food, stagger when they attempt to rise, and are paralysed in the hinder parts. There is no absolute dread of water, but evident inability to drink. An animal that we saw went to the trough, smelt at the food, and brought his nose nearly into contact with it, then started back, trembled violently, and elevated his snout high in the air. Once or twice he attempted to take portions of meat and vegetables from the wash, but the attempt was always accompanied or followed by universal rigour and shuddering, during which the food was dropped from the mouth, evidently proving that the organs of deglutition were powerfully affected.

The animal is in a highly nervous state, and the sensibility of the skin is so excessive that even if his mother licks him he screams with agony, and buries himself in the litter, uttering shrill squeaks on the approach of any one, or springs up into the air if he hears a loud noise, and falls down again in convulsions. There is in general no great secretion of saliva in these animals, and the delirium which characterises rabies in the dog is rarely seen, or when met with, is less evident and distinctive.

As yet this disease has been but little studied in pigs. Mr. Pritchard, V. S., of Wolverhampton, gives the following interesting account of some cases he met with:—

“A rabid dog entered the farm-yard of Mr. George Strongitharm, of Calderfield, near Walsall, on the 27th of December, 1835, and attacked some pigs, which, making a

considerable noise, aroused Mr. S. and his servants from their beds, and they, proceeding with their guns already loaded, discovered him, and succeeded in destroying him. Two of the pigs had evidently received wounds in their noses from the dog, which soon got well, no curative or preventive measures being had recourse to, and without much irritation or swelling taking place. After a fortnight had elapsed, nothing outward being observable in them, they were again turned into the yard to their old companions.

"A day or two after, on the entrails of a sheep being thrown to the pigs, all came and partook of it except the two that had been bitten. One of these was found dead in the litter, with a quantity of froth and slaver about his mouth; the other, on coming out of his bed into the air, immediately jumped up on all four legs like the bound of a deer, a yard at least from the ground, and threw from his mouth a portion of thick slaver and froth. Upon being again placed in the sty he was much convulsed, and made a shrill squeaking noise, his mouth was filled with saliva, and held continually open nearly half an inch, except when champing his under jaw, which he frequently did with considerable twitching of the superficial muscles. He refused to eat or drink, gradually got worse, and died on the third day.

"Three weeks after, another of the pigs was taken ill. The symptoms were much the same. The effect of water was tried, and upon being thrown upon him caused him considerable distress, so that he leaped into the air and dashed his head against the wall, appearing quite delirious. He died on the second day. Not long afterwards another pig was attacked, the symptoms being similar to those in the former cases, only more violent; he died twenty-four hours afterwards, nothing having been done to disturb him. None of the pigs ate or drank anything after they were first taken ill."*

And the case we are now about to quote was communicated by Mr. Heaton, a human surgeon:—

"About May, 1829, while visiting a patient, I was told

* "The Veterinarian" for 1836.

that in a sty at the bottom of the yard there was a mad pig. Thither I repaired, when I was informed by its owner that the animal had been bitten about three weeks before by a strange dog which had passed through the yard, and who was at the time, by those who saw it, declared to be mad; the dog appeared to be greatly alarmed, and proceeded with swiftness; it was afterwards seen for the last time in some fields at the outskirts of the town. From the statement of the man it would appear that, on the morning of the day previous to that on which I saw the pig, the animal began to exhibit symptoms of great oppression at the præcordia; to this succeeded gradually inability to stand, fearful cries, and general uneasiness when disturbed, foaming at the mouth, and a disposition to eat whatever came in the way, &c. At six o'clock in the afternoon of the second day I first saw it, covered with straw and apparently quiet, until the rattling of the sneck of its door seemed to awaken the most painful apprehension, and its mental agony seemed almost insufferable. The sense of sight seemed no less acute than that of hearing, which was manifested by the animal's convulsive efforts to hide even its head beneath the straw; this accomplished, it became somewhat tranquil, and was constantly devouring its own litter, excrement, &c., &c. Its eyes had the suspicious glance of those of a phrenetic patient; its breathing was preternaturally quick, and its efforts to stand wholly abortive. In this state it continued two hours, when half a pint of train oil was attempted to be poured into its mouth, the greater part being wasted, and the animal instantly expired. I regret that the approaching night, and the man's desire to bury the carcass, restricted the *post-mortem* examination, which merely went to show that upon the division of the costal cartilages the lungs protruded, as if too large for the cavity of the thorax, and, being cut into, poured forth a frothy mucus, resembling in colour and consistence soap lather; the stomach and duodenum were filled with the matters above described to have been eaten, not, however, impacted, probably owing to the premature death. I have little doubt from the symptoms that, had the examination gone so far, the vessels of the brain and spinal cord would have been found injected. The splash of water

certainly caused disquietude ; but, inasmuch as noise of any sort produced similar effects, it is doubtful whether aversion to fluids existed ; and yet the circumstance of death instantly following the oil-draught, would warrant the belief that spasms of the muscles of deglutition, with the temporary closure of the glottis, occasioned suffocation and death."

Among all the numerous cases of rabies which we have met with in the course of our practice, we never had the opportunity of examining the *post-mortem* appearance of a rabid pig ; but it seems to be generally admitted by those who have done so, that there is invariably inflammation about the glottis, and very considerable inflammation of the villous coat of the stomach, especially about the pylorus, towards the cardia, and on the surface of the two rugæ ; in some parts the inflammation had almost merged in mortification. The stomach is generally filled with every kind of filth and rubbish, and the bladder distended with urine.

The disease generally appears in the third or fourth week after the animal has been inoculated, but it has been known to lie dormant for two months.

Incision of the part and the application of the cauter^y as soon as possible after the animal has been bitten, are the only preventive means : cure there is none when once the disease has made its appearance, and those who rely on the infallible nostrums of some learned "pig-doctor" will find themselves disappointed ; the symptoms may be alleviated by certain drugs, but rabies is incurable.

We are not aware that rabies has ever been known to be communicated by the bite of a pig ; but Julian Palmarius states that he has seen horses, cattle, and sheep become rabid from eating the straw in which rabid pigs had lain ; and Dr. Shackmann corroborates the fact.*

It has been a much-disputed point whether or not the flesh of animals which have died rabid can be eaten with safety. Two eminent scientific men in Paris ate of such flesh without experiencing any bad effects. The carcass of

* Palm. de Morb. Contag., and Shackmann on Hydrophobia.

an ox that had been bitten by a rabid dog, and had exhibited all the symptoms of rabies, was cut up and sold, but it did not appear that any of those who ate it experienced the slightest inconvenience. Again, at the Royal Veterinary School at Alford, the tongue of a rabid horse was given to a dog; the animal devoured it, and lived on in perfect health.

But the opposite party bring forward as many authenticated facts in support of the contrary opinion, and the one with which we now chiefly have to do is narrated by Schenkus:—"A tavern-keeper in the duchy of Wurtemberg, served up the flesh of a pig that had died rabid to some customers who were dining at his inn. All those who partook of it were shortly afterwards attacked with rabies." Pierre Borel records a very similar case.*

We should most strongly urge the prudence of abstaining from the flesh of all rabid animals, and not only of abstaining from it ourselves, but putting it out of the reach of other animals; and the best way to do this is to bury the carcass six or eight feet underground, cover it carefully and closely up, and plant the spot with thorns.

NASAL CATARRH.

We have already spoken of the formation of the nose or snout of the pig, and will now proceed to describe a disease vulgarly called the *snuffles* or *sniffles*. It is characterized by defluxion from the nose in the first place, and its advance is so gradual as to be almost imperceptible. But it gains ground daily—attacks the respiratory passages—cough and sneezing come on—there is evident difficulty of swallowing, and the respiration is impeded by the mucus formed. After some time the membrane of the nose becomes thickened, the nostril swelled and deformed, and the snout drawn on one side. Blood is often discharged from the nostril, and when this has been the case all the symptoms are abated and the animal seems relieved for a time. But it too frequently

* Delafond's "Sanitary Police of all Domesticated Animals."

happens that this discharge or hemorrhage returns again and again, each time in increasing quantities, until the strength of the animal becomes so undermined, that, notwithstanding the utmost care and the most nourishing diet, he dies of exhaustion, or perhaps, as it may be more properly termed, consumption.

This disease, which strongly resembles glanders and distemper, is, like them, hereditary, and may be communicated from either the male or female parent. It also results from exposure to damp or cold.

Emetics and tonics are the best means of combating it. A solution of sulphate of copper, in doses of from three to five grains morning and night will sometimes eventually effect a cure, assisted by strict attention to diet and regimen. But in by far the majority of cases the disease runs its course and terminates fatally, for it has generally gained the upper hand before much notice is taken of it.

THE LARYNX.

This instrument of voice consists of five cartilages united to one another by a ligamentous substance, by distinct articulations, and by a seemingly complicated but really simple muscular apparatus. In form it is an irregular oblong tube, exceedingly flexible, and capable of adapting itself to all the natural or morbid changes of the respiratory process, and to the production of all the various intonations of sound or voice by which the animal expresses his emotions. It is placed at the top of the windpipe, guards the exit from the lungs, and prevents the passage of food into the respiratory canals.

The *cricoid cartilage* constitutes the base and support of this organ, and serves in great measure as a bond of union to the rest.

Placed above and resting upon this are the *arytenoid cartilages*, prolongations of which rest upon the *corde vocales*, and influence their action. The vocal ligaments take an oblique direction across the larynx in the pig instead

of a straight one, so that the angle is at a considerable distance from the thyroid cartilage. They have also a curious slanting direction, the anterior angle being depressed and the arytenoid portion elevated. About the middle of the cordæ vocales, and immediately above them, are two sacculi, which are generally supposed to be concerned in the act of grunting. From the anterior parts of the larynx springs the *epiglottis*, a heart-shaped cartilage placed at the extremity of the opening into the windpipe, with its back opposed to the pharynx; its use is this: food passing from the pharynx in its way to the œsophagus presses down the epiglottis, which, closing the aperture of the larynx, prevents any portion of the food from entering it. As soon as the food has passed, the elasticity of the epiglottis, assisted by that of the membrane at its base, and still more by the power of the *hyo-epiglottideus* muscle, enables that cartilage to rise up and resume its natural position.

The *thyroid cartilage* envelops and protects all the rest, and shields the lining membrane of the larynx, which vibrates under the impulse communicated by the passage of the air, and gives the tone or voice.

In the larynx of the hog we find that beautiful adaptation of means to the end. The space between the arytenoid cartilages is less, comparatively speaking, than in the horse or dog, speed not being required in swine. The epiglottis, too, is larger than in the ox, sheep, or horse, and differently constructed; it is more flexible, from the cellular ligamentous substance at the base of it being looser; and from its increased size, and the curved direction of its edges, it not only covers the opening into the windpipe, but in a manner embraces the arytenoid cartilages when pressed down by the passage of food, a formation admirably suited to an animal who is constantly plunging his nose and muzzle into mud or dirt, and who by blowing into his food in the peculiar way pigs are apt to do in order to stir up the sediment, would otherwise be constantly getting some irritating and noxious matters into his windpipe. The inferior cornu of the thyroid bone is comparatively more developed in the hog than in other domesticated animals.

THE PHARYNX.

The pharynx, to which we just now alluded, is a membranous, muscular, funnel-shaped bag, extending from the root of the tongue to the larynx and œsophagus, wide in front and becoming gradually narrower until it terminates in the œsophagus. Its office is to convey the food from the mouth to the upper part of the gullet, and this it performs by means of its lining muscles. Properly speaking, we ought perhaps to have noticed it when speaking of the digestive system, but as we are proceeding from the head to the neck, we have included it in this division of our subject.

THE OS HYOIDES.

This is a body which embraces the thyroid cartilage of the larynx, and gives support and protection to it, and also affords attachments to the *hyo-glossus longus* muscle, or that which draws the tongue into the mouth ; the *brevis*, which fulfils a similar office ; the *stylo-pharyngæus*, which dilates the pharynx ; the *anterior constrictor pharyngæus*, which contracts the pharynx, and several others.

This bone in the human being is supposed to resemble the Greek letter *upsilon* ; in the horse it may be compared to a spur, but in the swine it is different. This animal requires a freer use of the tongue. The shorter cornua are stronger than in the horse, or even the ox and dog ; the central one is less developed, and the longer cornua is thin and insignificant. There is also considerably less ligament interposed between this bone and the thyroid cartilage, which it almost closely embraces. We will now proceed to a consideration of the diseases of the throat and neck.

STRANGLES OR QUINSY.

These are diseases of very frequent occurrence, and, as they are rapid in their progress, generally exceedingly fatal,

and should be attended to at once. *They chiefly attack fattening hogs.*

The glands under the throat begin to swell, and thus affect not only the respiratory organs, but the act of swallowing: impeded respiration, hoarseness, and debility then supervene; the pulse becomes quick and unequal, the head to a certain extent palsied, the neck swells, tumefies, and rapidly goes on to gangrene; the tongue hangs from the mouth, and is covered with slaver, and the animal gradually sinks. In the commencement of the disease, very simple treatment, as, cooling medicines, attention to diet, and care and warmth, will often suffice to check it; but when the swelling, impeded respiration, and difficulty of swallowing has come on, recourse must be had to more energetic treatment. Bleeding and purgatives are first indicated; setons and puncture of the swollen glands have also been recommended; and in extreme cases there is no reason why we should not have recourse to blisters and external stimulants as counter-irritants.

A diseased animal should never be allowed to remain among healthy ones, as this malady is so infectious that it may almost be regarded as an epizootic.

Mr. Cartwright, veterinary surgeon, of Whitchurch, who has paid much attention to the diseases of swine, gives the following account of some fatal cases of inflammation of the glands of the throat, in the "Veterinarian." He says that he had six pigs attacked at nearly the same period. Their respiration was very quick; they husked and foamed at the mouth; they could not bear to be pressed on the throat, and swallowed liquids with difficulty. To some of them jalap was given, and to others castor and goose oil. One was blistered under the throat, and all bled by cutting off their tails. They died in the course of eight-and-forty hours from the commencement of the disease.

On examination he found much inflammation under the jaws and throat, and also much of swelling with effused serum. In some of their windpipes and the branches of the bronchia there was a great quantity of mucus, but no apparent inflammation. In one the heart appeared to be inflamed, but most probably sympathetically.

Columella thus speaks of these diseases :—"Such swine as have swellings of the glands under the throat must be let blood under the tongue ; and when it has flowed abundantly, it will be proper that their whole mouth be rubbed over with bruised salt and wheat-meal. Some think it a more present and effectual remedy when they pour into each of them, through a horn, three cupfuls of *garum*, or salt-fish pickle ; then they bind cloven tallies, or cuttings of fennel-giant, with a flaxen cord, and hang them about their necks, so that the swellings shall be touched with the fennel-giant cuttings.*

If we may judge by the writings of the ancients, the most prevalent diseases among pigs were those of the glands of the throat. Didymus gives a long and accurate description of them.

Hurtrel D'Arboval also gives an account of a disease of the glands of the throat, which he denominates *Poil piqué*, *maladie piquante*, or *soie*, and states it to be peculiar to swine. He thus describes it :—

"It is situated on one or both sides of the neck, between the jugular vein and the tracheal artery. On the part affected is seen a raised tuft of hair, differing from any of the others, being hard, rough, dull, and discoloured, and exceedingly painful to the touch ; and if one be pulled out the skin comes away with it. At first there is only a slight depression or concavity of the part ; but the skin soon becomes red, then violet-coloured, the hairs conglomerate, the parts become softened, tumefied, and even proceed to mortification. Meanwhile the animal betrays symptoms of thirst, there is dulness, loss of appetite, and grinding of the teeth. As the malady progresses the patient becomes inert, deaf, insensible to blows, lies down constantly, and totters and falls if compelled to rise ; the flanks heave, the mouth is hot and full of slaver, the tongue red and inflamed, the lower jaw convulsed, and the conjunctiva injected ; the animal utters plaintive moans, and, if not speedily relieved, dies of suffocation, from the effects of the pressure of the tumour upon the air-passages.

* Columella's "Husbandrie," book vi.

D'Arboval attributes this disease to the irritation caused in some of the cuticular tissues by the abnormal growth of the tuft of hair, which, uniting with some internal sympathetic irritation induced by heating food, damp litter, hot, ill-ventilated sties, or suchlike prejudicial influences, acts locally, and determines this disease of the glands. Other French writers believe it to be epizootic, and to arise from certain miasmatic influences.

Tonics, acidulated drinks, warmth, cleanliness, strict attention to diet, and the application of actual cautery to the root of the evil, the tuft of hair, is the treatment prescribed.*

THE CHEST, OR THORAX.

In the human being this constitutes the superior, and in quadrupeds the anterior, portion of the body ; it is separated from the abdomen by the *diaphragm*. This latter is of a musculo-membranous nature, and is the main agent in respiration ; in its quiescent state it presents its convex surface towards the thorax and its concavity towards the abdomen. The anterior convexity abuts upon the lungs ; the posterior concavity is occupied by a portion of the abdominal viscera. The diaphragm of the pig resembles that of the ox and sheep.

The chest is divided into two cavities by a membrane termed the *medi-astinum*, which evidently consists of a duplicature of the *pleura* or lining membrane of the thorax. The *pleura* is a serous membrane, possessed of little or no sensibility, and acted upon by but few nerves. It is smooth and polished ; covers the bony wall of the thorax from the spine to the sternum, and from the first rib to the diaphragm, dilating and forming a kind of bag which spreads over and contains the whole of the lung.

The lungs form two distinct bodies, the right being somewhat larger than the left one ; they are separated from each other by that folding over of the *pleura* termed the *medi-*

* Hurtrel D'Arboval's "Dictionnaire de Médecine Vétérinaire."

astinum, and hence may be said to be enclosed in separate bags, or to have distinct pleuras. Each lung is subdivided. The right one consists of three unequal lobes, the smallest of which is again subdivided into numerous lobules, differing in number in different swine. The left lung consists of two lobes, and the scissure between these is not very deep.

Beneath the left lung the heart is situated, and partially enclosed in another membranous bag termed the *pericardium*, which closely invests, supports, and protects it. The heart has two sides; the one devoted to the circulation of the blood through the lungs, and the other to its circulation through the frame generally. Each side is divided into two compartments, the one above, the other below, which are termed the *auricles* and *ventricles*. The right auricle as well as ventricle is larger than the left, and its parietes are thinner. The longitudinal tendinous cords of the ventricle are more firm and distinct in the pig than in the ox or sheep, and the fleshy prominences shorter. The tendinous cords of the left ventricle are few in number, large, and ill-defined. The aorta of the pig separates almost immediately after its commencement into two trunks, the smaller of which leads forwards and gives forth those arteries which, in other animals, arise from the cross of this artery; and the other, which is longer in diameter, inclines backwards: these are usually termed the anterior and posterior aorta.

The beating of the heart may be felt on the left side, whence also the pulse may be taken, or from the femoral artery, which crosses the inside of the thigh in an oblique direction. In swine in a state of health the pulsations are from seventy to eighty in a minute.

DISEASED VALVES OF THE HEART.

This appears to be a more common malady than is generally suspected, for in repeated cases of sudden death, where a *post-mortem* examination has been made, there has been found fleshy excrescences or tumours on the tricuspid valves. We believe Mr. Cartwright, whose name we have already

mentioned, was one of the first persons who drew attention to this disease. The only marked precursory symptoms appear to be inappetency, and very shortly before death difficulty of breathing and evident distress. In one pig that died thus suddenly, Mr. Cartwright found several uneven warty excrescences, some as large as marbles, growing from the edge of the auriculo-ventricular valves of the left side ; also several small papillary growths, all of which served three parts to close up the ventricular opening.

In another case he found a loose, jagged, warty excrescence growing from the whole surface of the tricuspid valves, closing up, in a great measure, the ventricular opening, and projecting at least half an inch into the left auricle. In a third, the valves of the left auricle were thickened, schirrous, and presented a ragged, uneven surface. The orifice of the ventricle was almost closed up by this diseased substance, and a portion had forced its way into the aorta. This disease was always found in the left side of the heart, and in no case did it extend beyond the circumference of the valves ; the lining membrane of the heart always remained intact.*

BRONCHIAL TUBES.

Swine are very susceptible of *bronchitis*, and also liable to worms in the *bronchia*, both of which affections manifest themselves under the form of cough, inappetency, and loss of flesh. The former may be subdued by bleeding and cooling medicines, as sulphur, cream of tartar, or pulv. antimonalis : the latter almost invariably cause the death of the animal, from the irritation they create and the inflammation which is thus set up.

INFLAMMATION OF THE LUNGS.

This disease is perhaps more generally known under the term of *rising of the lights*. It is one of the most prevalent,

* "The Veterinarian," 1841.

and too often the most fatal, of all the maladies that infest the sty. It has been supposed by some persons to be contagious, by others to be hereditary ; but there does not appear to be any actual foundation for either of these opinions. By far the most probable supposition is, that it arises from some atmospheric influences or agencies which create a tendency to pulmonary affections ; and these, acting upon a system heated and predisposed to disease by the mode of feeding adopted in most piggeries, give a serious and inflammatory character to that which would otherwise be merely a simple attack of catarrh ; or it may arise from some irritating influence in the food itself, or from damp, ill-ventilated sties : whatever be its cause, it generally runs through the whole piggery when it does make its appearance. The prominent indications of disease are loss of appetite, incessant and distressing cough, and heaving at the flanks.

As soon as the first symptoms are perceived, the animal should be bled ; the palate, perhaps, will be the best place in this case to take blood from ; purgatives must then be given, but cautiously ; Epsom salts and sulphur will be the best, administered in a dose of from two to four drachms of each, according to the size of the animal. To these may succeed sedative medicines.

Digitalis	two grains
Pulv. antimonialis ..	six grains
Nitre	half a dram

forms a very efficient and soothing medicament for moderate-sized pigs, and will often produce very satisfactory effects. Cleanliness, warmth, and wholesome, cooling, nutritious food are likewise valuable aids in combating this disease. But whatever measures are taken, they must be prompt, for inflammation of the lungs runs its course with rapidity and intensity, and while we pause to consider what is best to be done, saps the vital energies of the patient.

In Wurtemberg there is a law of warrantry for this disease, extending over a period of four weeks and three days.

Columella advises the insertion of a piece of *lung-wort* into the flaps of the ears of swine affected with disease of

the lungs. We should be sorry to rely solely upon the effect of this "simple remedy." *

PLEURO-PNEUMONIA.

This disease often breaks out among pigs, as well as horses, cattle, and sheep, and commits great devastation. We shall quote some accounts of its progress, treatment, and *post-mortem* appearances given by English and foreign veterinarians, by whom it is classed under the head of

EPIDEMICS.

M. Saussol narrates that, during the summer of 1821, nearly all the swine in the neighbourhood of Mazamet were attacked by a violent and mortal disease that spared neither age nor sex, fat nor lean. He rates its ravages at about one-fifth of every four hundred patients.

The first symptoms were inappetency, thirst, dulness, groaning, and seeking of moist places; then followed hardness of the belly, heat of the skin, constipation, diminution of the urine, difficulty of respiration, heaving of the flanks, and short cough; the eyes were full of tears, and the mucous membranes inflamed. All these symptoms came on in the course of twelve hours. If the disease continued, the succeeding symptoms were still more alarming; the animals began to stagger about, the limbs were stretched out in an unnatural position, rattling in the throat came on, they supported themselves against the wall, and only fell to die a few minutes afterwards. Death usually came about the third day, and was in some cases preceded by convulsions of the face and extremities.

Treatment.—Copious bleedings from the *sacro-coccygean* arteries and veins; or if these did not yield blood enough, amputation of the tail, hot baths, a seton covered with blistering ointment inserted in the chest, camphorated and

* Columella's "Husbandrie."

laxative drenches, and a decoction of borage, mallows, and lettuces, slightly acidulated, to drink.

Causes.—Exposure to the heat of the sun, want of water, feeding on dry plants, returning home in the evening exhausted, receiving a hearty feed, and being then shut up in ill-ventilated sties without drink until morning.

Preventive Treatment.—Troughs of acidulated nitrated water placed in the sties, and frequently renewed; non-exposure to the heat of the day; means of bathing, bleeding, cleanliness, and ventilation; moderate feeding, and gentle exercise after the sun had set. These precautionary measures, M. Saussol says, arrested the progress of the disease.

Post-mortem Appearances.—The thoracic cavity was filled with bloody limpid fluid; the lungs much inflamed; the pleura thickened, inflamed, and injected; the diaphragm covered with black patches, of the size of a shilling; the mucous coat of the intestines slightly inflamed; the wind-pipe and bronchial tubes full of reddish froth; the brain covered with reddish serosity.*

The next account we come to gives a description of a somewhat different epidemic, which occurred in Aveyron and its environs, attacking both the respiratory and digestive organs, and running its course with astonishing vigour and rapidity, frequently sweeping off all the inhabitants of a piggery in from twelve to fourteen hours, and in the more virulent cases in less than half this time.

Symptoms.—In the worst cases these are—sudden loss of appetite, small and frequent pulse, haggard eyes (the conjunctiva inflamed), the mouth open, red, and filled with foam, the respiration laborious, plaintive cries, convulsions, palsy of the hind limbs, and involuntary discharge of highly fetid fæces. Death here is the inevitable termination, and that in a short time. But where the progress of the disease is less rapid the symptoms assume a milder form, and medical aid is available, and often beneficial. Pregnant sows escape the attack of this malady; but as soon as they have farrowed they lose this immunity, and they and their young take it.

* "Journal de Médecine Vétérinaire," 1832.

It also seems to spare leprous swine. It appears at all seasons of the year, but is most malignant in the summer and at the commencement of autumn. There can be no doubt as to its contagion; and, from some experiments made, it can be reproduced in other animals by inoculation, particularly in sheep. The flesh of pigs that have died of this disease has been given to dogs, and eaten by them, without producing any bad effects.

Causes.—Unwholesome food, ill-ventilated sties, want of attention to cleanliness, exposure to heat, wet, or cold, are the predisposing causes; and probably some miasmatic influence develops the disease.

Treatment.—In the most virulent cases almost all modes of treatment are unsuccessful; or if they do succeed in rescuing the animal from death, he generally falls into a state of marasmus, or becomes paralytic. In the milder cases the following means have often proved efficient:—Seton in the chest; a decoction of sorrel, with camphor, nitre, and calomel, as a drench; emollient injections, slightly acidulated; stimulating frictions of the dorsal and lumbar regions, or bathing these parts with hot vinegar; and water thickened with oat or barley-meal as the sole diet and drink. Venesection is here dangerous, tending only to undermine the strength of the patient, this disease being evidently one which alters, decomposes, and vitiates the blood. Acetate of ammonia, administered in doses proportionate to the size of the patient, has been of service. Purgatives should be avoided, as they are of very uncertain benefit. Directly an animal is attacked he should be removed from the others, and placed in some comfortable place.

Prevention.—Strict attention to diet, cleanliness, ventilation, and comfort; and a plentiful supply of clean water, both for the animals to drink and to bathe themselves in. In cold and rainy weather they should be kept in their sties; and during the heat of summer their drink should be slightly nitrated, acidulated, or salted. Whey is an excellent thing for those that are weakly. Small doses of camphor and nitre, with the addition of a few grains of calomel, administered in some cooling vegetable decoction, is a useful preventive. If one pig is attacked he should

be removed, and the others taken out while the sty is well fumigated.*

In 1838 we have accounts of an inflammatory epizootic among pigs, rapid and fatal in its course, and attacking by preference store pigs rather than those put up to fatten.

Symptoms.—Prostration of strength, difficulty of breathing, discharge from the mouth and nostrils, constant cough, and reddish hue of the skin. These went on increasing in intensity until death put a period to them, which usually occurred in from three days to three days and a half after the commencement of the attack.

Treatment.—Bleeding and laxative medicines, stimulating frictions of the trachea and parietes of the thorax, seemed to be the most efficient remedies. Doses of tartarized antimony and Hydrag. sub. mur., in three grains of each, administered every twelfth hour, produced vomiting, and appeared to give ease. Sulphate of magnesia relieved those cases in which there was constipation.

The causes seemed obscure. The epidemic prevailed in the summer ; but whether it arose from the warmth of the weather, from want of a sufficient supply of water, or from dry and heating food, was not at all evident.†

Paulet has described a very similar epidemic among swine, which frequently prevails in one or the other of the *arrondissements* of the south of France. He describes it as highly inflammatory, rapidly going on to gangrene, and exceedingly contagious, but is at a loss to what cause to attribute it.

The precursory symptoms are, according to him, restlessness, cough, loss of appetite, dulness, and a weak tottering gait. These gradually go on increasing in intensity until the seventh or eighth day, when they have become very marked. Then alternations of heat and coldness of the body come on ; the ears droop and are cold, the head is heavy, and the tongue becomes discoloured ; the breath is fetid, and there is a copious discharge of mucus from the nostrils. The skin is tinged with red ; but the hue is not very evident, excepting under the belly. The animal appears to be in

* "Recueil de Médecine Vétérinaire," 1834.

† "Veterinarian" for 1838.

great suffering, and cries out pitifully. This general inflammation of the integuments rapidly goes on to gangrene, which alteration is evidenced by the livid violet hue of the diseased surfaces. Death then rapidly follows.

He, too, prescribes bleeding, and from the ears and veins of the belly ; while many authors condemn it as debilitating. The only thing he recommends besides is thin oatmeal gruel, acidulated with white-wine vinegar ; for he appears to consider the malady to be so fatal that medical treatment avails nothing against it. Here, however, we cannot but deem him wrong : many of the most virulent, and, if neglected, fatal of the diseases to which our domesticated animals are subject will yield to the influence of a judicious course of treatment, and many a valuable animal has been saved by the skill and attention of a veterinary surgeon. We should recommend laxative drenches, stimulating frictions, warmth and cleanliness, and a seton in the chest.

In the epidemic which prevailed in 1841 throughout the greater part of England, swine were affected, as well as horses, cattle, and sheep, and often took it before any of the rest of the stock, but in general had it more mildly. This malady was of a highly contagious, inflammatory character, and affected chiefly the mucous and secretory tissues. When once it entered a farm-yard it spread rapidly, until every ox, sheep, or pig was infected, and in some instances it passed to the human being. Damp, wet weather appeared most favourable to its development ; and from all accounts it seems to have arisen from some atmospheric agency.

Symptoms.—Lameness of one or more of the feet, accompanied with heat around the hoof and lower part of the leg ; discharge of saliva from the mouth and nostrils ; champing or grinding of the lower jaw ; ulceration of the mouth and tongue, extending even to the snout ; dulness, inappetency, constipation, rapid emaciation, and cough.

Treatment.—The ulcerated portions of the feet and the detached pieces of horn should be carefully pared, and the parts daily washed with a solution of blue vitriol, or smeared with warm tar ; the mouths also dressed with a strong solution of alum ; and from an ounce and a half to two ounces of Glauber salts dissolved in water, and given in their food.

Where the malady was attacked in its onset, these simple remedies sufficed to produce convalescence in from fourteen to one-and-twenty days.

Post-mortem Appearances.—There were patches of inflammation throughout the whole of the intestines, both externally and internally ; the liver was sound ; the heart flabby and soft ; the lungs shrivelled, flattened, and diminished to one-half their natural size, and in some cases hepatized ; the diaphragm, pleura, and bronchial tubes of a greenish hue, and evidently gangrenous.

The flesh of pigs that had died of this epidemic was eaten by some persons without their suffering any ill effects ; nevertheless, the experiment was hazardous.*

* “Veterinarian” for 1841.

CHAPTER VI.

Anatomy of the Stomach—Gullet—Intestines—Duodenum—Jejunum—Ileum—Cæcum and Colon: Diseases to which these parts are liable—Enteritis—Colic—Diarrhœa—Garget of the Maw—Anatomy of the Liver and Spleen: Splenitis—Rupture of the Spleen—Absorption of the Spleen—Peritoneum—Worms—The Bladder and its Diseases—Protrusion of the Rectum.

THE GULLET.

THE gullet, or *œsophagus*, is a musculo-membranous tube, commencing at the pharynx, passing down the throat on the left side of the windpipe, entering the chest in company with that tube, penetrating through the folds of the diaphragm, and terminating in the stomach through an orifice termed the *cardia*.

THE STOMACH.

The stomach of the hog is a much more simple apparatus than that of the ox and sheep; it is a truly omnivorous one, and beautifully adapted by its pyramidal appendage and glandular structure, as well as by the villous mucous membrane with which it is lined, for the digestion of the heterogeneous food which it is destined to receive, being perhaps more analogous to that of the horse than to any other animal. In form it is globulous. Its large blind cavity is very luminous, and is surmounted in front by a hood-like appendage. The narrow long portion which abuts on the pylorus greatly resembles this hood-shaped appendage. On each side of the cardia are two transversal folds, and the cardia itself is halfway between the pylorus and the large cavity.

The stomach has three coats: the outermost, or *peritoneum*, which constitutes the common covering of all the

intestines ; the muscular or fibrous coat, which acts upon, and mingles the food, and prepares it for digestion ; and the mucous or villous coat, which is peculiarly developed in the pig, and into which the open mouths of numerous little vessels convey the gastric juice to the semi-digested food, and by its action convert it into a pultaceous fluid, commonly called *chyme*.

THE INTESTINES.

The intestines of the hog bear a stronger resemblance to those of the human being than we find in any other animal. They are sixteen times the length of the body of the animal, and the proportions of the small intestines to the large are as three to one. They are composed of four coats or layers. The outer or peritoneal one is formed of that membrane which invests and retains in its proper position every portion of the contents of the belly. The second layer is muscular, and by its action propels the contents of the stomach gradually onwards. The office of the third is to lubricate the innermost coat, and for this purpose it is supplied with numerous glands surrounded by cellular tissue. The fourth or lining coat is soft, villous, and in a healthy state always covered with mucus. The food, having been sufficiently converted into chyme by the action of the stomachs, is gradually propelled through the pyloric orifice by

THE DUODENUM,

or first intestine, where it is submitted to the influence of two fluids, the one secreted by the pancreas, the other by the liver, and the combined action of which separates the nutritious from the worthless portion, causing the former to assume the appearance of a thick whitish fluid, and the latter that of a yellow pulpy substance. It next passes into

THE JEJUNUM AND ILEUM,

where it undergoes still further alteration, and whence a considerable portion of it is taken by the lacteal vessels which

open into these two small intestines, and conveyed away to nourish the frame, and become mingled with the blood, and supply the waste in it. These two intestines are of equal diameter in the pig throughout their whole extent, and the termination of the jejunum and commencement of the ileum is by no means distinctly defined; the latter is, however, longer than the former, and opens into

THE CÆCUM,

with a valvular opening close to the aperture into the colon. The cœcum is a kind of bag supplied with numerous secretory glands, which furnish it with a fluid which once more acts upon those portions of the digested food which reach it, extracting from them any nutritive portions which may chance still to remain. The matter, having reached the base of this intestine, is returned by the muscular action of its coat, and being prevented by the valve from re-entering the ileum, passes into

THE COLON,

the longest of the large intestines, some of the convolutions of which equal the stomach in size, while others are as small as the small intestines. Here the watery parts of the mass are extracted, and the residuum or hard fæcal portion is retained for a while, and finally expelled through the *rectum*. It will be readily imagined that this complicated and beautiful process must occasionally become deranged by various causes, and that hence will arise different diseases of a more or less serious nature. This is, however, less the case in swine than in most of our other domesticated animals, from the circumstance of their stomachs and intestines being prepared by the softening power of their highly mucous villous lining for the reception and digestion of a heterogenous mass of food, which to other animals would be actually poisonous; rendering it evident that, although the hog in a state of nature is a herbivorous animal, he was also destined to become omnivorous, for the service of man.

ENTERITIS.

This disease consists in inflammation of one or more of the coats of the intestines, and is capable of being produced by various irritating causes, as the foul air of badly ventilated sties, and overcrowding, unwholesome food, &c.

"I once lost four porkers by overcrowding and deficient ventilation."

The symptoms are dulness, lost of appetite, constipation, spasms, or convulsions, continued restless motion, either to and fro or round and round, staggering gait, and evident symptoms of suffering.

The most successful treatment is warm baths, dry litter, and general warmth and comfort; and internally, purgatives and enemas. Castor oil is the safest medicine and the best purgative for cases of this nature, and the enemas should be of an emollient or oleaginous nature. The diet should be restricted to the simplest and lightest food; oat-meal porridge, skim-milk, or whey are the best things.

The following are cases of gastro-enteritis, apparently combined with a cerebral affection, which Mr. Cartwright, from whose observations of disease we have so frequently drawn, gives in the "Veterinarian" for 1841:—

"On the 27th of June last I was sent for to see a small pig belonging to Mr. Hont, of Whitchurch. It was about three months old, appeared to be unwell, and refused its food. It forced its head against anything it came in contact with, and sometimes would walk round and round repeatedly. It stood up most of the day, and was much swollen. Open the bowels with castor oil.

"28th.—No better. It now lay down on its breast and fore legs, and continued in this posture the greater part of the day. Its respiration was increased. Repeated the aperient, and administered enema. In the course of the afternoon it died.

"*Examination.*—On the villous portion of the stomach, within the greater curvature, was a patch, at least three inches in circumference, of intense inflammation of the mucous membrane of the intestines. The inflammation did

not occupy one continuous space, but there were patches of it, from four inches to a foot in size, in places that were otherwise tolerably healthy. The inflammation was also in irregular circular streaks round the intestine, of one-eighth of an inch in width. There was a small similar patch of intense inflammation on the mucous coat, at the blind end of the cæcum, as well as in the stomach.

"The rectum had been ruptured by the owner by too forcible clystering. There was, perhaps, half an ounce of serum within the pericardium. The brain and all other parts were sound. A portion of faecal matter had oozed out through the ruptured part of the rectum, and there was nearly two quarts of effusion in the cavity of the abdomen.

"*Observations.*—It appears that three large lettuces had been eaten by this pig the day before, when he appeared quite well. Did they cause the disease in his head (if any), and in the bowels? What produced the violent inflammation in his stomach? He had had no other medicine than the *Ol. ricini* to produce any fatal purgative action, and his bowels were quite relaxed.

"In the month of May last I was called to look at a pig of Mr. Kempster's that had been ill a couple of days. It was lying down in a high state of fever, and breathing laboriously, and would not, I think, have lived long. It had been in a similar state most of the day, and had a large quantity of *Pulv. jalapæ* given to it. I ordered it to be killed.

"*Examination.*—I could discover nothing amiss except a patch of inflammation, as in the last case, in the stomach, and some in the intestines.

"I was sent for on December 20th, 1835, to see two pigs belonging to Mr. Parker, of Whitchurch.

"*Symptoms.*—In one there was a great stupor, and indifference to move about. He was very weak, and would fall on his knees or on his side; in short, we could do what we would with him. The other was turning round half his time, or forcing his head against anything he came in contact with. Sometimes he would fall upon his knees, or shake his head convulsively. The head and ears were hot, the pulse very quick, the respiration natural. The abdomen of

one was very slightly distended, and the sides of the other were flat. I advised that both should be killed.

“*Examination.*—The stomach of the first was filled with half-digested meat, composed of ground oats, barley, and potatoes, but there was no distention or disease in it. The small intestines looked inflamed, and on laying open the abdomen, and cutting into them, they were found to be so. On the mucous membrane of the large intestines there were many eminences or tubercles, similar to those that are found in the stomachs of horses, and produced by bots, with a small cavity in the centre. The lungs were congested in their anterior small lobes, but otherwise sound.

“The small intestine of the other was also inflamed, but not so much as in the first pig; there was likewise a great deal of secretion in them. All other parts of the body were sound; I had no opportunity of examining the head.

“These pigs ate their supper over night as well as usual, as may be known by their stomachs being filled. On the Thursday preceding, they had had thrown into the tub of meat from which they were fed a quantity of refuse brine, made of salt and saltpetre, that had been used for curing some bacon, and on the next day the servant said the pigs had not eaten their meal *as well as usual.*”

COLIC.

The hog is frequently attacked with this malady, which generally arises from unwholesome food, cold, or wet filthy sties; and is evidenced by restlessness, cries of pain, rolling on the ground, &c. A dose of castor oil proportionate to the size of the patient, with perhaps a little ginger in it, and administered in warm milk, will generally give speedy relief; or if the first should not, the dose must be repeated. Some practitioners recommend Glauber or Epsom salts, but we consider oleaginous purgatives to be best adapted for attacks of colic.

DIARRHŒA.

This is a disease very common among all our young domesticated animals, and one that is also repeatedly met with in older ones ; a scanty allowance or unwholesome food will produce it, as will also over-feeding or too nutritious diet. It consists in a frequent discharge of the faecal matter in a thin or slimy state, but not actually altered, and arises from inflammation or congestion of the mucous lining of the intestines. What we conceive to be an attack of diarrhœa, is often only an effort of nature to throw off some offensive matters, and will cease of itself in the course of twenty-four hours ; but where it goes on for any length of time, it must be taken seriously in hand, as it will otherwise weaken the animal and impair its value.

"Sucking-pigs under four weeks old' are very subject to this complaint. Some sows, if not sparingly fed, often make more milk than the young ones can take, and this excess will produce the complaint. Ground oats and bran make the best milk. When the young ones begin to scour, the sow should have a little bole in her food, and if taken in time they will begin to mend in a day or two. *Young pigs bred on stone floors* are almost sure to have diarrhœa. Cleanliness and regularity in feeding are the best preventives against the disease. "G. M."

"I recommend that the sow have no change of food as long as the young are at the teat, and that she be fed *in a very low trough*, so that the young ones may get accustomed to the food before they are weaned. "J. F."

The following is the best medicine (calves' cordial) for diarrhœa in pigs :—

Prep. chalk	one ounce.
Pow. catechu	half an ounce.
Pow. ginger	two drams.
Pow. opium	half a dram.

Mixed and dissolved in half a pint of peppermint-water.

From half an ounce to an ounce of this mixture, according to the size of the animal, should be given twice in the day

(a teaspoonful will be enough for sucking pigs), and strict attention paid to the diet, which should consist as much as possible of dry farinaceous food.

GARGET OF THE MAW.

This is a disorder arising from repletion, and is found alike in older animals and in sucking-pigs. Its symptoms strongly resemble those of colic. The remedies, too, are purgatives. Epsom salts is here, perhaps, as good a thing as can be given, in doses of from a quarter of an ounce to an ounce. It might as well be termed *indigestion*, for such it actually is, the stomach being overloaded with food. In sucking-pigs it usually arises from the coagulation of milk in the stomach.

THE LIVER.

This organ in swine does not appear to be so subject to disease as it is in most of our domesticated animals; we have only, therefore, to glance at its use and anatomy as we pass. It is smaller in swine than in sheep, and larger than we find it in the dog, in accordance with that anatomical law which seems to be in force in all animals, namely, that the size of the liver shall be in inverse proportion to that of the lungs. It is situated in the anterior part of the abdomen, and its upper surface rests against the concavity of the diaphragm. Its office is to receive the blood that is returned from the intestines, separate from it and secrete the fluid termed *bile*, and then forward the residue of the blood onwards to the lungs, where it undergoes the usual aërating process, and becomes transmuted into arterial blood.

The fluid or *bile* thus secreted, when in a healthy state, and not in undue proportion, stimulates the mucous membrane, and increases the peristaltic motion of the intestines, excites the secretion of that mucus requisite to preserve these parts in a healthy state, hastens the process of

separating the nutritious from the innutritious parts of the food, and facilitates the escape of the faecal matters. It also acts chemically upon the various substances which are devoured by the animal, and is the chief agent in neutralizing the acidity which some of these would otherwise create. The liver of the pig has four distinct lobes.

THE SPLEEN.

In the hog the spleen is very long, and nearly of a uniform breadth and thickness throughout its whole extent. It lies on the left side of the abdomen, and is attached to the stomach by the folds of the epiploon. Its texture is almost like that of a sponge in appearance, consisting of innumerable cells of every size and form, yet it is firm to the touch. In colour it is a dark, deep-reddish brown.

There has been much dispute as to the functions and use of this organ. Some persons, arguing from its situation, contend that it is a powerful agent in the process of digestion; but this is strongly negatived by the fact that it has been removed from some animals which have existed for a considerable time afterwards, without apparent injury to that function. Others, again, and with more probability, assume that it has to do with the colouring and conversion of the chyle into blood as it passes through the mysentery, where it becomes mixed with the red coagulable fluid furnished by the spleen. But with these physiological questions we have at present nothing to do: our purpose is simply to consider it with a view to understanding and treating those diseases of which it is not unfrequently the seat. Little attention has hitherto been paid to them, probably from their symptoms being somewhat obscure; but, nevertheless, different morbid affections of the spleen are by no means uncommon among the lower domesticated animals. This viscus is often ruptured, distended with blood, inflamed, or softened, from the effects of different causes, but chiefly of damp, heat, or foul air.

SPLENTIS.

Swine suffering under this malady are restless and debilitated, shun their companions, and bury themselves in the litter. There is loss of appetite and excessive thirst, so excessive, that they will drink up anything that comes in their way, no matter how filthy. The respiration is short; they cough, vomit, grind the teeth, and foam at the mouth; the groin is wrinkled, and of a pale-brownish hue, and the skin of the throat, chest, and belly (which latter is hard and tucked up), is tinged with black.

The remedies are copious blood-letting, gentle purgatives, as Epsom or Glauber salts, followed up by cooling medicines. Cold lotions of vinegar and water to bathe the parts in the neighbourhood of the spleen, or a cold shower-bath applied by means of a watering-pot, are also efficacious in these cases.

Columella, in his quaint style, thus treats of this disease:—

“Also the pain of a distempered spleen uses to plague them; the which chiefly happens when there chances to be great droughts, and, as the bucolic poem speaks—

‘When on all sides the apples scatter’d lie,
Each under its own tree;’

—for it is an insatiable cattle, the swine, which beyond all measure eagerly seek after that which is sweet. They labour and are affected in the summer and early autumn with a swelling or growth of the spleen, from the which they are relieved if troughs be made of *tamarisks* and *butcher’s broom*, and filled with water, and set before them when they are thirsty; for the medicinal juice of the wood being swallowed with the drink, puts a stop to the intestinal swelling.”

The great difficulty here is, how troughs can be made of the *museus* (butcher’s broom). In all probability, the true meaning is, that the troughs should be lined with the branches of this plant; and the *tamarisks* signifies doubtless the *tamarices e trunco* mentioned by Pliny, lib. xxiv. 9,

where he speaks of canals and troughs being made of the *tamarix*. Translators are given occasionally to make similar mistakes or alterations of text.

RUPTURE OF THE SPLEEN.

We quote this case from the "Veterinarian" for 1841 :—
"A pig belonging to Mr. Roberts, of Whitchurch, died after having only been ill for a day or so, and that unattended by any definite symptoms. On *post-mortem* examination the spleen was found to be of about three or four times its natural size, and completely congested. In one place there was a small rupture surrounded with coagulated blood. All the other viscera were perfectly sound."

ABSORPTION OF THE SPLEEN.

This case is also derived from the same source, and we present it to our readers as a testimony of the different forms of disease which occur in the spleen of the swine.

"A fat pig, weighing fifteen score, was killed, and, upon cutting it up, the spleen was found to be almost entirely absorbed. It was of the usual length, but not above half an inch in width, or the eighth of an inch in thickness in any part, and weighed but seven drams. What there was of it, however, appeared to be perfectly sound, and was surrounded by a considerable portion of adeps."

PERITONEUM.

This portion of the contents of the abdomen is composed of cellular tissue, and amply supplied with absorbent vessels; its office is to separate the different viscera from each other, to envelop them, and to attach them to and support them

in their proper position. It is subject to attacks of inflammation, technically termed

PERITONITIS,

the symptoms of which closely resemble those of splenitis ; and the causes too are very similar, being chiefly improper food, repletion, or exposure to extremes of temperature. Oleaginous purgatives are here the only ones which are admissible, and emollient clysters ; great attention must also be paid to the diet, and nothing of an acrid or indigestible nature given to the animal. This disease is too often fatal, gradually wasting away its victim. The *post-mortem* appearances are as follows : the intestines have become so adherent to each other that it is scarcely possible to believe that any false membranes were ever interposed ; the peritoneal surfaces present evidences of inflammation, and are often covered with confluent ulcerations resembling those seen in glanders of the horse ; there is considerable inflammation of the muscular coat of the intestines, and the whole of these parts are thickened and corrugated.

WORMS IN THE INTESTINES.

These entozoa are very troublesome in swine, and often exceedingly fatal. The *spiroptera strongylina* is one of the kinds most common to the hog, but the *ascarides tania* and *echinorhinc* are likewise often found in considerable numbers.

The presence of worms may be inferred when the animal eats voraciously and yet continues lean and out of condition ; coughs, runs restlessly about, uttering squeaks of pain, becomes savage, snapping at his companions and destroying all rabbits and poultry that come in his way. The excrements are generally hard and highly coloured, the eyes sunken, the animal becomes daily more and more debilitated, and frequent attacks resembling colic tend still further to weaken him. Too often he dies ; for before these symptoms have been noticed the evil has generally attained to such a height as to be beyond the power of medicine ; for these

parasites, and the *echinorhince* especially, multiply with incredible rapidity.

Drastic purgatives constitute the most efficient means of combating worms ; but they must be cautiously administered, as they are but too apt to dissolve and force away with them the lining mucus of the intestinal canals. Turpentine is exceedingly destructive to worms, and, although to many of our domesticated animals a dangerous medicine, it may be administered with perfect safety to the hog. Common salt may also be given with advantage, and should be mingled with the food. Nor must it be supposed that because no worms are seen to come away from the animal, the treatment may be discontinued, or that there are none ; hundreds of them die in the intestines, and there become digested and decomposed, and go through the same processes as the food.

THE BLADDER.

This organ seems to be but little subject to disease in swine. Its position beneath the rectum and genital organs contained in the pelvic cavity protects it in all animals from external injuries ; and the pig not being exposed to those causes which render the horse and dog peculiarly liable to disease of the bladder, namely, speed, long and fatiguing exercise, &c., seems to be comparatively exempt from it.*

VESICAL CALCULI.

"A barrow-pig that to the seventh month had manifested perfect health, from that period fell rapidly away (although its appetite remained unimpaired), so much so, in fact, that in two months more it was a mere bag of bones, and the owner had it destroyed. He attributed this decline to a

* This is not strictly correct. High-bred sows are very apt to die of constipation, which, pressing on the neck of the bladder, produces inflammation, and without immediate attention will terminate fatally.—S. S., EDIT.

difficulty in passing its urine, which distressed the animal to such a degree that every time it wanted to stale, it quite moaned with pain, rolling upon its back, arising, and again posturing itself for staling, arching its spine, and making violent efforts, which too often were ineffectual. At other times, and indeed oftenest, he, after much straining, succeeded in passing a little urine, but this was speedily followed by fresh efforts. Occasionally, after having rolled about and laid on its back, it obtained relief by a flow of urine in a full stream. The urine was at all times perfectly clear."

This account was sufficient to draw Mr. Reid's attention to the presence of vesical calculi. He regretted that he had not been called in during the life of the animal, that he might have made it the subject of operation, and requested permission to examine the carcass.

The bladder was half full of limped urine, in which floated the stone. The internal coat of the bladder, about the inferior part, exhibited slight blushes of inflammation. All around the neck it was deeply inflamed, and thence the reddening spread about an inch into the urethra. The peritoneum also exhibited a light tint.

INVERSION OF THE BLADDER.

A sow littered in the morning and brought forth ten pigs without any apparent difficulty, and immediately afterwards something resembling the bladder, and which appeared to be about half full, came out. The owner seeing that it did not come away, became alarmed, and sent for the pig-butcher, who said it was the womb, and that it must be put back, which he accordingly endeavoured to do, and having passed two or three stitches of small twine across the labia to retain the parts, left the animal. Mr. Neale, V. S., of Burbage, happening to hear of the occurrence, called to see the sow. He found the vagina considerably protruded, or at least that there was a protrusion of the size of a man's fist, and in a sloughing state, there. She appeared, however, in good condition, got up without apparent pain or difficulty,

and was suckling her young well. The urine was flowing drop by drop. As the owner declined having anything done to her, Mr. Neale ordered the parts to be bathed with a decoction of bark. Four months afterwards she was killed for bacon, and weighed 160 lbs. Upon opening her, the uterus was found to be perfectly healthy, the vagina as clean as possible, and the tumour reduced by sloughing to the size of a lemon; the bladder was completely gone. The kidneys were full of white purulent matter, of about the consistence of cream. The uterus led directly from the kidneys to the protruded part, at the inside of which and just below the anus was a formation of matter about the size of a hen's egg. There was not the slightest trace of inflammation in any of the surrounding parts.*

PROTRUSION OF THE RECTUM.

This is an evil of not unfrequent occurrence in swine, arising chiefly from obstruction of the intestines. Where the cause is simply obstruction, an operation will remedy it; but as the obstruction is too frequently attended with rupture of some of the intestines, it will perhaps be as well to have the animal slaughtered at once, especially if it is in tolerably good condition.

HERNIA.

There is little doubt but that umbilical and congenital hernia are of frequent occurrence among swine; but as yet the attention devoted to the diseases of these animals has been so slight, that we dare not venture positively to assert the fact.

* The "Veterinarian" for 1838.

CHAPTER VII.

The Skin and its Diseases—Gangrenous Erysipelas—Lice—Leprosy—
Mange—Measles—Desquamation of the Skin.

THE SKIN.

THE skin of the hog, like that of most other animals, is composed of three separate parts or layers. The first or exterior of these is the *cuticle* or scarf-skin, which covers the whole surface of the body and protects the more sensitive parts from the injuries which might result to them from immediate contact with external agents. It is a thin, tough, callous texture, perforated with innumerable holes or pores, through which pass the hairs or bristles, and whence exude those transpirations by means of which the body throws off all vapours injurious to the system. Chemical analysis has proved it to be chiefly composed of gelatine, and consequently insoluble in water of common temperature. This layer is considerably tougher and denser in the hog and other of the pachydermata than it is in the horse, ox, and most of our domesticated animals.

Beneath this is the *rete mucosum*, a soft expansion of tissue which overspreads, and can with difficulty be separated from the layer below it. Its purpose appears to be to protect the terminations of the blood-vessels and nerves of the skin, which it in a manner envelopes or covers. This layer determines the colour of the body and of the hair.

The third and undermost part is the *cutis vera*, or true skin, an elastic texture composed of innumerable minute fibres crossing each other in all directions, fitting closely to every part of the frame, yielding, by its elasticity, to all the motions of the body, and interposing its dense, firm structure between the more vital parts of the system and external injuries. Innumerable blood-vessels and nerves pass through

it, and appear upon its surface in the form of papillæ ; it is in fact far more sensitive than the muscles or flesh.

The skin varies in density in different breeds of swine. In some of the large old breeds it is thick, coarse, tough, and almost as impenetrable, in comparison, as the hide of a rhinoceros ; while in many of our smaller breeds, and particularly in those which have a considerable admixture of Asiatic blood, and in the Chinese pigs themselves, it is soft, fine, and delicate, and bears no slight degree of resemblance to the skin of the human being. It is not to be wondered at that a structure so delicately organised as the one we have been describing should be subject to disease. In the hog it is peculiarly so ; many of the most serious maladies to which he is subject have their seat in the skin : it were a point well worthy of study to inquire into the reasons of this fact, but as the present work is devoted to practice rather than theory, we must leave it to abler hands, and pass onwards to a consideration of some of the most prevalent diseases of the skin in swine. [Skin diseases can generally be cured by giving small doses of sulphur with the food.—EDIT.]

ERYSIPELAS.

I have had several show pigs, and only that sort, attacked with *erysipelas*. The sudden transition from cold to heat they are subjected to is almost sure to affect their constitution. At the first stages the animal refuses to eat, and is very uneasy, the skin is very hot, and after a time great spots, of a livid hue, break out, when the pig seems to get ease ; if kept warm and quiet, it soon recovers. The animal refuses to eat for a few days, and cooling drinks should be given ; the blood is very thick and black.—G. M.

LICE.

Pigs, when allowed to wallow in the mire, and to dwell in filthy sties, are very apt to engender these disgusting vermin, which eat into the skin and render it scabby and

ulcerated, and by the irritation they keep up worry and fatigue the animals, and effectually prevent them from thriving. Eric Viborg states that these vermin sometimes burrow their way into the flesh, and come out through the eyes, nostrils, or mouth, or have even been known to be voided in the urine.

The first step to be taken towards effecting a cure is thoroughly to cleanse the skin from every particle of dirt, and to clean out and whitewash the sties and put in fresh dry litter.

Mercurial ointment, turpentine, or tobacco-water, are the most efficient agents in the destruction of these unwelcome parasites. A little sulphur or Ethiop's mineral and bay-salt may be given internally.

The preventive means are strict attention to cleanliness, both in the sties and in the animals themselves. Whenever a pig is observed to be lousy, which will quickly be perceived by his rubbing himself against the gates, trees, and walls, he must be immediately separated from his companions, or they too will become infested with lice, if they are not already so.

Parkinson is of opinion that "the cause of vermin infesting animals clearly arises, in a general way, from bad feeding, which occasions weakness of the blood; for," says he, "if an animal be ever so lousy, by giving him strong food for a few days the vermin will disappear, probably because the rich blood is poison to them." He considers that a free access to water for bathing, and also occasional exposure to heavy rain, is not only necessary to the general health of swine, but a most excellent preservative against vermin.* [Vermin are only to be found, in a well-managed piggery, in purchased stores, which should be carefully examined before being allowed to run with other pigs.—EDIT.]

LEPROSY.

This disease has apparently existed in swine from the remotest periods, and Tacitus gives it as his opinion that it was because the hog was subject to leprosy that the Jews

* Parkinson's "Live Stock," vol. ii.

were forbidden to eat of its flesh. It consists in the development of certain vesicles, or whitish granulations, in all parts and portions of the cellular tissue ; which vesicles have been proved to be neither more nor less than a species of worms termed the *cysticercus cellulosa*, supposed by some French authors to be of the same species as that found in the brain of sheep. There are, however, considerable differences between these two. The *cysticercus* is found in all the cellular tissues and soft parts throughout the whole of the body ; in the fat, in the adipose matter, in the interstices between the muscles, in the viscera, and, in short, in every crevice into which they can insert themselves. The thigh or ham has been mentioned by some authors as the principal seat of these vesicles, but they are also found on the shoulders, around the jaws, along the neck and belly, and even underneath and around the root of the tongue, where alone can any outward lesions indicative of leprosy be in general discovered ; and even here they are not constant, but are chiefly evident in those animals in which the disease has attained to a great height. The progress of leprosy is very insidious, and the early symptoms so little marked that a practised eye only can detect them.

In the onset all that is observable is a certain marked stupidity or obstinacy in the animal ; a state of languor and apparent general debility ; an evident thickening of the skin ; a slight adhesion of the bristles ; a tendency in the hair to fall off, caused by the development of a greater or less quantity of those vesicles of which we have spoken as being scattered in different parts of the fatty tissue either on its surface or in the interstices of the muscles ; under the coats of the viscera, or on the sides of the tongue.

In its successive progress this disease attacks the animal economy more or less profoundly without the functions appearing otherwise troubled. There is ulceration of the cellular tissue, and even of the organs that surround or penetrate it : the animal does not, however, appear to be generally and seriously ill. Far from losing his appetite, he is occasionally extremely voracious. He does not appear to suffer in the lungs ; his breath is not embarrassed, nor is his voice hoarser than usual.

Such is at least what may be observed to take place when the leprous vesicles are not numerous. It is when they increase in quantity and the disease increases that they begin to affect the health of the patient. He then becomes indifferent to everything ; moves about slowly ; totters as he walks : his eyes are dull ; the buccal membrane is pale, and sometimes strewed with violet spots. The expired air is fetid, the breathing slow ; the pulse small and irregular ; the bristles easily plucked, and sometimes a little blood accompanies them. Strength begins to abandon the patient ; he can no longer sustain himself on his hind legs ; the posterior part of the trunk becomes paralysed ; the body exhales an unpleasant smell ; the skin is thicker, and the cellular tissue is raised in different parts, especially about the kernels of the neck. There is swelling about the roots of the hair, which often proceeds to ulceration ; the skin comes off in patches ; large tumours are developed ; the teeth are ground convulsively together ; the tongue is dark-coloured, hot, thickened, and covered with slime ; the body swells ; the animal utters feeble cries of pain, and seldom survives many hours.

This is a very obstinate disease, probably from its having usually taken so great a hold of the system before it is suspected, and numerous have been the medicaments recommended for it. Antimony, sulphur, small and repeated doses of Epsom salts, and general bleedings seem to be the course of treatment most likely to be attended with success ; and these must be aided by strict attention to diet and cleanliness ; cooling, wholesome food alone should be given, and water, in which barleymeal has been dissolved. Nothing of a rich or heating nature should be allowed to come within reach of the animal. As external applications, mercurial ointment may be moderately applied to the ulcerated parts, or the common mange ointment, composed of sulphur and antimony.

In all probability the reason why this and many other diseases of swine have hitherto been regarded as incurable is, that men of science, educated veterinarians, have as yet given but little of their attention to these useful animals, and deemed the study of their diseases and the means of treating them beneath their notice. Nor is the owner

without his share of blame, for he too often either abandons the poor brute to its fate, or calls in the aid of the pig-butcher or some ignorant empiric.

There have been numerous opinions advanced relative to the predisposing causes of leprosy ; some authors attribute it to exposure to the inclemency of the weather, insufficient food, and damp marshy localities ; and urge, in support of their opinion, that the disease was much more prevalent and fatal when swine were turned into the woods and forests during certain periods of the year, to seek their own food, than it is now, when they are comfortably lodged and more care devoted to their feeding. Others have attributed it to some pernicious qualities in the water which the animals drink, or in the food which is given to them ; and with both these parties we are inclined to agree, and to attribute this disease in a great measure to vitiation of the blood.

The wild boar appears to be exempt from it ; nor is leprosy known in America, Russia, or Spain, if we may believe the testimony of various authors and travellers.

Some have asserted it to be hereditary ; but there are numerous facts on record in which some of the progeny of a perfectly healthy boar and sow have proved leprosy, while a diseased sow has produced sound and healthy young.

Another question has likewise been much discussed, namely, the propriety or safety of eating the flesh of pigs that have died of this disease. These animals, however good condition they may appear to be in, are rather bloated than fat ; the flesh is soft, and flabby, and tasteless, and will not keep ; the bacon pale in colour and wanting consistency. Soup made with such flesh is white, greasy, and insipid, and has been known to produce vomiting and diarrhoea. We are not aware that there are any records of disease or other evil resulting from the eating of the flesh of leprous pigs ; nevertheless it stands to reason that it cannot be wholesome, and should not be made use of, for although no immediate ill effects may follow the eating of it, we cannot tell what insidious evils such vitiated and diseased food may engender in the human frame.

MANGE.

This cutaneous affection, which was formerly attributed to want of cleanliness or to some peculiar state of the blood, is now generally admitted to arise from the presence of certain minute insects termed *acari*. It is identical with the *scab* in sheep and the *itch* in the human being, which also were supposed to arise from corruption of the blood or acrid humour subsisting in it, or from filthiness, but which arise from this scabious insect. As far back as the twelfth century these *acari scabiei* were described by an Arabian physician; subsequently they were noticed and described by several German and Italian writers, and in 1812 and 1814 Herr Walz, a German veterinarian, and M. Gohier, an eminent French veterinary surgeon, found these insects in, and gave drawings of, and described those peculiar to, almost all our domesticated animals.

There is a very interesting translation from a pamphlet by Dr. Hertwig, given in the "Veterinarian" for 1838, in which a detailed account of the habits and history of these insects will be found.

The hog does not appear to suffer so much from mange or scab as the horse, sheep, and dog; in swine, the pustules are usually chiefly developed under the arm-pits and on the interior of the thighs. They at first consist simply of red spots, vesicles, or pimples; but these gradually become connected together by minute burrows, or furrows, existing beneath the skin, and eventually unite in the form of large scabs, which the animal, irritated by the itching, rubs into large blotchy sores.

Where the mange is recent, a tolerably strong decoction of tobacco or digitalis will often prove an efficacious wash for the diseased parts, or a solution of corrosive sublimate; but if the eruption is of long standing and has degenerated into scabs, a solution of arsenic in the proportion of one ounce to a gallon of water, or, what is still better, sulphur and mercurial ointment in the proportion of an ounce of the former to a dram of the latter, carefully and thoroughly rubbed into the skin, must be resorted to. A decoction of

soot has also been recently discovered by an eminent French physician to be exceedingly efficacious in cases of cutaneous disorders. Two handfuls of soot are boiled during half an hour in a pint of water, the fluid is then strained off, and the lotion, when cold, used two or three times in the day. Creosote has also been used with success in the treatment of cutaneous eruptions. If the animal is in high condition, blood should be taken, and two or three doses of cooling physic given, or sulphur mingled with the food. Strict attention must be paid to cleanliness, and the animal kept apart from the rest of the herd. Mange is both hereditary and infectious. There are numerous instances of its having been communicated from one animal to another of a different species, and even to the human being.

In Austria, if mange appears in the hog within eight days after the sale it is presumed to have existed at the time of the said sale, and the animal is returnable to the vendor; and when it can be proved that he was aware of the unsoundness, he not only has to return the purchase-money, but also to indemnify the purchaser for any loss or inconvenience he may have sustained, besides paying a fine equal to one-tenth of the value of the animal.

That the actual disease, namely, the scab and the irritation, arises from the presence and proceedings of the *acari* there can be no shadow of doubt; but the question is, whence do these *acari* arise? Are they the product of some morbid state of the skin arising from constitutional derangement, or created by miasma or effluvia? We find mange in animals that are fed on too stimulating food; we also find it in others that are neglected and badly fed. How can these contradictions be reconciled? Here is a vast field for scientific research and experiment. As every grain of earth, and every drop of water, and every particle of air, is peopled with living beings, developed by certain causes, it is by no means an improbable theory to suppose that the germs of the *acari* may exist in a dormant state in the skin, and only be called into actual life by some of the vitiating influences which neglect or mismanagement produces, and, once existing, they follow the law of every created being, and propagate and multiply, and pass from one animal to

another either by actual contact or by the intermediation of some other substance which both have touched. We admit, however, that this is mere theory, and call upon our professional brethren to aid us by their researches in our endeavours to discover the actual truth.

MEASLES.

This is rather a sub-cutaneous than an actual disease of the skin, consisting in a multitude of small watery pustules developed between the fat and the skin, and indeed scattered throughout the cellular tissue and adipose matter. It has by many been regarded as a milder form of leprosy ; and, so far as our present limited knowledge will allow us to judge, this supposition appears by no means an erroneous one.

The external appearances attending it are the development of reddish patches, somewhat raised above the surface of the skin, on the groin, the arm-pits, and the inside of the thighs at first, and subsequently on other parts of the body. The attendant symptoms are acceleration of the pulse, heat of the skin, cough, discharge from the nostrils, loss of appetite, nausea, swelling of the eyelids, feebleness of the hinder extremities, and the formation of blackish pustules under the tongue : eventually the skin usually comes off in patches.

The measles in swine is seldom fatal, and will gradually yield to the simplest cooling treatment, or even to mere attention to diet, temperature, and ventilation. Didymus tells us that Democrates prescribed bruised asphodel roots to be mingled with the food given to hogs, as an excellent remedy for this disease.* It sadly injures the quality of the meat, rendering it insipid, flabby, pale, and indisposed to take the salt. We should say that the flesh of measly pigs is positively unwholesome, although perhaps there are no cases on record in which it is proved that bad effects have resulted from the use of it.

The following was a remedy for this disorder used by the ancients :—"A hog having measles must be put into a sty and kept there three days and nights without food. Then

* Didymus, fol. 470.

take five or six apples, pick out the cores and fill up the holes thus made with flour of brimstone ; stop up the holes and cast in the apples to the measly hog. Give him first one or two, then one or two more, and then, as being hungry he will eat them, give him all. Let him have nothing more to eat until the next day, and then serve him so again. Thus use him for five or six days, and he will become as well and as wholesome as ever." In our opinion it is one very likely to be beneficial.

In Bavaria, Wurtemberg, and Baden, there is a warranty of four weeks and three days given against measles and other cutaneous eruptions in swine.

It yet remains to be discovered whether measles in swine is an epidemic, like that disorder in the human being, or whether it is hereditary, or whether, as many suppose, it arises from the development and presence of a variety of the cysticercus.

DESQUAMATION OF THE SKIN.

The following singular case, communicated to "The Veterinarian" by Mr. J. Sherwood of Sittingbourne, appears to us not unworthy of record here :—

"A few weeks ago the skin became hard on either side about nine or ten inches from the spine, and afterwards kept gradually separating towards the centre of the spine from the shoulder to the insertion of the tail. The bailiff cut off portions from time to time, of the weight of nearly 10 lbs., in order to make the load with which the animal was encumbered the lighter, until the last week, when the hog lay down, and after taking his rest with his brethren (for he fed and looked as well as the rest, with the exception of the load on his back) he got up and left the substance behind him. It consisted of the entire skin so far as it had sloughed, with about two inches of adeps adhering to it in the middle, getting gradually thinner towards the sides, and weighing 20 lbs., which, added to the portions before removed, made a total of 30 lbs. The hog is now computed to weigh twenty score. He had not any medicine administered, as he did well the whole of the time."

CHAPTER VIII.

Operations : Bleeding—Castration—Catching and Holding—
Drenching—Ringing.

BLEEDING.

THIS is a most useful and necessary operation, and one which, in many diseases, is of vital importance. The common and vulgar mode of getting blood from the pig is by cutting off portions of the ears or tail ; but these modes of proceeding should only be had recourse to when local and instant blood-letting is requisite. The jugular veins of swine lie too deep and are too much embedded in fat to admit of their being raised by any ligature about the neck ; it is therefore useless to attempt to puncture them—we should only be striking at random. Those veins, however, which run over the interior surface of the ear, and especially towards its outer edge, may be opened without much difficulty : if the ear is turned back on to the poll, one or more of them may easily be made sufficiently prominent to admit of its being punctured by pressing the fingers on the base of the ear near to the conch ; when the necessary quantity of blood has been obtained, the finger may be raised, and it will cease to flow.

The palate veins which run on either side of the roof of the mouth are also easily opened by making two incisions, one on each side of the palate, about half way between the centre of the roof of the mouth and the teeth. The flow of blood may be readily stopped by means of a pledget of tow and a string, as in the horse.

M. Gohier, who had considerable practice in bleeding swine, was of opinion that the cephalic and sphenal veins might be opened without any great exertion of skill, by any one who possessed a little knowledge of anatomy. The lancet should be used somewhat obliquely, and a sufficient

quantity of blood having been obtained, the flow arrested in the usual manner.

Mr. Cupiss recommends the brachial vein of the fore-leg (commonly called by farriers the *plate-vein*) as a favourable place for bleeding. This vein runs along the inner side of the fore-leg, under the skin, and the best place for puncturing it is about an inch above the knee, and scarcely half an inch backwards from the *radius*. No danger need be apprehended from cutting two or three times, if sufficient blood cannot be obtained at once. The vein will become easily discernible if a ligature is tied firmly round the leg just below the shoulder.

Columella tells us "to let blood from the ear," or "strike a vein beneath the tail, at the distance of two inches from the buttocks, where it attains sufficient size for the purpose, and it must first be beaten with the sprig of a vine; then, when swelled up by the stroke of this rod, opened with a lancet, and, after enough blood has been drawn, the vein must be bound up with the rind of the willow or elm-tree."

This operation should always be performed with the lancet, if possible: in cases of urgent haste, when no lancet is at hand, a small penknife may be used; but the fleam is a dangerous and objectionable instrument.

CASTRATION, OR SPAYING.

This operation is performed on many of our domesticated animals, with the view of increasing their docility and usefulness, and on others to dispose them to fatten and attain to earlier maturity; it consists in removing the testicles of the male, and the ovaries, and sometimes a more or less considerable portion of the uterus of the female.

Pigs are chiefly castrated with a view to fattening them, for it is generally asserted that a sow that has not been spayed will never gain flesh.

"The plaguy pigs are never worth their meat,
They neither feed, nor are they fit to eat,"

when left in a state of nature, says an old north-country

rhyme ; and, doubtless, castration has the required effect, and therefore is less objectionable when performed on the pig, than when the horse or dog is subjected to it ; for, at the same time that it increases the quiescent qualities of the animal, it diminishes his courage, spirit, and nobler attributes, and even affects his form. The tusks of a castrated boar never grow like those of the natural animal, but always have a dwarfed, stunted appearance.

If possible, this operation should be performed in the spring or autumn, as the temperature is then more equable, and care should be taken that the animal is in perfect health. Those which are fat and plethoric should be prepared by bleeding, cooling diet, and quiet. Pigs are castrated at all ages, from a fortnight to three, six, and eight weeks, and even four months old. There are various modes of performing the operation. We will begin by quoting those described by Professor Vatel :—*

“Castration by simple Division of the Spermatic Cord.—If the pig is not more than six weeks old, an incision is made at the bottom of the scrotum, the testicle pushed out, and the cord cut without any precautionary means whatever. But when the animal is older, there is reason to fear that hemorrhage to a greater or less extent will supervene ; consequently, it will be advisable to pass a ligature round the cord, a little above the spot where the division is intended to take place.

“Castration by Tearing the Cord.—Swine are thus operated on by some cutters :—An assistant holds the pig, pressing the back of the animal against his chest and belly, keeping the head elevated, and grasping all the four legs together ; or, which is the preferable way, one assistant holds the animal against his chest, while another kneels down and secures the fore-legs. The operator then grasps the scrotum with his left hand, makes one horizontal incision across the base of it, opening both divisions of the bag at the same time. Then, laying down his knife, he presses the testicles out with his finger and thumb, grasps them between his teeth, and tears them out. He then closes the wound by

* Vatel's “*Elémens de Pathologie Vétérinaire.*”

pressing the edges gently together with his fingers; the tearing prevents all hemorrhage, and the wound speedily heals. This mode of operation is sometimes performed on animals two and three years old. Some break the spermatic cord without tearing it: they twist it, and then pull it gently and firmly until it gives way.

“Castration by Sawing or Scraping.—Here a portion of the base of the scrotum is cut off, the testicles forced out, and the cord sawn through by a somewhat serrated but blunt instrument. The hemorrhage, if any there be, is arrested by introducing ashes into the wound. The animal is then dismissed, and nothing further done with him. Fromage de Feagre has castrated many pigs of three or four months old by dividing the spermatic cord in this way. This mode of operating, however, should only be practised on very young animals.

“Castration by Ligature.—Here a waxed cord is passed as tightly as possible round the scrotum above the epididymis, which completely stops the circulation, and in a few days the scrotum and testicles will drop off. This mode of operating should never be performed on pigs more than six weeks old; and the spermatic cord should always be first of all uncovered.”

We cannot approve of the tearing or gnawing the testicle with the teeth; it is a disgusting practice, and inflicts unnecessary pain on the patient: the use of a blunt knife is far preferable, as this lacerates the part equally as much without so bruising it and rendering it painful; and it is the laceration only we require, in order to prevent the subsequent hemorrhage which would occur if the cord were simply severed with a sharp instrument.

The castration by ligature requires great nicety and skill, otherwise accidents will occur, and considerable pain and inflammation be caused. Too thick a cord, a knot tied not sufficiently tight, or a portion of the testicle included in the ligature, will prevent the success of the operation.

The most fatal consequence of castration is tetanus, induced by the shock communicated to the nervous system by the torture of the operation.

In spaying the sow, the animal is laid upon its left side

and firmly held by one or two assistants ; an incision is then made into the flank, the fore-finger of the right hand introduced into it, and gently turned about until it encounters and hooks hold of the right ovary, which it draws through the opening ; a ligature is then passed round this one, and the left ovary felt for in like manner. The operator then severs off these two ovaries, either by cutting or tearing, and returns the womb and its appurtenances to their proper position. This being done, he closes up the womb with two or three stitches, sometimes rubs a little oil over it, and releases his patient, and all generally goes on well ; for the healing power of the pig is very great, as the following fact will testify :—

Mr. Thomson, veterinary surgeon at Beith, N.B., was castrating a pig, and while cutting through the peritoneum one of the assistants lost his hold, and the animal sprang up. The scalpel was plunged deep into the belly, entered one of the convolutions of the ileum, and divided one of the guts almost through, besides making a wound in the mesentery. Mr. Thomson sewed up the mesentery with a fine needle and thread and restored it to its place, and secured the side with firm stitches, not, however, with much hope of seeing his patient recover ; but, to his surprise, two days afterwards little appeared to be the matter, and in a short time the animal was well.*

The after treatment is very simple. The animals should be well littered with clean litter, in sties weather-tight and thoroughly ventilated ; their diet should be attended to ; sour milk or whey, with barleymeal, is an excellent thing to give at these times ; it is as well to confine them for a few days, as they should be prevented from getting into cold water or mud until the wound is perfectly healed, and also from creeping through hedges or fences.

The best age for spaying a sow is about six weeks ; indeed, as a general axiom, the younger the animal is castrated the better it gets over the operation, which is seldom attended by fatal results. Some persons, however, have two or three litters from their sows before they operate upon

* The "Veterinarian" for 1844.

them ; where this is the case, the consequences are more to be feared, as the parts have become more susceptible, and are, consequently, more liable to take an inflammation. Lisle says :—" Where this is done, it is best to spay a sow two or three days before her litter of pigs are weaned, because then, if harm follows the operation, the young ones will draw off the venom."*

The following extraordinary expertness at pig-spaying is worthy of mention :—Mr. J. Bowden, V. S. at Howden, undertook for a wager to spay one hundred sows and pigs in two hundred minutes. That number being procured, and umpires chosen from among the neighbouring practitioners, Mr. B. commenced operations at ten o'clock in the morning, at the Wellington Inn.

The first eleven were disposed of in twelve minutes ; the next five-and-forty in fifty-nine minutes and thirty seconds ; and the remaining four-and-forty in seventy-nine minutes and fifty seconds ; thus completing the task in two hours, thirty-one minutes, and twenty seconds, being forty minutes and forty seconds within the given time, and averaging a minute and a half for each one.

The ninety-third occupied only fifty-six seconds. The task would have been completed in even less time, but the forty-fifth pig, from some malformation of the ovaria which made it difficult to extract it, took six minutes to operate on.†

CATCHING AND HOLDING THE FIG.

Swine are very difficult animals to obtain any mastery over, or to operate on or examine. Seldom tame or easily handled, they are at such periods most unmanageable, kicking, screaming, and even biting fiercely. Hurtrel d'Arboval, recommends the following means of getting hold of them :—" Fasten a double cord to the end of a stick, and beneath the stick let there be a running noose in this cord ; tie a piece of bread to the cord and present it to the animal, and

* Lisle's "Husbandry."

† The "Veterinarian" for 1838.

when he opens his mouth to seize the bait, catch the upper jaw in the noose, run it tight, and the animal is fast."*

Another means is to catch one foot in a running noose suspended from some place, so as to draw the imprisoned foot off the ground; or to envelop the head of the animal in a cloth or sack.

But, so far as it can be, all coercion should be avoided, for the pig is naturally so averse to being handled, that in his struggles he will often do himself far more mischief than the disease we seek to investigate or remedy would effect.

DRENCHING.

Here again the observations with which we closed the preceding paragraph are applicable; for there are more instances than one on record in which the pig has, in his struggles, ruptured some vessel and died on the spot, or so injured himself as to bring on inflammation and subsequent death. Whenever it is possible, the medicine should be mingled with a portion of food, and the animal thus cheated or coaxed into taking it. Where this cannot be done, the following is the best method:—

Let a man get the head of the animal firmly between his knees, without, however, pinching it, while another secures the hinder parts. Then let the first take hold of the pig's head from below, raise it a little, and incline it slightly towards the right, at the same time separating the lips on the left side, so as to form a hole into which the fluid may be gradually poured, not more being introduced into the mouth at a time than can be swallowed at once. Should the beast snort or choke, the head must be released for a few moments, or he will be in danger of being strangled.

RINGING.

The operation of ringing is performed in order to counteract the propensity swine have to dig and furrow up

* "Dictionnaire de Médecine et de Chirurgie Vétérinaire," vol. i.

the earth. The operator is usually the village farrier or blacksmith :—

“ And pigs he rung, and bells he hung,
And horses shod and cured.”

The ring is passed through what appears to be a prolongation of the septum, between the supplemental or snout-bone and the proper nasal. The animal is thus unable to obtain sufficient purchase to use his snout with any effect without causing the ring to press so painfully upon the part, that he is speedily compelled to desist. But the ring is apt to break, or it wears out in process of time, and has to be replaced. The operation is most painful, and the shrill squeaks of the animal undergoing it cause it to be a perfect nuisance to the neighbourhood.

John Lawrence gives the following directions concerning this operation : “ The snouts of pigs should be perforated at weaning-time, after they shall have recovered from castration ; and it will be necessary to renew the operation as they become of large growth. It is too generally neglected at first ; but no pigs, young or old, should be suffered to roam at large unringed. It should be ascertained that the sow's rings are sufficiently strong previously to her taking the hog, on account of the risk of abortion from the operation being renewed while she is in pig. Care must be taken by the operator that he go not too close to the bone, and that the ring turns easily.”

The far better mode of proceeding is, when the pig is young, to cut through the cartilaginous and ligamentous prolongations by which the supplementary bone is united to the proper nasals. The divided edges of the cartilage will never unite again, and the snout always remain powerless.

THE MEDICINES USED IN COMBATING THE MALADIES OF SWINE.

Antimony.—Seldom given by itself. In conjunction with sulphur, forms an efficient cooling and cleansing medicine ; and with sulphur and hog's lard, or palm or train oil, constitutes the common mange ointment.

Arsenic.—Useful in mange, and other cases of disease of the skin. From one ounce to an ounce and a half, dissolved in a gallon of water, will form a solution of sufficient strength.

Calomel.—A dangerous drug, and one better left alone. In cases of emergency, however, it may be given in conjunction with an equal portion of tartarized antimony. From two to three grains of each will constitute an active emetic.

Cresote.—Useful in cases of virulent cutaneous eruptions.

Croton Oil.—A powerful purgative, and one that should only be had recourse to in cases of obstinate constipation. From one to three drops may be given.

Digitalis.—A valuable sedative medicine in cases of fever.

Epsom Salts.—A very useful and efficient purgative, suitable to most cases of common occurrence. From half an ounce to an ounce and a half may be ordinarily given.

Gentian.—An excellent stomachic; every aperient draught should contain a portion of this or the next-mentioned matter.

Ginger.—Also a good stomachic, and a tonic as well. From three scruples to a dram and a half may be given of this and the preceding drug.

Linseed Oil.—Valuable as an occasional purgative, especially where there is much intestinal inflammation.

Mercurial Ointment.—Used for mange and scabs, in conjunction with the sulphur ointment. The proportions are one part of the former to eight parts of the latter.

Nitre.—An excellent cooling medicine in all cases where there is tendency to fever. From one to two drams may be given, dissolved in the water the animal drinks.

Palm Oil.—The best emollient to form the basis of all ointments for cutaneous eruptions.

Salt.—A valuable adjunct in purifying the blood, and maintaining the animals in good condition. A small quantity should be regularly mingled with the food.

Sulphur.—A good cooling medicine, and the best gentle aperient for ordinary use we have. It also constitutes the chief ingredient in mange ointment.

Tartar Emetic.—Useful as an emetic.

Vinegar.—Valuable in all cases requiring cooling fomentations.

Tobacco.—A decoction of this plant efficacious and soothing in cases of mange and cutaneous eruptions, especially when mingled with equal parts of digitalis.

Turpentine.—A destructive agent in cases of worms: it may be given to swine without danger.

INDEX.

Absorption of the spleen, 229.
 Abstinence from pork necessary in southern climates, 121, 122.
 Acorns nutritive food for hogs, 129-131.
 Africa, few swine in, 176.
 Age of wild boars, 155.
 Agriculture, English, the distinguished men to whom it is indebted, 29 note.
 Aire, Valley of the, breeding-place of large Yorkshires, 11.
 Albert, Prince, his Windsor breed, 9; an exhibitor at the Smithfield Club shows, 42.
 America, breeds of, 47, 48, 170; different species of, 170.
 American sow, anecdote of an, 145.
 Anatomy of the pig, 180-181, 219 et seq.
 Anecdotes of pigs, 140, 142, 143 et seq.
 Anglo-Saxons, boar-hunts of the, 158.
 Apennines, swine of the, 177.
 Apoplexy in swine, 193; remedies, ib.
 Arabia, few pigs in, 176.
 Ardennes, wild boar of, 160.
 Asia abounds with hogs, 174.
 Assheton, Sir John of, his agreements respecting the keeping of swine, 128.
 Attachments of the pig, 140-142.
 Austria, Upper, wild boars in, 163.

B.

Bacon, feeding for, and value of, 93, 94; singeing, salting, and smoking of, 95; curing of, 107; flitches of, 109.
 Baldred, king of the Britons, a swineherd, 125.
 Baldwin, Ald., a noted breeder of the Tamworths, 35.
 Barley for feeding pigs, 75, 76; nutritive ingredients of, 87.
 Barrington, Lord, his improvement of the Berkshire breed, 25.
 Barthropp, Mr., on the Suffolk breed, 39.

Bath, story of its early history, and the royal swine herd, 124; hot-springs of, discovered by swine, ib.
 Bavarian breed of pigs, 179.
 Beanmeal for feeding pigs, 79.
 Beans, nutritive ingredients of, 87.
 Beasts of burden, pigs trained as, 142, 143.
 Bedfordshire breed, 39.
 Berkshire, black pigs of, 6, 7; curing of bacon and hams in, 108.
 Berkshire breeds, 25; crosses of the, 10, 27; improved by the Essex cross, 31; crossed with the Tamworth breed, 34.
 Berkshire sows, on the general management of, 65.
 Berkshires, prizes obtained by the, 97.
 Black breeds of pigs, 4, 6; the Yorkshiresman's prejudice against, 16.
 Black pig counties, 24; the improved Berkshire and Essex, 24, 25, 28; improved Oxfordshire, 32.
 Bladder, affections of the, 231; inversion of the, 232.
 Bleeding, operation of, 244.
 Bloomfield's description of forest hogs, 131.
 Brown, Mr., a successful prize breeder, 22.
 Boar should be smaller than the sow, 58; has great influence on future litters, ib.; proper choice of the, 59; points he should possess, 60.
 Boar hunting, 155-158. (See "Wild Boar.")
 Boar's head formerly a standard Christmas dish, 159, 160; custom of, still preserved at Oxford, 160; presented to the hangman of St. Germain's, ib.
 Boar's sty, management of the, 51.
 Brain of the hog, 191; inflammation of the, 193; remedies, 194.
 Breeding of pigs, general instructions for, 58 et seq.

Breeding-house, or shed, management of the, 51, 52, 64, 65.
Breeding-sows, on the management of, 65; **most profitable to a cottager**, 92.
Breeds, white and black, 4, 6, 9; improved by judicious crossing, 6, 7; of Yorkshire and Cumberland, 9; prizes for improving the, 11; small ones of Cumberland and Yorkshire, 20; the best white pigs of modern times bred from, 23; fancy and cross ones of different counties, 38.
Britons, their herds of swine, 126.
Bronchial tubes, disease of the, 211.
Buckinghamshire, curing of bacon and hams in, 109.
Buckinghamshire breed, 43.
Bushey breed, 43.

C.

Cabbage, nutritive ingredients of, 88.
Calabria, swineherds of, 132.
Canton breed, 44.
Carhead pig-breeding establishment, 63.
Carrots, for feeding pigs, 77.
"Carawell," the prize-winning boar, 19.
Cartwright, Mr., on epilepsy in swine, 196; on inflammation of the glands of the throat, 207.
Castration, operation of, 245; various modes of, 246-249; after-treatment, 248.
Castle Howard breed, 10.
Catching and holding the pig, 249.
Ceylon, the swine of, 175.
Chadwick, Edwin, his fallacious objections to the poor man's pig, 90.
Cheddar cheese farms, mode of feeding pigs on the, 79.
Chemistry of pig-feeding, 83.
Cheshire crosses, great improvement of, 41.
Cheshire large breed, 17.
Chest, anatomy of the, 209.
Chester show of fine sows, 15.
China, pig-breeding extensively practised in, 174.
Chinese breed, 44; **general remarks on the**, 45.
Chinese pigs, 3.
Christmas dish, boar's head formerly the standard one, 159, 160.
Cleanliness of pigs, 149.
Clover, white and red, nutritive ingredients of, 88.
Cobbett, William, on the management of the cottager's pig, 93, 94.
Cochon de Siam, 179.
Cæcum, anatomy of the, 221.
Colchill breed, 9, 43; **extensive prize winners, ib.**

Colic, disease known as the, 224; **treatment, ib.**
Colon, anatomy of the, 221.
Columbia, fearful conflict with a wild boar in, 168.
Constipation, remedy for, 64.
Corn for feeding pigs, 77, 85; **average consumption of**, 85.
Cottager's pig, management of the, 89; **arguments for and against**, 89, 90; **its domestic associations**, 91; **rules of the Yorkshire Society for encouraging its feeding**, 91; **prizes given for**, 92; **cottagers not to attempt to keep a breeding-sow, ib.**; **the necessary requirements**, 96.
County pigs, 5, 6; **fancy and cross-breeds**, 38.
Craonnaise boar, 4.
Craven, Mr., his anecdote of an American sow, 145.
Cricoid cartilage of the larynx, 304.
Cross and fancy breeds, 38.
Crosses, objections to foreign, 4; **judicious ones improve the breed**, 5.
Cumberland, white pigs of, 6, 7; **curing of bacon and hams in**, 107.
Cumberland breeds, 9; **pedigrees of the**, 11, 22; **large breed not much improved**, 17; **small breeds**, 29.
Curing of bacon and hams, 107; **flitches**, 109.
Cutting up a pig, 105.
Cuvier, Baron, his definition of the word "hog," 119.

D.

Dairy-feeding of pigs, 75.
D'Arboval, M., on diseases of the throat, 208.
Dead pig, preparing the, 105.
Desquamation of the skin, 243.
Devon breed of pigs, improvement of, 35.
Diaphragm, anatomy of the, 209.
Diarrhœa, treatment of, 225.
Dickens, C., on the swine of large towns, 171.
DISEASES, hereditary in pigs, 59; **general consideration of those incidental to pigs**, 181 et seq.; **list of, with their symptoms and treatment**, 193-218; 222-243; **apoplexy and inflammation of the brain**, 193; **phrenitis and diseases of the spinal cord**, 194; **epilepsy**, 195; **palsy, or paralysis**, 197; **tetanus**, 198; **rabies**, 199; **madness**, 201; **nasal catarrh**, 203; **strangles, or quinsy**, 206; **diseased valves of the heart**, 210; **bronchitis, and inflammation of the lungs**, 211; **pleuro-pneumonia**, 213; **epidemics**, 213-218; **enteritis**, 222; **colic**,

224; diarrhoea, 225; garget of the maw, and liver disease, 226; diseases of the spleen, 227; splenitis, 228; rupture and absorption of the spleen, 229; peritonitis, 230; worms in the intestines, *ib.*; diseases of the bladder, and of the vesical calculi, 231; inversion of the bladder, 232; protrusion of the rectum, and hernia, 233; diseases of the skin, 235; erysipelas, and lice, 235; leprosy, 236; mange, 240; measles, 242; desquamation of the skin, 243.

Docility of pigs, 140-143.

Dorset breed of pigs crossed with the Boxed breed, 31; improvement of, 36; bred from Neapolitan-Chinese and improved Essex, *ib.*; the county of Dorset not celebrated for pigs, 37.

Drenching of pigs, operation of, 250.

Druce, S., on the use of black Suffolk boars, 33.

"Duchess," the prize sow, 16.

Duodenum, anatomy of the, 220.

Dupuy, M., on the paralysis of swine, 197.

E.

Egyptians, swine's flesh prohibited by the, 121.

Empirics not to be trusted in the cure of disease, 182, 183.

England, breeds of swine in, 158, 159.

Enteritis, disease of the, 222.

Epidemics, historical notices of; their causes, symptoms, and treatment, 213-218.

Epilepsy in swine, 195.

Erysipelas, symptoms and treatment, 235.

Essex black breeds, 25; improved by crossing, 28, 29; Lord Western's great improvements of, 29, 30; Mr. Hobbes's improvements, 30; the defects in, 31.

Essex cross, Berkshire breed improved by the, 31.

F.

Fancy and cross-breeds, 38, 42.

Farrowing, instructions respecting, 58 et seq.; spring the best period for, 62; directions to be followed, 64; kind of food after, 66. (See "Sow.")

Fat-forming ingredients of the various kinds of food, 87.

Fattening, piggeries for, 53.

Feeding of pigs, general instructions for, 72; profit of, 73; different systems pursued, and different kinds of food, 75-82; chemistry of, 83 et seq.

Filthy habits of swine denied, 149.

Flesh-forming ingredients of the various kinds of food, 87.

Flitches of bacon, curing of, 109.

Food, the best kind of, after farrowing, 64, 66, 67; cooking of, 76; nitrogenous compounds of, 85, 86; value of the various kinds of, 87. (See "Feeding.")

Foreign breeds, 44 et seq.

Foreign governments, their want of success in breeding, 32.

Forest borderers, their right of fattening swine, 129.

Forest feed of Old England, 129.

France, different breeds of, 48, 179; and model piggeries for, 49; opinion of the *Journal d'Agriculture Pratique*, 50; system of pig-breeding in, 50; herds of swine in, 137, 138.

Fruits and roots the natural food of swine, 151.

G.

Garget of the maw, disease of the, 226.

Gauls, swine's flesh much esteemed by the, 121.

Germany, swineherds of, and management of the herd, 132-137; swine of, 178.

Gestation, period of, 61.

Gilpin's account of the method of treating the forest hogs, 129.

Glands of the throat, inflammation of the, 207, 208; remedies to be applied, 209.

Grain for feeding pigs, 75, 76, 87.

Grass for feeding pigs, 77.

Great Britain, extinction of wild boars in, 159.

Greediness of pigs, 151.

Guinea coast, swine of, 176.

Gullet, anatomy of the, 219.

H.

Hamburg pickle, 115.

Hampshire, curing of bacon and hams in, 108.

Hampshire breed of pigs, 38.

Hams, curing of, 107; proper smoking of Westphalia, 113, 114.

Hangman of St. Germain, boar's head presented to the, 160.

Harborough, Lord, his Neapolitan-Chinese cross, 47.

"Hark hog," breeding from the, 2.

Harrison, Mr., the prize breeder, 10.

Hayward, H. S., the prize winner from different breeds, 22.

Head, Sir Francis, his account of the "Schwein-general" of Germany, 132-137.

Heart, diseased valves of the, 210; beating of the, *ib.*

Heaton, Mr., on the rabies of swine, 200.

Heliogabalus, boars trained to run in his chariot, 143.
 Hempseed, nutritive ingredients of, 88.
 Henderson, Mr., on the curing of bacon and hams in Scotland, 111; his illustration of the tractability of swine, 143.
 Hernia, 233.
 Hewer, William, his breed of improved Berkshires, 27.
 Hobbes, Fisher, his improved Essex breeds, 30.
 Hog, Domestic, general history and description, 1 et seq., 119 et seq., 124 et seq., and 170 et seq.; derivation of the term, 119; skeleton, anatomy, and physiology, 180 et seq.—(See "Pig" and "Pigs.")
 Homer's swineherd, 125; Homer's description of a wild-boar hunt, 156.

I.

Ileum, anatomy of the, 220.
 Improved Suffolk-Middlesex breeds, 9.
 India, hunting of the wild boar in, 164-168.
 Indian corn for feeding pigs, 75, 76, 79; nutritive ingredients of, 87.
 Inflammation of the lungs, 211, 212.
 Intestines, anatomy of the, 220; worms in the, 230.
 Intractability of pigs disproved, 140.
 Inversion of the bladder, 232.
 Ireland, importance of the pig in, 138.
 Italy, perfect specimens of the wild boar in, 1; swine of, 177, 178; certain swine made privileged animals, 178.

J.

Jackson, George, his plans for a pig-gery, 53.
 James, Rev. T. C., on the improved Berkshire breed, 26.
 Japan, pig-breeding extensively practised in, 174.
 Jejunum, anatomy of the, 220.
 Jews, swines' flesh prohibited by the, 121, 122.
 Johnston's description of a boar hunt in India, 167.
 Juvenile labour, application of to pig-feeding, 82.

K.

Keighley Society, their prizes for improving the Yorkshire breeds, 11.
 Kent, curing of bacon and hams in, 110.
 Killing of pigs, 94, 95, 105.

L.

"Lady Havelock," the prize sow, 15.

"Lady Kate," the female exhibitor of, 12, 13; value of, 13.
 Lamb, Charles, on sucking-pigs, 103.
 Lancashire large breed, 18.
 Lard, preparation of, 106.
 Larynx, anatomy of the, 204, 205.
 Lawes, Mr., his experiments in the chemistry of pig-feeding, 85.
 Learned pig, 145.
 Leicester, white pigs of, 6, 7.
 Leicester cross-breed, 10.
 Leicestershire breed of pigs, 19.
 Lentils, nutritive ingredients of, 88.
 Leprosy, the disease so called, 236; its symptoms, 237; its treatment, 238; various opinions on, 239.
 Lice, pigs infested with, 235; prevention of and remedy for, 236.
 Lincolnshire breed of pigs, 38.
 Linseed, nutritive ingredients of, 87.
 Lisle's "Husbandrie," extract from, 60.
 Litters, two a year should be produced, 61.
 Liver, anatomy of the, 226.
 Local breeds, on the improvement of, 5, 6.
 Low, Mr., on sows devouring their young, 151.
 Lucern, nutritive ingredients of, 8.
 Lungs, inflammation of the, 211; remedies to be applied, 212.

M.

Maize for feeding pigs, 79.
 Malta, swine of, 177.
 Manchester boar, 9.
 Manchester large breed, 18.
 Mange, disease so called, 240; treatment, ib.; on the causes of, 241.
 Mangles, G., his description of the small Yorkshire and Cumberland breeds, 20, 21; his plan of a pig-shed, 54; his method of treating the loss of tail, 70; his use of pulped potatoes, 74.
 Mangold for feeding pigs, 77.
 Manure of pigs, value of the, 78.
 Maw, garget of the, 226.
 Measles, symptoms and treatment, 242.
 Meat of the pig, 103.
 Middlesex breed improved, 9, 41.
 Milk of sows, 67.
 "Miss Brown," the famous prize pig, 22.
 "Miss Emily," the great prize winner, 19.
 Mohammed, swines' flesh prohibited by, 121.
 Monaster pig-shows, 15.
 Moses, laws of, respecting swines' flesh, 121.

N.

Nasal catarrh of swine, 203; remedies to be applied, 204.
Neapolitan breed of pigs, 3, 43; crosses with the, 7; imported by Lord Western, 29, 47; his lordship's plan of cross-breeding, 29; Lord Harborough's Neapolitan-Chinese cross, 47.
Nitrogenous compounds of food, 85, 86.
Norfolk breed of pigs, 39.
Northallerton, fine lot of large sows at, 15.
Nottinghamshire breed of pigs, 42.
Nutritive ingredients of various kinds of food, 87.

O.

Oats, nutritive ingredients of, 87.
Operations of bleeding, spaying, &c. 244-8; catching and holding the pig during the, 249.
Os hyoides, anatomy of the, 206.
Owen, T., on the improved Berkshire breed, 26.
Oxford, custom of the Christmas boar's head at, 160.
Oxford-Berkshire crossed with a Tamworth boar, 7.
Oxfordshire improved breeds, 32.

P.

Pachydermata, order of, 119.
Palsy in swine, 197; remedies, 198.
Paralysis in swine, 197; remedies, 198.
Parson Trulliber's pigs, 5.
Peas, nutritive ingredients of, 87.
Pedigrees of Yorkshire and Cumberland breeds, 11, 22.
Pericardium, anatomy of the, 210.
Peritoneum, diseases of the, 229, 230.
Peritonitis, symptoms and treatment, 230.
Pet pig, anecdotes of the, 148.
Pharynx, anatomy of the, 206.
Phrenitis in swine, 194; remedies, ib.
Pickling pork, 113; instructions for, 114.
Pig, general history and description of the different breeds, 1 et seq., 119 et seq., 124 et seq., and 170 et seq.; the old English hog, 3; the cottager's pig, 89; advice on the choice of one, 93; meat of the, 103; cutting up of a, 105; sweating and singeing of the, 110; zoological definition of the, 119; of the order Pachydermata, ib.; its flesh prohibited by many of the Eastern nations, 121-124; early history of the, 124 et seq.; "the gentleman what pays the rint" in Ireland, 138;

trained to find game, 140; a learned one, 145; skeleton, anatomy, and physiology of the, 180 et seq.; its skull and snout, 185; its teeth, 188; its brain, 191; diseases of the, 193-218; general anatomy of the, 219 et seq.; diseases of the skin, 234; operations of bleeding, castration, &c., 244-251.—(See "Diseases.")
Pig-breeders and prize winners, 11, 12.
Piggeries and pig-sties, management of, 51; the boar's sty and breeding-shed, ib.; bad arrangements of the old pig-sty, 53; those best adapted for fattening, ib.; described by Mr. G. Jackson, ib.; Mr. Mangles' plan of a pig-shed, 54; isometrical plan of, 55; cardinal points to be observed in their construction, 57.
Pig-killing, 94, 95, 105; preparing the dead pig, 105; cutting up a pig, ib.
Piglings lost by over-care, 63; dead ones to be removed, 64; care required when first born, 67; feeding of, 74.
Pig manure, value of, 78.
Pig prizes, benefits of, 13; of the Yorkshire Society, 92.
Pigs, white and black breeds of, 4, 6, 9, 24; the best white ones of modern times bred from Yorkshire or Cumberland and white Leicesters, 23; black pig counties, 24; the improved Berkshire and Essex, 24, 25, 28; Sussex breeds, 28; Oxfordshire, 32; black and red ones, 33; Devons, 35; Dorsets, 36; county fancy and cross-breeds, 38; fancy-breeds, 42; foreign pigs, 44; breeding and farrowing of, 58; feeding of, 73; weaning of, 68; weight and prices of, 73; chemistry of feeding, 83; breeders of prize winners, 97; early history of, 119 et seq., 124 et seq., 170 et seq.; Gilpin's account of the method of treating them in the forests of England, 129-131; Bloomfield's poetical description, 181; management of, in the forests of Germany, 132-137; their value, 138; their importance in social and domestic life, 139; their tractability, 140; trained to run in a carriage, 142, 143; instances of their docility and sagacity, 143 et seq.; not innately filthy animals, 149; sensible of approaching changes in the weather, 150; very greedy animals, 151; roots and fruits their natural food, ib.; their nice selection of food, 152; employed in hunting for truffles, ib.; causes of their occasional intractability, ib.; different breeds in America, 170;

in large towns, 171; in the South-Sea Islands, 173; in the various parts of Asia, Africa, and Europe, 174-180; anatomy and diseases of the, 182 et seq.; injudicious treatment of, 183, 184; their liability to epidemic diseases, 213-218. (See "Diseases.")

Pig-sheds and pig-sties. (See "Piggeries.")

Pig-shows in Yorkshire, 11, 12.

Pleuro-pneumonia, the disease, 213.

Pointer sow, 140, 141.

Poland, wild boars in, 163.

Porculatio, the Roman term for the breeding of pigs, 120.

Porcus Trojanus, the, 120.

Pork, fresh, different forms of, 105; abstinence from, in warm climates, 121-123; pickling of, 114.

Portugal, swine of, 177.

Potatoes, nutritive ingredients of, 89.

Pregnancy, treatment of sows during the period of, 63.

Prince Albert's breed of pigs, 9, 42.

Pritchard, V.S., on the rabies of swine, 199.

Prize breeders, 15, 16.

Prize pigs in Yorkshire, 15, 16; hints on, 100; great sale of, 101.

Prize winners, 97; Berkshires, Yorkshires, &c., 97-99; reform of prize-lists, 101.

Prizes for improving the Yorkshire breeds, 11.

Prussia, swine of, 178, 179.

Pulped potatoes recommended for piglings, 74.

Pulsations, number of times in a minute, 210.

Pulse, beating of the, 210.

Q.

Quinsy, the disease, 206; remedies to be applied, 209.

R.

Rabies, the disease, 199.

Rectum, protrusion of the, 233.

Red breed of pigs, 6, 7.

Rice, nutritive ingredients of, 87.

Ringling, operation of, 250; John Lawrence's directions for, 251.

Rising of the lights, disease so called, 211.

Roots for feeding pigs, 78; application of juvenile labour to, 82.

Roots and fruits the natural food of swine, 151.

Romans, swines' flesh much esteemed by the, 120.

Rowlandson, Mr., on the curing of bacon and hams, 107.

Rupture of the spleen, 129.

Russia, wild boars in, 163.

Rye, nutritive ingredients of, 87.

S.

Sadler, Mr., his improvement of the Berkshire breed, 25; on the management of Berkshire sows, 65.

Sagacity of swine, 143 et seq.

Schwein general of Germany, Sir F. Head's account of, 132-137.

Scotland, mode of curing bacon and hams in, 111.

Shropshire breed of pigs, 40.

Simonds, Professor, on the teeth of pigs, 188.

Singeing of the hog in Kent, 110.

Skeleton of the hog, 180, 181.

Skin of the hog, 234; diseases of the, 235; desquamation of the, 243.

Skull of the hog, 185.

"Slut," training of a sow so called, 141.

Smaller breed pigs, prizes obtained by the, 98.

Smith, J., a successful exhibitor, 34.

Smoking of hams, 113, 114; smoke-house for, 114.

Snout of the hog, 185.

Somerset, curing of bacon and hams in, 110.

South Sea Islands, the black hog of, 173.

Sow of the wild boar, 3; should be larger than the boar, 58; proper choice of the, 53; fit to breed at seven months, 60; period of gestation, 61; should produce two litters a year, ib.; spring the best period for farrowing, 62; treatment of the, during pregnancy and suckling, 63; food for, after farrowing, 64; her milk, 67; trained to find game, 140; devouring her young, 151.

Sows, fine prize lots of, 15; of the improved Yorkshire breed, 73; spaying of, 245, 248.

Spain, wild boars in, 163; swine of, 177.

Spaying of sows, operation of, 245, 248; best age for, 248; expertness in, 249.

Spinal cord, diseases of the, 194.

Spleen, anatomy and diseases of the, 227; rupture of the, 229; absorption of the, ib.

Splenitis, disease of the, 228.

Sporting pig, 141.

Staffordshire breed of pigs, 6, 33.

Stomach, anatomy of the, 219.

Store-pigs, rearing of, 52.

Strangles, disease so called, 206; remedies to be applied, 209.

Sturt, Mr., on the cottager's pig, 89.
 Sty. (See "Piggeries.")
 Styrian Alps, wild boars in, 163.
 Sucking-pigs, delicacy and flavour of, 103.
 Suffolk boars, black, on the use of, 33.
 Suffolk breeds, 9, 38.
 Suidæ, or Sus, varieties included under the name of, 119.
 Sussex black breed, 28.
 Swede turnips, nutritive ingredients of, 88.
 Sweden, wild boars in, 163.
 Swine, general history and description of, 1 et seq., 119 et seq., 124 et seq., and 170 et seq.; wild ones of Europe, 161. (See "Pig," and "Pigs.")
 Swineherds of Homer, 125; their modes of managing their herds, 129; of Calabria, 132; of Germany, ib.

T.

Tail, loss of, 70; Mr. Mangles's method of treating, ib.
 Taming of a wild boar, 147.
 Tamworth boar, crossed with the improved Oxford-Berkshires, 7.
 Tamworth breed crossed with the Berkshire, 34; description of the, ib.
 Teeth of the hog, 188; indicative of the age, ib.
 Tetanus, the disease, 198; remedies to be applied, ib.
 Thorax, anatomy of the, 209.
 Throat, inflammation of the, 207, 203; remedies to be applied, 209.
 "Toby," the pet pig, 148.
 Toomer, Mr., trains a sow to find game, 140.
 Tractability of pigs, 140.
 Training of swine, 142, 143.
 Trieste, ancient statue of, respecting swine, 178.
 Trollope, Mrs., on the American swine, 172.
 Troughs for feeding swine, 54.
 Traffics, pigs employed in hunting for, 152.
 Turkey, few pigs found in, 176.
 Turnips, white, nutritive ingredients of, 88.

U, V.

Ulysses and his swineherd, 125.
 Valves of the heart, diseases of the, 210.
 Vermin, cure of, 78.
 Vegetables for feeding pigs, 78; the natural food of swine, 151.
 Vesical calculi, disease so called, 231.
 Vetch, the nutritive ingredients of, 88.

Veterinary surgeons not to be dispensed with, 182, 183.

W.

Wager, spaying for a, 249.
 Wainman, Mr., a successful breeder, 16.
 Warwickshire breeds, 33.
 Wash for feeding pigs, 80.
 Weaning of young pigs, 68.
 Weather, pigs sensible of approaching changes in the, 150.
 Weights and dimensions of Yorkshire breeds, 14.
 Welsh, their herds of swine, and their laws respecting, 127.
 Welsh breed of pigs, 40.
 Western, Lord, his Sussex breeds, 28; his Neapolitans, 29; his system of cross-breeding, ib.; his importation of the Neapolitan breed, 29, 47.
 Westmoreland, curing of bacon and hams in, 107, 110.
 Westphalia, curing of bacon and hams in, 113; hams of, the most celebrated in Europe, 114.
 Westphalian breed of pigs, 179.
 Wheat, nutritive ingredients of, 87.
 White breed, 4, 6; of Yorkshire and Cumberland, 9.
 White Leicesters, 19.
 WILD BOAR, cross with the, ruinous to a sow for breeding, 2; history and description of the, 3, 4; taming of one, 147; natural history and description of the, 153; his characteristics, 154; hunting of the, 155-158; formed part of the sports and pageants of the Romans, 157; our forests formerly infested by the, 158; its extinction in England, 159; of France and Germany, 160, 161; of Ardennes, 160; mode of hunting it in Germany, 161, 162; wild boar park of the Emperor of Austria, 162; present wild breeds in Germany, the Styrian Alps, Hungary, and Poland, &c., 163; its great ferocity, 163, 164 note; hunting of the, in India, 164-168; of Morocco, 168; of America, ib.; fearful conflict in Columbia, ib.; the parent stock of all domesticated breeds, 169; alterations produced by domestication, ib.
 Wild sow, description of the, 154, 155.
 Williams, Job, his account of white Leicesters, 20.
 Williamson, Capt., his description of a boar hunt in India, 164-166.
 Wiltshire, curing of bacon and hams in, 110.
 Windsor breed of pigs, 9, 42.

Windsor troughs for feeding pigs, 54.
 Woburn breed, 40.
 Women, pig-breeders and prize-winners in Yorkshire, 12.
 Workhouse wash for feeding pigs, 80.
 Worms in the intestines, 230.
 Wright, T., on the Berkshire and the Tamworth cross, 34.

X.

Xenophon's description of a boar hunt, 156 note.

Y.

Yorkshire, white pigs of, 6, 7; curing of bacon and hams in, 107, 111.
 Yorkshire large breeds, 4, 9; pedigrees

of the, 11, 22; prizes for improving the, 11; weights and dimensions of, 14; calculated to improve the Craonnaise, 16; middle breed, 18; the principal prize winners, ib.: "Miss Emily," 19.

Yorkshire small breeds, 20; weight of, 21.

Yorkshire Society, their rules for encouraging the feeding of the cottager's pig, 91, 92.

Yorkshires, prizes obtained by the, 97.

"Young Prince," the prize boar, 15.

Z.

Zoological definition of the pig, 119.

THE END.