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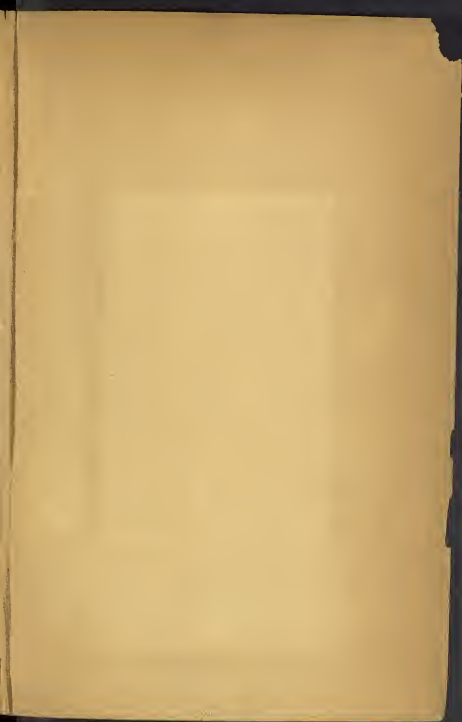
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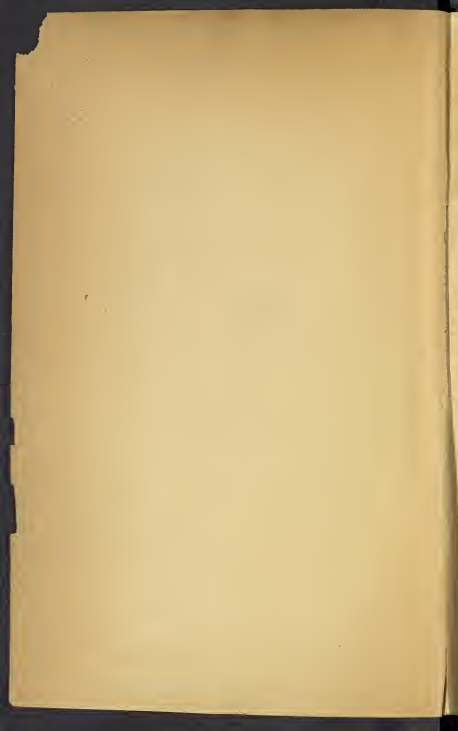


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B E E T O N ' S
F A R M E R ' S O W N B O O K

C O M P R I S I N G

*FULL AND PRACTICAL INSTRUCTIONS ON ALL
POINTS CONNECTED WITH THE*

MANAGEMENT OF
HORSES, COWS, SHEEP, PIGS, GOATS,
FOWLS, DUCKS, GEESE, TURKEYS,
AND
OTHER LIVE STOCK IN HEALTH AND SICKNESS,
FOR SALE OR BREEDING PURPOSES.

WITH CHAPTERS ON
THE TREATMENT OF DOGS AND CATS.

WITH ABOUT 210 ILLUSTRATIONS.

W A R D , L O C K & C O .

LONDON: WARWICK HOUSE, SALISBURY SQUARE, E.C.
NEW YORK: BOND STREET.

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*UNIFORM WITH AND A COMPANION VOLUME
TO THIS WORK.*

**B E E T O N ' S
FIELD, FARM & GARDEN**

COMPRISING FULL INFORMATION ON
COUNTRY SPORTS, TREE-CULTURE,
CHOICE AND MANAGEMENT OF A FARM,
THE CROPS OF THE FARM,
AND
GARDENING IN ALL ITS BRANCHES.

PROFUSELY ILLUSTRATED.

WARD, LOCK & CO., London and New York.

PUBLISHERS' PREFACE.

THE publishers believe that the present work will be of use alike to the country gentleman and the professional farmer, and that it will be found to be copious and distinct in arrangement, and clear in style. The writer, who has had many years' practical experience, has handled with peculiar care every question of importance connected with the live-stock of the farm, and he may well be relied on as a safe guide.

In the first portion of the work every topic connected with the management of the Horse—whether breeding, rearing, training, or grooming—has received the utmost attention, and these pages will be perused with pleasure and profit, by all interested in this useful animal, the reduction of which to a domestic state, to quote Buffon, “is the greatest acquisition from the animal world which was ever made by the art and industry of man.”

In the next section we have a full account of the Management of the Cow and the Keeping of the Dairy, in all its branches, and both on a large and on a small scale. The reader will find in these pages a complete summary of those scientific methods of Dairy Farming in which so great an advance has of late been made.

The third division of the work treats of Sheep, Pigs, Goats, Asses and Mules, and such particulars are given regarding the management of these animals as, if attended to, will certainly secure success to all who take the rearing of them in hand.

PREFACE.

Next we come to the management in health and sickness of a kinds of Poultry. No doubt the skilful and enterprising farmer often deems poultry beneath his notice. It may, however, pretty safely be asserted that there is no reason for this; and if the professional agriculturalist will only consult this work he will find enough to convince him that poultry may always be made a source of considerable profit.

A chapter or two has been added on the treatment of dogs and cats. Their history, varieties, habits, diseases, and the best methods of training and breeding them have been fully gone into, and all who keep either, will here find everything they ought to know.

It is hoped that the many Illustrations which ornament the work, may also elucidate the text. For some of them the publishers are indebted to Messrs. Temple and Crook; Messrs. J. J. Thomas and Co.; Messrs. Boulton and Paul; Messrs. Bayliss, Jones and Bayliss; The St. Pancras Iron Work Company; and Messrs. Ransomes, Sims and Head.

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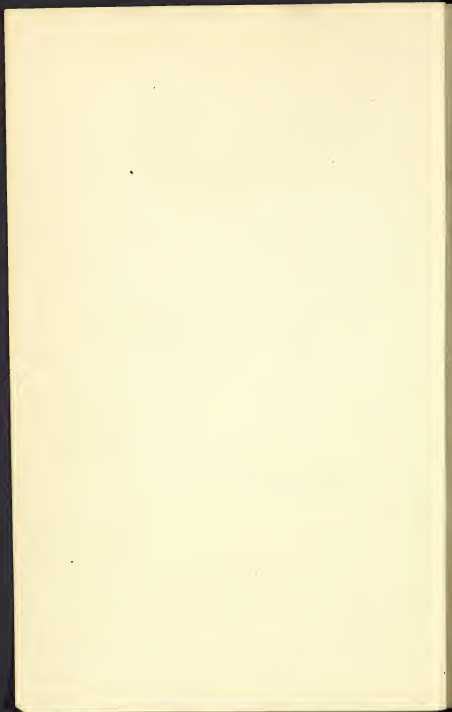
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THE HORSE.





THE HORSE.

CHAPTER I.

THE NATURAL HISTORY OF THE HORSE.

Natural History of the Horse—Historical Notes—Intelligence of the Horse—Relation of Races and Varieties to Climate—The Arab—The American Horse—The Barb—The Belgian and Dutch Horses—The Cossack Horse—Cavalry Horses—The Chinese Horse—The Dongola Horse—The East Indian Horse—French Horses—Finland, Norwegian, and Swedish Horses—German Horses—Italian Horses—The Iceland Horse—The Persian Horse—The Spanish Horses—The Toorkoman—The Tartar Horse—The Turkish Horse.

1. **NATURAL HISTORY OF THE HORSE.**—The first authenticated record we have of the horse being made use of by man, is contained in the Biblical account of the Egyptians; the ass in Egypt was, however, the more common beast of burden employed, the corn that was carried to Jacob being borne on asses; though when Joseph took his father's remains to Canaan, mention is made of his being accompanied both by chariots and horsemen.

The employment of the horse upon an extensive scale probably began at a later period, between one hundred and two hundred years afterwards, at the time of the Exodus, when Pharaoh pursued the Israelites with six hundred chosen chariots, and with all the chariots of Egypt. Again, when the Israelites returned into Canaan,

the Canaanites are described as going out to fight against them with many chariots and horses, the latter evidently being used for war-like purposes, and not pastoral ones; for the ancient sacred writers make reference to the swiftness, and might of the horse, as an object of strength, might, and grandeur; but appear to have been unacquainted with its natural timidity, and amenity to subjection.

The example of Cyrus is supposed to have stimulated the Persians to a love of equestrian exercises; while the most expert of the Grecian horsemen, as the Thessalians, were originally colonists from Egypt, to whom the employment of the horse must have been familiar, its origin, according to their mythology, being due to a blow struck on the earth by the trident of Neptune.

It has been supposed by some that the horse, especially the lighter and swifter breeds, originally came from Arabia; but this has been proved to be incorrect, for until comparatively recent times the Arabs possessed but few horses, and these only of small value. The highly-prized animals of which so many interesting accounts are given by travellers, whose docility, swiftness, and beauty caused them to rank higher in the Arab chieftain's estimation than all his other prized possessions, and the excellence of the Arab horse, is due more to careful breeding, and the strict precautions used as to pedigree, than from any native excellence.

These pedigrees have been carefully preserved in some of the most ancient Arab families, where the chiefs have been proudest of their horses; and it is said that these have been attested with certainty to periods reaching back for four or five hundred years; but the traditional genealogies which pretend to date back to the time of Solomon have only a foundation in that spirit of exaggeration which is so strongly characteristic of the Arab character.

In England, the stallion for purposes of breeding is esteemed highly; but not so amongst the Arabs, the mares being held in the highest estimation; the latter being rarely parted with by their owners, while the former are easily obtainable. It may be assumed that the horse, originally, was derived from those portions of Africa nearest to Egypt, or from accessible portions of the interior, from whence he gradually found his way to Arabia, Persia, and afterwards to Greece; wild horses being rarely seen in the deserts of Arabia, though common enough in the plains of Great Tartary. The wild horses of the Ukraine are known to be descendants of animals that were originally subject to the dominion of man, the same as those found in various parts of the South American continent, which are supposed to have sprung from the stock first imported by the Spanish invaders; and the origin of the wild horse in Tartary has been assigned to the period of the siege of Azoph in 1657, when a number of horses were turned loose from want of forage. Of this fact Byron has made use in his story of *Mazeppa*, a stirring narration,

assumably told by the flickering flame of the bivouac-fire, and one that will always hold a foremost place amongst those incidents of fictitious story which enchain the imagination, and arrest the attention, by their vivid picturesqueness and truthful semblance.

Captain Head, in his *Journey across the Pampas*, gives a very graphic account of the method pursued by the *gauchos*, or native inhabitants of the plains of South America, in first breaking-in wild horses, a whole troop of which have been driven into an inclosure called a *corral*.

"The corral was quite full of horses, most of which were young ones about two or three years old. The *capitan* (chief Gaucho), mounted on a strong steady horse, rode into the corral and threw his lasso over the neck of a young horse, and dragged him to the gate. For some time he was very unwilling to leave his comrades; but the moment he was forced out of the corral, his first idea was to gallop away; however, a timely jerk of the lasso checked him in the most effectual way. The peons now ran after him on foot, and threw a lasso over his fore-legs just above the fetlock, and twitching it, they pulled his legs from under him so suddenly, that I really thought the fall he got had killed him. In an instant a Gaucho was seated on his head, and with his long knife, and in a few seconds, cut off the whole of the horse's mane, while another cut the hair from the end of his tail. This they told me was a mark that the horse had been once mounted. They then put a piece of hide into his mouth to serve for a bit, and a strong halter on his head. The Gaucho who was to mount arranged his spurs, which were unusually long and sharp, and while two men held the horse by his ears, he put on the saddle, which he girthed extremely tight. He then caught hold of the horse's ear, and in an instant vaulted into the saddle; upon which the man who held the horse by the halter threw the end to the rider, and from that moment no one seemed to take any further notice of him.

"The horse instantly began to jump in a manner which made it very difficult for the rider to keep his seat, and quite different from the kick, or plunge of an English horse; however, the Gaucho's spurs soon set him going, and off he galloped, doing everything in his power to throw his rider.

"Another horse was immediately brought from the corral, and so quick was the operation, that twelve Gauchos were mounted in a space which I think hardly exceeded an hour. It was wonderful to see the different manner in which different horses behaved. Some would actually scream while the Gauchos were girding the saddle upon their backs; some would instantly lie down and roll upon it; while some would stand without being held—their legs stiff, and in unnatural positions, their necks half-bent towards their tails, and looking vicious and obstinate; and I could not help thinking that I would not have mounted one of those for any reward that could be offered me, for they were invariably the most difficult to subdue.

"It was now curious to look around and see the Gauchos on the horizon in different directions, trying to bring their horses back to the corral, which is the most difficult part of their work; for the poor creatures had been so scared there, that they were unwilling to return to the place. It was amusing to see the antics of the horses—they were jumping and dancing in different ways, while the right arm of the Gauchos was seen flogging them. At last they brought the horses back, apparently subdued and broken in. The saddles and bridles were taken off, and the young horses trotted off towards the corral, neighing to one another."

There are five distinctive breeds of horses adapted for farm work that are met with in the United Kingdom: the Cleveland, Lincoln,

The Horse.

and Suffolk in England; the Clydesdale in Scotland, principally reared in Lanarkshire; and the native Irish *garron*, which is mostly bred in the mountains.

The three first-named are considered peculiarly fitted for farm work, the lighter breeds of horses used for riding and driving being the result of certain crosses that we shall afterwards refer to, and the old English black cart horse improved by crossing with Dutch and Friesland mares; the result being an animal slow in action, but of great power, capable of drawing heavy loads.

The county of Lincoln which gives them their name, and where many are bred, to a great extent supplies the fine animals that may be seen in London drawing the brewers' drays, the London brewers grudging no expense in procuring a handsome team, long prices often being given for the best specimens.

The Cleveland is also a large animal, and was the origin of the best heavy coach horses in the old coaching days, but towards the advent of railways, when coach travelling had attained its *maximum* degree of perfection, the old breed was crossed with lighter horses with the view of improving its speed.

The Suffolk, or *Suffolk Punch*, as it is generally called, is a very compact horse, seldom exceeding fifteen hands and a half in height, and generally under, uniting strength and activity, and on this account used often to be chosen as a roadster by elderly gentlemen of weight and corpulency, who required a steady-going horse of reliable paces, good *cobs* having often been obtained from them; but the rage for improvement in breeding by crossing has produced a better animal, and, though a finer-shouldered horse in many instances is the result, he does not stand so well to collar, and is, consequently, not so good as a purely draught horse; but of these points we will speak again, each under its distinct heading.

The Clydesdale is met with in nearly all districts in the south of Scotland, and is deservedly a favourite breed on account of its docility and steadiness. The origin of this breed has been said to be due to one of the Dukes of Hamilton, who crossed some of the best Lanarkshire mares with stallions that he procured from Flanders, about two centuries and a half ago; though this is not accepted as a correct version of the facts of the case by many.

The native Irish *garron* is a small horse about fourteen hands high, light-limbed, and short-legged, that can be kept upon the scantiest fare, and is often a good roadster. This is the list of breeds that may be said to be indigenous to Great Britain, as

draught, or working horses; but the varieties are exceedingly numerous of riding horses which have originated from crosses of swifter, and more graceful animals; one of the most celebrated of which is the Barb, from Barbary, a native of Morocco and Tripoli, but of lower stature than the Arabian, seldom exceeding fourteen and a half hands.

2. **HISTORICAL NOTES.**—The Barb was doubtless introduced into Spain by the Moors, who have left so many traces behind them in the Peninsula, and its introduction there mainly contributed to the excellence of the Spanish horse, the Barb being celebrated amongst the Paladins of romantic story.

When the improvement of the breed of horses first engaged attention in this country, Spanish horses and the Barb were introduced, and from this stock many of our best racing horses have descended; Bruce, the African traveller, stating that the best African horses are said to have descended from one of the five ridden by Mahomet and his four immediate successors, when they fled from Mecca to Medina on the night of the Hegira. As no Arab ever mounts a stallion, while, on the contrary, in Africa they never ride mares, he accounts for the opposite custom prevailing amongst the Arabs and Africans respectively, by giving what he considers a sufficiently plain reason, namely, that as the Arabs are constantly at war with their neighbours, and always endeavour to take their enemies by surprise in the gray of the evening, or at the dawn of day, the natural instinct of the horse is likely to betray their proximity; for no sooner does a stallion smell the stale of the mare in the enemy's quarters, than he begins to neigh, and that would give the alarm to the party intended to be surprised, while no such thing can ever happen when they ride mares only.

On the contrary, the Funge trust only to superior force. They are in an open, plain country, where they cannot fail to be discovered at many miles distance, and to them, all such surprises and stratagems are useless.

Julius Cæsar, in his historical account of the invasion of Great Britain, mentions that the British army was accompanied by numerous chariots drawn by horses, scythes being firmly fixed to the ends of the axle-trees. These were driven furiously upon the serried ranks of the invading army, in which they made great gaps, and caused much confusion, the horses being managed with great dexterity by their drivers, and altogether being a formidable instrument of war, in dealing with which the Roman legions, which trusted to the use of the short sword, and coming to close quarters with their opponents, at first found no little difficulty.

That war-chariots were considered a reliable and effectual engine of war, is evidenced by the circumstance narrated by historians, that when Cassibellaunus dismissed the greater portion of the British army, he yet retained in his service four thousand war-chariots, chiefly for the purpose of harrassing the Romans upon their foraging expeditions, whenever they attempted to get supplies for the use of their armies.

In course of time the Romans found it necessary to send over a considerable body of cavalry to oppose the frequent insurrections of the British, and to keep open their chain of communication from post to post, which otherwise would often have been endangered. As there was a continued occupation by the Romans of more than three centuries, from the reign of the Emperor Claudius to the

final recall of their troops, whatever may have been the character of the native horse of Britain originally, it must have received a very great admixture of foreign blood, for the Roman horses would naturally breed with those of the country, and the imported horses would have been drawn from every province from whence cavalry was supplied to the Roman army, as Gaul, Italy, and Spain.

It will be thus readily perceived that the breeds of horses would become very much mixed, and possibly even that the traces of original ones would be extremely difficult to discover.

Horses of celebrity figure in history, and are associated with the incidents of many a romance, where the fleet steed has borne its rider away from danger. The recent acquisition of Cyprus by the British Government has drawn considerable attention to that island, which certainly cannot now be said to be able to boast of its horses, yet an old metrical romance describes in eulogistic terms the qualities of two horses belonging to Richard Cœur de Lion, which he purchased at Cyprus, that are described as being peerless, swift, and sure-footed. As a distinction is made between them and Arabian horses, which they are said to excel (*Rabyle*), they were doubtless of some distinct breed, probably of Eastern origin. The lines referred to run as follows:—

" Yn this worlde they hadde no pere,*
Dromedary nor destrere.†
Steed, Rabyle,‡ ne Cammele,
Goeth none so swift, without fayle:
For a thousand pownd of golde,
Ne should the one be solde."

The famous winged horse, Pegasus, of Grecian mythological story, received his name, according to Hesiod, from being born near the ocean; while the act of temerity in Bellerophon, who attempted to fly to heaven, was punished by Jupiter, who sent an insect to torment Pegasus, which occasioned the melancholy fall of his rider. The insect referred to might well be supposed to be the horse-fly by believers in the story; but from the days of ancient Greece and classical fable down to the later ones, when the Jacobites toasted the memory of the white horse that stumbled and fell over the mole-hill with William III., the horse has been associated with numerous historical incidents.

3. INTELLIGENCE OF THE HORSE.—The intelligence and sagacity of the horse is only equalled by that friend of man, the dog, these two being the most sagacious of all the domesticated animals. Numerous instances are on record of travellers who, puzzled by the obscurity of the night, have been unable to make out their road, when the rider, abandoning the rein, and trusting to the

* Equal. † War-horse. ‡ Arabian.

sagacity of the animal he bestrode, has been carried in safety to the end of his journey.

Travellers in the East have related how, when journeying over arid deserts, their faithful companions have shared their privations, enduring both hunger and thirst in their service, and, in some instances, standing patiently while the rider slept between the animal's legs, the body of the horse affording the only shelter that could be obtained from the powerful rays of the sun, from which no other protection could be found by the worn-out traveller,

Numerous interesting tales have been told descriptive of the good temper, docility, speed and courage of the Arab horses, and the attachment displayed to them by their owners, who, perhaps, without any other possession of value, and in deep poverty, have refused high offers that have been made to them for their animals, the Bedouin refusing to part with his cherished companion of the desert, often the playmate of his children, which, according to Bishop Heber, is so gentle and docile as almost to display the same amount of attachment and coaxing ways as the dog.

Various anecdotes are extant of the force of habit and power or memory characteristic of the horse, some of which traits were of rather an embarrassing nature to their possessors, as, when the animal always made a point of stopping at certain inns, or public-houses on the road, which were the regular places of call of former owners; or the carrier's horse, who would punctually make his usual round without his driver, accidentally absent from his duty; of the toper's nag who stood patiently enough outside, while his master indulged within the house of entertainment, until a certain period had elapsed, when the animal, convinced that no more time ought to be wasted, would paw at the door with his hoof.

When from accident or intemperance a rider falls from his horse, it is true, indeed, that in most cases the animal will make for his stable riderless, but many examples have been cited where they have returned from whence they came, evidently with the object of procuring assistance for their hapless owners.

4. RELATION OF RACES AND VARIETIES TO CLIMATE.

—Climatic influences, however, have much to do in developing the points of a horse, taken in conjunction with the uses and purposes for which they have to be employed; and the various breeds of English horses have each very much improved in its own degree upon the position it once occupied; writers of the age of Henry VIII. and Elizabeth, describing the majority of our animals as mostly

consisting of strong, sturdy beasts, fit only for slow draught, the few that were fleet, and of lighter build, being weak in strength, and without reliable bottom.

In the former reign, a treatise was written by Sir A. Fitzherbert called a "Boke of Husbandry," which, amongst a good deal of useful information, gave a description of the proper management of horses and cattle. In the quaint language in which it was written, a description is given of the good points of a horse, which he divides into 54 proportions, of different properties.

Judge, however, as he was, both of the Common Pleas, and the qualities of the horse, he appears to have been victimised upon various occasions, and to have experienced the common fate of all those who dabble in horse-flesh at some time or other, which the following passage shows plainly enough:—"Thou grasyer, that mayst fortune to be of myne opinion or condytion to love horses, and young coltes and foles to go among thy cattle, take hede that thou be not beguiled as I have been a hundred tymes and more. And first thou shalt knowe that a good horse has 54 properties, that is to say: 2 of a man, 2 of a badger, 4 of a lion, 9 of an oxe, 9 of a hare, 9 of a fox, 9 of an asse, and 10 of a woman."

The description of the horse which has often been given as under, was evidently inspired by the original sketched out by the learned judge, but filled in with the different details, to suit the primary allusions. "A good horse should have three qualities of a woman—a broad breast, round hips, and a long mane; three of a lion—countenance, courage, and fire; three of a bullock—the eye, the nostril, and joints; three of a sheep—the nose, gentleness, and patience; three of a mule—strength, constancy, and foot; three of a deer—head, legs, and short hair; three of a wolf—throat, neck, and hearing; three of a fox—ear, tail, and trot; three of a serpent—memory, sight, and turning; and three of a hare or cat—running, walking, and suppleness."

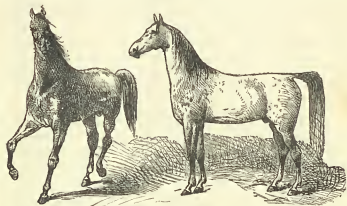
Climate, and its effects upon the soil, has much to do with the different races of animals, and the greater or lesser development of certain qualities that fits the animal for climatic or geographical conditions of a certain order, but breeding, with special objects in view, still more; and of these different races we will now speak in detail.

5. **THE ARAB.**—The Arab is regarded as a distinct variety, possessing an elegant frame (the head especially being of very beautiful shape), accompanied by remarkable length, and muscular development of the fore-arms, and peculiar high setting-on of the tail.

Most of our thorough-bred horses have had some of their best points transmitted to them from Arabian blood, an animal known as the "Darley Arabian" being the parent of some of our best racing stock. This animal was said to have been purchased by Mr. Darley's brother, at Aleppo, and was bred in the neighbouring desert of Palmyra.

The Arabian horse seldom exceeds fifteen hands in height, their colours being either black, gray, or bay, there being said to be three distinct breeds of Arab horses: the *Attechi*, which does not rank high in general estimation; the *Kochlani*, highly prized, and very hard to procure, of undoubted pedigree; and the *Kadischi*, a mixed breed.

About a quarter of a century after the appearance of the Darley Arabian, Lord Godolphin became possessed of an animal which is known in the Stud Book by the name of the "Godolphin Arabian," that was picked up in France when drawing a cart; which animal, to even a greater degree than the Darley Arabian, became the founder



ARABIAN HORSES.

of the modern thorough-bred horse. Though styled an Arabian, he was in reality a Barb, his shape, though beautiful, being somewhat singular; having a sinking behind the shoulders, and a corresponding elevation of the spine towards the loins, with capacious shoulders, quarters well spread out, and beautifully set on head, with an uncommonly fine muzzle, his crest lofty and arched almost to a fault. It is related of this animal that a singular attachment subsisted between him and a cat, which either sat on his back when he was in the stable, or nestled up to him as closely as she could; and when he died in 1753, at the age of twenty-nine, the cat was inconsolable, refused her food, pined away, and also died; a touching incident, which illustrates in a remarkable manner the amount of affection that at times is found to exist amongst animals of a totally different species.

Another celebrated horse, the Wellesley Arabian, as he has been termed, was not indeed a perfect Arabian, but a cross between a Barb and an Arabian, supposed to have come from some district where both these breeds would commingle, and attain the utmost beauty of form of which they are capable.

In its native country, the Arab mare amongst the Bedouins fares contentedly upon but a scanty subsistence, which compares but indifferently with the liberal supplies of oats and hay that are unsparingly given to the best horses in England; a little straw and five or six lbs. of barley or beans, which she partakes of amidst her master's family—of which she constitutes not the least important member—appearing to satisfy her, together with a little water; climate, of course, has much to do with this, for in warm climates not so much food is required to keep up animal heat as in a colder one; and, after all, force may literally be declined as heat.

Our English breed of horses has been, in the main, mostly improved by the admixture of Arab blood which has been imported; the *staying* qualities of some of our best stock being derived from the Arabian, of which instances have been recorded of animals that have been ridden one hundred and twenty miles, that have not tasted food for three consecutive days.

6. THE AMERICAN HORSE.—The American and Canadian horses consist, for the part, of judiciously made crosses amongst English, Arabian, Barb, Spanish, and other stock, the climate of the American continent apparently having the same effect upon the horse, as respects wiriness of frame, that it has upon the human subject.

The Americans have grudged no expense in importing the best animals they could procure; while many of the best Canadian horses are supposed to be of French descent, dating from the time of the French occupation of Canada. The Virginian planters have always taken great pride in their horses, which has also been emulated by their brethren in the Northern States; and some beautiful animals may be seen in the streets of New York, and its environs, drawing sledges, containing handsomely-dressed ladies and a profusion of rich rugs, the owners vying with each other in the richness of their appointments, and the quality of the cattle they drive.

Some of the best English horses have at times gone to America, though on so large a continent, embracing so many degrees of varied climate, as might be expected, several breeds of horses are found, amongst which the *Mustang* has often played a not unimportant part, though deficient in value when compared with the more highly-bred animals which now abound.

American trotting horses are celebrated, and in Pennsylvania and the Middle States, the *Conestoga* horse, often rising seventeen hands, light in the body, with great length of leg, is a good deal used as a riding horse, and for hunting, when found of suitable *calibre*.

7. **THE BARB.**—The Barb is a lower horse than the Arabian, seldom reaching fourteen hands and a half, but is remarkable for its fine and graceful action, but has not the spirit, or bottom, of the Arabian. In a thoroughbred specimen, the shoulders are found flat, the chest round, joints inclined to be long, while the head is remarkably handsome. He is a coarser animal, however, than the Arabian, and requires a larger amount of food for his sustenance, which is more easily procurable for him, in Morocco and Fez, and the interior of Barbary. The Barb is generally considered to be superior in beauty of form, notwithstanding his greater coarseness, to the Arabian; though it is said that a breed in the kingdom of Bournou is to be found which possesses the qualities of both these good breeds united, having the bottom of the Arab, with the handsome *tout ensemble* of the Barb.

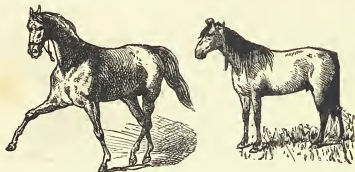


MOROCCO HORSE.

8. **THE BELGIAN AND DUTCH HORSES** are chiefly remarkable for their great size and beauty of form, but are slow of action. From the heavy Flemish horses that have been imported into this country have been derived many of the points which now characterise some of our most powerful draught horses. In the middle ages the Flemish horse was, *par excellence*, the war-horse of the period, carrying with ease a man cased in armour. A slow animal of great power, it is well adapted from its weight, as well as strength, to draw heavy loads, but they require more and better food to keep up their strength and stamina, and so cost proportionally more to keep, than animals of more moderate size; but this is quite a secondary consideration with those who take a pride, as the London brewers do, in the size and condition of the horses they employ in their business. The pride of the owner is generally emulated by the horse-keeper, who invariably takes care to have them as fat as possible, and a single horse, exclusive of the weight of the vehicle, will draw with ease a load of two tons and a half.

9. **THE COSSACK HORSE.**—The irregular Russian cavalry

which takes its name from the small horses they bestride, which hung about Napoleon's army on his road to Moscow, and tormented his troops upon their disastrous retreat—their ubiquity and everlasting presence being the occasion for unceasing watchfulness—are celebrated in history; but the horses themselves, despite a long-continued belief to the contrary, are quite an inferior race. They are small in size, and rough in appearance, and are literally a useful kind of pony, being rough and wiry, and resembling most ponies in their endurance and general qualifications, combined with spirit, and a brisk and lively action. There is, however, but little more to be said in their recommendation.



RUSSIAN HORSES.

Cossacks would stand but a very poor chance on their *mounts*, when opposed to English cavalry.

10. **CAVALRY HORSES** generally embrace three kinds of animals: the first ridden by the officers, which are termed *chargers*, and are generally nearly thorough-bred, yet accompanied with a certain amount of weight, and are well upon their haunches; while in the heavy cavalry, the ordinary trooper is mostly mounted upon weight-carrying animals of the hunter type—a class of animals being bred for this special purpose in some parts of the country by certain breeders, and suitable horses are picked up in all quarters; a smaller and inferior horse falling to the share of the light cavalry, which are often not nearly so good as they ought to be, according to the opinion of many who are capable of giving a correct estimate of their capabilities, and the way our light troopers are mounted.

11. **THE CHINESE HORSE.**—As may well be imagined the Chinese are not celebrated as equestrians, though horsemen are

often depicted in their singular pictures and illustrations, going at what is termed a *spanking* rate, to judge from the method of their execution, which, however, is quite at variance with the qualities of the animals peculiar to China, which are both ill-formed and without spirit, the breed being small and weak, and altogether of a very inferior description.

12. THE DONGOLA HORSE.—Writers have often described the Dongola horse, but very few have reached England, and they are but little known here. The panegyric that has been bestowed upon them by one author is entirely undeserved, who says: "The Dongola horses are the most perfect in the world, being beautiful, symmetrical in their parts, nervous and elastic in their movements, and docile and affectionate in their manners. One of these horses was sold at Grand Cairo in 1816 for a sum equivalent to £1,000."*

The peculiarity of the Dongola horse consists in its standing fully sixteen hands high, but the length of the body from the shoulders to the quarter is considerably less, unlike Arabian or English thorough-breds, whose length exceeds their height. They are narrow in the chest, with flat quarters and flanks, though, from their size and speed, a good cross might possibly be obtained from them, and, with this object in view, it might possibly answer the purpose of some merchant or other trading with Egypt and the district lying between it and Abyssinia, to import these horses with this definite object in view. Merchants, however, seldom being breeders, the matter would need to be definitely suggested, and carried out by interested parties willing to take the necessary trouble to insure the desired end.

13. THE EAST INDIAN HORSE.—There are several varieties of horses to be met with in the different provinces of our East Indian possessions; but, although some of them are beautiful in form, and graceful in their action and carriage, as a whole, most of them are defective in some point or other, when complete excellence is looked for in a horse.

The breed known as the "Iranee" is a shapely horse with the exception of his ears, which are large and loose; his joints being closely knit, and his quarters well developed, but he lacks spirit.

The "Tazsee" is remarkable for the easiness of his pace, and may be well styled an *ambling palfrey*, but is slight in form, and hollow-backed, and thus deficient in strength, and is also short-tempered and irritable. The "Cozake," on the other hand, is a

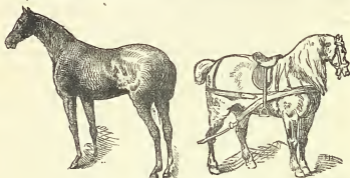
* *Bosman.*

race possessing extreme patience and docility, very hardy, and capable of sustaining hard work and long journeys, being deep in girth, with a powerful fore-arm, but they are not good-looking, having large heads, and being cat-hammed.

A common defect amongst East Indian horses is a want of bone below the knee, and also a tendency to fulness in the hocks; their average height, perhaps, being about fourteen and a half hands.

The breed known as "Toorky" are, however, of a superior description, which is said to have been derived originally from a cross between a Persian and a Toorkoman. The Toorky horse has a graceful and easy carriage, and while gentle and good-tempered to his rider, yet throws a vast amount of energy and spirit into his work, which causes those unacquainted with his even temper to suppose him to be somewhat unmanageable.

14. FRENCH HORSES.—The capital pictures of Rosa Bonheur



FRENCH HORSES.

would lead a person to suppose, who is unacquainted with the subject, that French horses were equal to English. But this is not the case, the majority of French horses not equalling English ones in either power, speed, or beauty of form. There are, however, some good breeds of horses produced in France, notably those in Limousin, from whence good hunters and saddle horses are turned out; and in Normandy, where capital strong animals are raised, which make excellent carriage horses; and, while English thorough-breds have been sent frequently into France in recent years—the late Emperor Napoleon being a considerable importer—a cross with a good Norman horse has been found extremely serviceable to the English roadster, and our light draught horses have been much improved by this admixture of blood.

From Auvergne and Poitou capital ponies and galloways are also procured.

15. FINLAND, NORWEGIAN, AND SWEDISH HORSES.—The Swedish horse is a small animal, but of good shape, and

remarkable for its speed and spirit. In Finland the horses are yet smaller still, seldom rising more than twelve hands, but they are well-shaped, and swift in action, trotting at the rate of twelve miles an hour. They are allowed a good deal of liberty, and pick up a great share of their living in the forests, from whence the peasants of the country fetch them when their services are needed. There are strong points of resemblance amongst most of the Scandinavian horses, being commonly small in size, and, though apparently wild, yet amenable to restraint and control.

FRENCH AND GERMAN HORSES.

16. GERMAN HORSES.—For the most part, German horses are large in size, and slow in action, resembling a good deal the well-known Flemish type. The Hungarian horses, however, differ from these, being of lighter build and fleet, which has led to the sup-

position that they are indebted for these characteristics to an admixture of Eastern blood.

The Prussians, who of late years have paid great attention to the



mounting of their cavalry, have also done much to improve their breed of horses, their Uhlans in the Franco-German war rendering them very considerable service as efficient cavalry; but, although the animals for the most part possess a good share of endurance, they are deficient in speed, and cannot compare with English horses.

Holstein is the district from whence the best horses are procured, which are mostly of a dark, glossy, bay colour, remarkable for their small heads, large nostrils and full, dark eyes; being generally of good appearance, as well as active and strong.

17. ITALIAN HORSES.—The best Italian horses are the Neapolitan ones, which make good carriage horses; but, altogether, the breeding of horses having been very much neglected and overlooked in Italy, the standard of excellence has lowered considerably, as at one time Italian horses were in repute. At present they do not demand any special notice, the breed of horses being by no means distinct, very little attention having been paid to the matter from a national point of view.

18. THE ICELAND HORSE.—There are numerous horses in the mountains of Iceland, of a hardy breed, that scrape away the snow, like sheep, with their feet in search of provender in this (for the greater portion of the year) inhospitable region. They resemble ponies in being of small size, but are strong and quick in action, resembling the Scotch galloways, which at one time were procurable in the South of Scotland, but which are now so difficult to obtain of a pure strain. It is said, indeed, by some that the Iceland horse is of Scottish origin, and not Norwegian, which they somewhat resemble, and from which they are usually supposed to have descended.

They are contented with but scanty food, in search of which they will even break ice with their hoofs.

19. THE PERSIAN HORSE.—The Persian horse is of elegant shape, and ranks perhaps next to the Arabian, being his equal in speed, though not in staying qualities, and is similar in size, seldom rising above fourteen hands and a half.

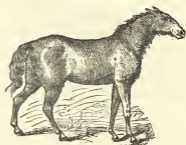
The Persian horse has been prized for ages, and enjoys a much more ancient reputation than even Arabian horses, and formerly constituted very often the gift of kings when the Persian cavalry were the finest in the world. The native Persian horse has, however, sadly degenerated of late years, like the country itself, which is now only a shadow of its once former splendour, and the rank it occupied in comparison with neighbouring nations.

In Circassia, however, great attention has been paid to breeding horses, where the noble families have kept possession of a particular breed, which it is customary when young to brand on the buttock with a distinguishing mark to denote noble descent; severe penalties being enacted and visited upon those who fraudulently use such a mark with the intention of deceiving. The most highly-prized race bear the name of *Shalokh*, being more remarkable for their speed and strength than their beauty.

20. THE SPANISH HORSES.—Spain, at a very early period, enjoyed a reputation for the excellence of her horses, which, as before remarked, has had a good deal of Barbary blood infused into the different breeds that are to be met with in the Peninsula. English



SPANISH HORSE.



BARB.

horses, however, now rank higher, as a rule, than Spanish horses, most of which, in the present day—although they have good heads and necks, due to their Barb descent—have weak and drooping hind-quarters.

21. THE TOORKOMAN.—The variety of animal that is indigenous to Turkistan, which is termed *Toorkoman*, is a larger breed of horse than either the Arabian or Persian, standing from fifteen to sixteen hands, and they have been celebrated from the earliest times for the wonderful amount of endurance they possess. They, however, are badly shaped, being too long in the legs, with a large head, and are often ewe-necked, although they are possessed of such good qualities as to command high prices even in their native country; though destitute of that compactness of form and beauty which distinguishes some of the best breeds, being "leggy" and narrow-chested, and not well ribbed up.

22. **THE TARTAR HORSE.**—Although the Toorkoman horse, coming from Turkistan, in South Tartary, is of a large size very often, the ordinary Tartar horse is only of small proportions, and generally somewhat ill-shaped. They are, however, extremely hardy, and are capable of supporting a great deal of fatigue, performing long and rapid journeys very often upon very meagre diet. These horses are kept in a semi-wild condition on the immense plains of Central Asia, and some parts of European Russia, but a peculiar method is pursued in their management, by which the herds are kept distinct, and are to a certain extent under the control of their owners. It is from these herds that what is termed the Wild Tartar horse takes its origin, for the stallion foals, as they grow up, form herds of themselves, of which there are always a certain number straggling about.



TARTAR HORSE.

23. **THE TURKISH HORSE.**—The Turkish horse is commonly supposed to be a cross, consisting of Persian and Toorkoman upon the Arab, the body being of greater length than that of the latter. Some excellent Turkish horses have been made use of in England for breed-

ing purposes, and they have contributed towards the general improvement of the breed of English horses very materially.

They have been described by old writers as being extremely gentle and tractable, but this was doubtless due very much to the kind and indulgent treatment which nearly all Orientals bestow upon their horses—an example which might be followed to great advantage by many English grooms. The playful tricks and antics which some horses are easily taught to acquire, are discouraged by most Englishmen, who, perhaps, consider their animals may be apt to display them at inconvenient seasons; but, by a course of considerate treatment and uniform kindness, the horse acquires many engaging ways and caressing habits, when he is attached to his owner, or attendant, and will strain every nerve to serve his master when a mutual attachment subsists between them, and the beast is not a cross-grained animal.



CHAPTER II.

BRITISH HORSES.

English Horses—The Thorough-bred, or Racehorse—Draught Horses—The Lincoln—The Dray Horse—Cleveland Bays—Carriage Horses—The Suffolk—The Clydesdale—The Cart Horse—The Hunter—The Galloway—The Irish Horse—Ponies—The Shetland Pony—The Welsh Pony—Exmoor Ponies—Dartmoor Ponies—The Highland Pony—Ponies of the New Forest—Carriers Horses—Cab Horses—Riding Horses.

24. **ENGLISH HORSES.**—From what has gone before, the reader will perceive that a long course of breeding from different points has been gone through to establish the present varieties of English horses, some point of excellence being taken here and there to build up the various characteristics of the different kinds of animals we now find in common use, adapted to special and definite purposes.

25. **THE THOROUGH-BRED, OR RACEHORSE.**—The English thorough-bred, as we now find him, has undoubtedly been created by judicious crossing with various breeds, the Arabian and Barb, perhaps, predominating, most of the old celebrated racers having been traced to Eastern origin of one kind or another, amongst which the Turkish horse must be included.

It is contended by some that the racehorse consists of the original native stock upon which the various grafts have been founded. But if so, all traces of the original stock have been lost sight of, if we compare the description of the original English horse as given by old writers with the thorough-bred we are now accustomed to. But however this may be, it is unquestionably the fact

that the horse of the present day is far superior to any breed of horses that has ever existed anywhere on the face of the earth; a result that is due to careful and judicious breeding, carried out in such a perfect manner as would be impossible to excel, combined with climatic influences, which has caused the British racehorse to be what he is—the admiration of all lovers of horses in every quarter of the globe to which he has found his way, where he has beaten in the race every antagonist on his own ground. The height of the English racehorse varies somewhat, there having been some celebrated horses of 17 hands, but the usual average is 15 hands to 16½ hands high, the greater number perhaps, taken as a whole, being slightly under 16 hands.

The points aimed at in a thorough-bred are: Lightness of the head and neck, but while the jaw is lean, the forehead should be wide and convex, muzzle fine, with ears pricked and fine, but not *too* short. The crest should be thin and wiry, but not ewe-necked, while the body should be moderately long, and the back muscular, with good, wide hips.

The chest, while well-developed, should not be too wide and deep, and the fore-quarters should be well set on to the chest, with a full development of the muscle of the shoulder-blade. The upper arm should be long and muscular, the elbow set on straight, and not tied to the chest, while the lower arm should be also muscular and strong, the knees broad and strong, with the bony projection behind well-developed; legs flat, with long, but yet not weak pasterns; and sound flat feet—contraction of the foot being a very common defect with the English thorough-bred.

The bones of the hind-quarter should be long, and the hock bony and strong, free from gum or spavin; the pasterns moderately long and oblique; while the bones beneath the hock should be flat, and free from adhesions. The mane and tail should be silky in appearance, and the hair straight, and not curly; curly hair being generally looked upon as a sign of an admixture of impure blood.

These are the salient points that are looked for in a thorough-bred horse, but little faults and blemishes have sometimes been found in the best cup winners—some peculiarity or other, which would have been better absent.

26. **DRAUGHT HORSES.**—As has been previously slightly indicated, the three broad distinctive breeds of draught horses, used in farm work and for hauling heavy loads, consist of the Lincoln, the Cleveland, and the Suffolk; and the Clydesdale in Scotland. *The*

Lincoln.—In Lincolnshire, where the horses are chiefly raised which take their name from that county, the breed is considered mainly to consist of the old black English cart horse, crossed with Dutch and Friesland mares. These large, heavy-heeled black horses are largely bred for the London market, the animals being extremely appropriate for performing tasks where the severity of the work requires the exercise of more than ordinary strength.

These horses are reared in goodly numbers by some farmers, which are trained up for work when they are quite young, and in order that they may be gently broken in, are often put upon the land to draw the plough. This universal implement may thus often be seen in the districts where these horses are reared, four at length, leisurely drawn along, an exhibition of disproportionate power which has often excited the ridicule of farmers, and others, from the eastern and southern counties, who have regarded this method as the "custom of the country"; unaware of the object which causes them to be used, and that they are stock being gradually trained up in the "way they should go," the proper education of which is often a source of considerable profit to those who follow this branch of business. It is well-known to farmers generally that the smaller, and more active kinds of horses, step quicker, and bear fatigue better than the ponderous animals that may thus be seen employed, and which consume considerably less food, and are content with provender of an inferior quality to that demanded by the constitutions of these large and powerful animals. But as these large horses seldom come to perfection till they are five or six years old, they at all events repay some slight portion of the cost of their keep by being thus employed, as well as being gradually brought up into working training; and many farmers who possess the necessary acquaintance with this branch of stock-rearing have followed it with considerable advantage.



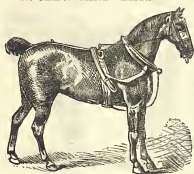
ENGLISH DRAY HORSE.

27. **THE DRAY HORSE.**—Most of the dray horses are reared in Lincolnshire and the adjoining counties, as Staffordshire, black being the most general colour, a good many of them standing seventeen hands high at two-and-a-half years old, though they are not considered absolutely ready for the full display or use of their strength till they have reached five years.

The points sought for in the dray-horse are: broad breast, thick and upright shoulders, a low forehead, deep and round barrel, broad, high loins, and ample quarters; with thick fore-arms and thighs, snort legs and round hooves, heels broad, but not too flat at the soles—though many people look for flat feet in a draught horse;

but, of course, there is a difference between moderately-sized feet in proportion to a horse's weight and bulk, and *contracted* feet, which are always objectionable. The great fault of many of these large horses is their slowness, though the brewers' draymen often urge them into a lumbering trot, as may sometimes be seen in the streets of London when the drays are returning with empty barrels after the day's work. The great bulk and weight of these horses is against their being very generally made use of, except for special purposes, as a large amount of force is necessary to be expended in the locomotion of such a heavy living freight, often fed up to a very high pitch of flesh-carrying condition.

28. **CLEVELAND BAYS.**—One of the most useful breeds of



CLEVELAND HORSE.

horses as weight-drawers is the Cleveland Bays, so named from the prevalence of colour, and that part of Yorkshire in which they were originally bred, though they are now commonly found in every part of that extensive county.

When of pure breed, they generally stand from sixteen to seventeen hands high, and are active, powerful horses, with a good deal of what is termed "blood" in them. In

the old coaching days they were very much used as heavy coach-horses, but the breed has been so much crossed of late years, with the object of obtaining greater speed, that the original race appears to be fast dying out, or they were always a useful horse for those purposes where bulk and power were required, coupled with quick-stepping action. The breed has been found of great service for drawing vans containing parcels and luggage, when the vehicle and its load are necessarily heavy, but where the services of a tolerably quick horse are needed for the prompt delivery of parcels and despatch of business, which a slower animal, fit for the coal-wagon or brewers' dray, is not so well adapted for.

29. **CARRIAGE HORSES.**—A very large variety of animals is included under the head of carriage horses, which embrace in their ranks animals of various breeds and sizes, from fourteen-and-a-half hands to seventeen hands in height. Horses that have been reared

as hunters, but are not found quite up to their work, but which can trot sufficiently well in harness, as well as the refuse of thoroughbred breeds, that are too clumsy and thick-legged to take rank with their cleaner-limbed brethren, make good carriage horses, very often as well as those of smaller size, down to the level of ponies, amongst which are often to be found animals of great endurance, that are well fitted for the purpose for which they are designed.

A moderate-sized horse is, indeed, generally found better for this purpose than the long-legged animals, which make up in steadiness and solid qualities what they are deficient in speed; and a Cleveland or Clydesdale cross upon a lighter breed has often been found to bring good serviceable carriage horses.

30. **THE SUFFOLK.**—The Suffolk, or *Suffolk Punch* as he is often called, has been aptly described as a large horse in a small compass, seldom exceeding fifteen-and-a-half hands in height, and often under. Horses of the genuine old stock are now becoming somewhat rare, but they are still occasionally to be met with, though the rage for improvement of breed has left its influence markedly upon this somewhat distinctive race, the more recent being longer in the leg, and not standing so well to collar, though a taller and finer shouldered animal has been the result in many cases.

The pure Suffolk was, and is, when met with, an astonishing animal to draw, pulling along weights which appear totally disproportionate to its size, exerting themselves to the utmost with the greatest amount of nerve and spirit, until their strength is entirely exhausted, with all the pluck of the thoroughbred, which qualities have, doubtless, given rise to the especially Suffolk phrase, "never drive the willing horse."

The points which distinguish the Suffolk Punch are: straight back, broad and arched across the loins, with short couples, full and lengthy quarters, with sinewy fore-arms, and an open chest, though somewhat wanting in depth; the shoulder low, but well set for the collar.

Some capital roadsters in the form of *Cobs* used to be obtained from this race, which suited well the requirements of elderly gentlemen, somewhat obese, who required a steady nag up to a certain amount of weight-carrying power, with easy and equal paces, which could carry their riders a long distance without discomposing either in any great degree. As a farmer's horse for general purposes, the Suffolk has always been held in high estimation in the Eastern and Southern counties, as he could carry the farmer to market, as well as draw in harness; but, as before stated, it is a matter somewhat of regret that this original breed has become somewhat rare, a taller and finer shouldered horse

indeed having been obtained but one more "leggy" and less compact, with inferior "pluck" and working powers.

31. **THE CLYDESDALE.**—As a draught-horse of great strength, perhaps the Clydesdale stands unequalled; reared in the south of Scotland generally, and Lanarkshire in particular, taking their name from the neighbourhood of the Clyde, where they are commonly reared.

Scarcely any horse can be found so well adapted for single horse carts, to draw heavy loads, and get through such a large amount of work in a single day. They require plenty of food, and in Glasgow and other large Scottish towns, it is said the coal-hauliers feed their horses to the extent of a bushel of oats, or beans of equal value, daily; the weight which these animals draw, perhaps, being the severest labour in Scotland, 30 cwts., besides the weight of the cart, being considered no more than the ordinary work of a single horse, sometimes travelling upwards of twenty miles a-day. Shows of these animals are regularly held in the north, and considerable interest taken in the breed, which is a valuable one.

With all this exhibition of power they are extremely active, standing about sixteen hands high, their shortcomings being a tendency to light bodies and long legs, some of them being hot workers; but when free from these defects, they are most useful animals for agricultural purposes, it being said that a pair of Clydesdale horses will plough a broader extent of land than almost any other race of animals.

32. **THE CART HORSE.**—What are usually termed cart horses embrace a large variety of breeds, and no distinctive race is commonly alluded to under this head; but as a horse that will not shirk the collar is wanted, one that will draw a heavy load, any description that has a good share of either of the breeds we have named is calculated to make useful cart horses. The old English black cart-horse is now seldom seen, being improved away as it were; but as stated before, the Lincoln are said mainly to consist of the old English cart horse, improved by crossing with some Dutch or Friesland mares.

33. **THE HUNTER.**—Good hunters in the present day are often in request, stoutness being required as well as speed in a good hunter, which, it is commonly considered, should be at least three-quarters bred, and some say even seven-eighths. As far as speed is concerned, an entirely thorough-bred, as might be expected, would make the best hunter, but these do not carry themselves high enough

to leap the fences, though the first property of a good horse is that he should be light in hand.

The principal features that should be looked for in a hunter have been described as a small head with thin neck, especially thin beneath, with wide jaws, and crest firm and arched, so as to cause the head to be well set on, and form that proper angle of the neck which will confer a light mouth.

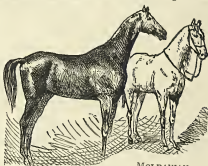
Youatt has remarked that "Somewhat of a ewe-neck, however it may lessen the beauty of the racehorse, does not interfere with his speed, because, as is shown, if the structure of the horse is considered, more weight may be thrown forward, and consequently the whole bulk of the animal more easily impelled; at the same time, the head is more readily extended, the wind-pipe is brought almost to a straight line from the lungs to the muzzle, and the breathing is freer.

Should the courser, in consequence of this form of the neck, bear more heavily on the hand, the race is soon over; but the hunter may be our companion and our servant through a long day, and it is of essential consequence that he shall not too much annoy and tire us by the weight of his head and neck.

"The forehead should be loftier than that of the racer. A turf horse may be forgiven if his hind quarters rise an inch or two above his fore ones; his principal power is wanted from behind, and the very lowness of the forehead may throw more weight in front, and cause the whole machine to be more easily and speedily moved. A lofty forehead, however, is indispensable in the hunter; the shoulder should be as extensive as in the racer—as oblique and somewhat thicker; the saddle will then be in its proper place and will continue so, however long may be the run.

"The harrel should be rounder, to give greater room for the heart and lungs to play, and send more and purer blood to the larger frame of the horse; and especially more room to play when the run may continue unchecked for a time that begins to be distressing. A broad chest is an excellence in the hunter. In the violent and long-continued exertion of the chase, the respiration is exceedingly quickened, and abundantly more blood is hurried through the lungs in a given time than when the animal is at rest. There must be sufficient room for this, or the horse will be blown, and possibly destroyed. The majority of the horses that perish in the field are narrow chested. The arm should be as muscular as that of the courser, or even more so, for both strength and endurance are wanted.

"The leg should be deeper than that of the racehorse (broader as you stand at the side of the horse), and especially beneath the knee. In proportion to the distance of the tendon from the cannon or shank-bone, and more particularly just below the knee, is the mechanical advantage with which it acts. A racer may be tied beneath the knee, without perfectly destroying his power, but a hunter with this defect will rarely have stoutness.



ENGLISH HUNTER.

MOLDAVIAN
HORSE.

"The leg should be short. Higher action is required than in the racer, that the legs may be clearly and safely lifted over many an obstacle, and, particularly, that they may be well doubled up in the leap.

"The pastern should retain considerable obliquity. The long pastern is useful, by the yielding resistance which its elasticity affords, to break the concussion with which the racehorse, from his immense stride and speed, must come on the ground; and the oblique direction of the different bones beautifully contributes to effect the same purpose. With this elasticity, however, a considerable degree of weakness is necessarily connected, and the racehorse occasionally breaks down in the middle of his course. The hunter, from his different action, takes not this length of stride, and therefore wants not all this elastic mechanism; he more needs strength to support his own heavier carcass and the greater weight of his rider, and to undergo the fatigue of a long day. Some obliquity, however, he requires; otherwise the concussion even of his shorter gallop, and more particularly of his frequently tremendous leaps, would inevitably lame him.

"The foot of the hunter is a most material point. It is of consequence in the racer, yet it is a notorious fact that many of our best thorough-bred horses have indifferent feet. The narrow, contracted foot is the curse of the racing blood. The work of the racer, however, is all performed on the turf, and his bad feet may scarcely incommode him; but the foot of the hunter is hattered over many a flinty road and stony field, and if not particularly good will soon be disabled and ruined.

"The position of the feet requires some attention in the hunter. They should if possible stand straight. If they turn a little outwards, there is no serious objection; but if they turn inward, his action cannot be safe, particularly when he is fatigued or overweighted.

"The body should be short and compact, compared with that of the racehorse, that he may not in his gallop take too extended a stride. This would be a serious disadvantage in a long day, and with a heavy rider, from the stress on the pasterns; and more serious when going over clayey, soaked ground, during the winter months. The compact, short-strided horse will almost skim the surface, while the feet of the longer-reached animal will sink deep, and he will wear himself out by efforts to disengage himself.

"Every horseman knows how much more enduring is a short-bodied horse in climbing hills, although perhaps not quite so much in descending them. This is the secret of suiting the *racehorse* to his course, and unfolds the apparent mystery of a decidedly superior horse on a flat and straight course being often beaten by a little horse, with far shorter stride, on uneven ground, and with several turnings.

"The loins should be broad, the quarters long, the thighs muscular, the hocks well bent, and well under the horse."

We have given this description of what a good hunter should be, in full, as it capitally describes not only what the essential points of a perfect horse should be that is required to follow the hounds, but also gives the different reasons why this or that needs to be as recommended and described.

34. THE GALLOWAY.—The Galloway takes its name from a useful and beautiful breed of horses, thirteen to fourteen hands high, that used formerly to be met with pretty plentifully in the south of Scotland. They are not now often seen, their comparative rarity arising from the fact that the exigencies of modern husbandry have caused the farmers of that district to desire a larger and more

powerful horse, the consequence being that, the old stock being crossed to a great extent by larger animals, the old breed is fast dying out.

This is somewhat to be deplored, for, like certain breeds of small cattle, the Galloway could find a sufficient support in the inferior herbage that grows upon poor lands, and on this account the breed has been endeavoured to be perpetuated more amongst the Welsh farmers, who find it an extremely useful animal for their purpose rather than upon the scene of its original habitat.

Dr. Anderson gives a lively account of the wonderful endurance of the Galloway, though to ride an animal a hundred and fifty miles at a stretch appears to savour a good deal of cruelty:—

"There was once a breed of small, elegant horses in Scotland, similar to those of Iceland and Sweden, and which were known by the name of Galloways; the best of which sometimes reached the height of fourteen hands and a half. One of this description I possessed, it having been bought for my use when a boy. In point of elegance of shape it was a perfect picture; and in disposition was gentle and compliant. It moved almost with a wish, and never tired. I rode this little creature for five-and-twenty years, and twice in that time I rode a hundred and fifty miles at a stretch, without stopping, except to bait, and that not above an hour at a time. It came in at the last stage with as much ease and alacrity as it travelled the first. I could have undertaken to have performed on this beast, when it was in its prime, sixty miles a day for a twelvemonth running, without any extraordinary exertion."

35. THE IRISH HORSE.—The native Irish *garron* is mostly met with in the mountains of Ireland, and is about fourteen hands high, cat-hammed and low in the shoulder, light-limbed and short-legged, with close pasterns, and very sure-footed. Though subsisting often upon the scantiest fare, he is hardy and indefatigable, and makes an excellent roadster. Being not of a very promising appearance, many efforts have been made at various times to improve the breed, but these efforts do not appear to have been very successful.

In some parts of the sister kingdom, however, as Meath and Roscommon, some good thorough-bred horses have been reared, which have fetched long prices in the market; but the best of the Irish horses, which are unrivalled for leaping, do not approach in shape and general beauty of form the best English horses. They are, however, stout and hardy when of a good breed, and reared in some of the rich grazing counties; and although, as before said, celebrated as leapers, they are deficient in speed.

In the province of Ulster there is a hardy, sure-footed breed of horses, but they are not good-looking animals, though useful enough in their way. As a rule, in many of the country districts of Ireland the horses are worked early, badly fed, and badly broken-in, and they are crossed with all sorts of shambling blood horses, without

any definite aim or plan, which has had the effect of producing a race of mongrels, though now and then a good Irish horse is to be picked up.

36. **PONIES.**—Some very beautiful, as well as very useful, animals are to be found amongst the race of ponies, which vary considerably in their various characteristics.

37. **THE SHETLAND PONY.**—The Shetland pony is an animal



SHETLAND PONY.

of small size, varying from seven-and-a-half to nine-and-a-half hands in height. Many of them are extremely handsome, and they are very docile, and contented with the hardest fare. They possess enormous strength in comparison to their size, and are useful animals to mount children upon, or draw a small carriage.

38. **THE WELSH PONY.**—The Welsh pony is often a very handsome little animal, being well shaped, with a small head, strongly knit, and capable of any amount of endurance. The Welsh

pony also is contented with the humblest fare, and costs his owner but very little for his keep.

39. **EXMOOR PONIES.**—The Exmoor ponies are not by any means good-looking, and may even be pronounced ugly; but they are tough, serviceable animals, capable of great exertion. The *pack horses* that at one time used to be so largely used by travellers and peddling merchants, before the days of railroads and well-established coach services, were mostly of a large variety of the Exmoor or Dartmouth breed.

These pack horses gave the name to packmen and "bagmen," as travellers used once to be generally called, who carried their samples in bags slung across the horse's back, when they used to solicit orders of their country customers. From constantly living on the road, and frequenting inns, these packmen, or bagmen, have figured very often as principals in many an entertaining story; generally being a knowing class of people, and excellent judges of the best entertainment to be had on the road, which has been happily hit off in the tale of "Binks the Bagman." This class of tradesmen, now styled "commercial travellers," have been the most fully developed in the United States of America, where they are termed "drummers," whose pushing effrontery in making sales is notorious. A slightly different class has become immortalised in Judge Haliburton's "Sam Slick, the Clockmaker." The peculiar kind of saddle used for the conveyance of goods on those horses gave birth to the name of "pack saddles."

40. **DARTMOOR PONIES.**—These are also a hardy race, admirably adapted for rough roads, being of larger size than the Exmoor, and equally destitute of good looks, possessing not the least claim to any points of beauty, but are very useful animals for various purposes.

41. **THE HIGHLAND PONY.**—The Highland pony is a very hardy and very sagacious little animal, being long in the back, short in the legs, and upright in the pasterns. Being low before, he is not considered a pleasant "mount," being somewhat difficult to ride, except in a canter. They are, however, very inexpensive animals to keep, and often prove useful to boys and young children when they first begin to ride.

42. **PONIES OF THE NEW FOREST.**—A race of ponies are to be met with in Hampshire, in the district of the New Forest, which used at one time to be somewhat celebrated; but the original breed appears to be fast dying out, the rapid intercommunication which

now exists between every part of the kingdom having had a very principal hand in doing away with many of the marked distinctive breeds which used at one time to be peculiar to certain parts of the country. The *New Foresters*, as they were termed, were mostly ill-made, ragged-looking animals, with large heads and short necks, the reverse of good-looking, but they were always safe, and very hardy, useful animals, well adapted for any class of work that is usually expected from a pony.

43. **CARRIERS' HORSES.**—The horses used by carriers are either large or small, according to their requirements and consist of all kinds of breeds, from the large horse of 17 hands down to the pony, but mostly having to draw weights of considerable magnitude, animals which pull well at the collar are indispensable for this purpose, of the order that has been previously described.

44. **CAB HORSES.**—Every possible breed of horse is met with in the cab; occasionally first-rate animals may be seen, that have some defect or other, which prevents their being used: and broken-kneed and broken-winded horses are common, a cab horse being often spoken of as one degree better than the poor unfortunates that are about to be sent to the "knacker's" yard. Yet, occasionally, capital animals may be seen in cabs, especially in the hansom cabs of London, though, as a rule, the horses used in the cabs of large provincial towns are better than those of the metropolis.

45. **RIDING HORSES.**—These again, according to fancy, embrace every possible species of horse, from the seven-eighths or three-quarters thorough-bred, down to the steady-going, thick-legged animals that may often be seen ridden in different districts. Yet, of all horses, a perfect roadster is required to possess the longest list of good qualifications of any horse, and it is necessarily found an extremely difficult matter to get a thoroughly good riding horse that will satisfy the most exacting person.

Defects that can readily be passed over in the hunter, as starting; having an awkward action when walking or trotting, or other defects, can well be afforded to be passed over, if he has wind and bottom, and can first come in with the hounds; but the roadster must needs have good fore and hind legs, be sound in his feet, and even-tempered, quiet in any situation where he may be placed, however trying to a horse, and not likely to stumble.

Horses possessing high action are thought by some to be desirable, who like to be mounted on a showy animal, but these are not the best for the purpose in view. The horse with too great action

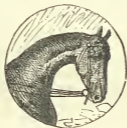
cannot be speedy, while the concussion of the feet coming to the ground from too much developed knee action, wears and shakes them about a good deal, as well as causes the seat of the rider not to be as pleasant as it otherwise might be.

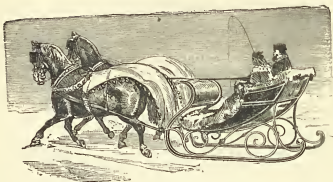
On the contrary, a horse that does not lift his legs sufficiently high is to be avoided; for these "daisy cutters," as they are termed, may perhaps bring their riders down to the ground, or if they do not actually fall, frequently stumble, to the discomposure of the person on their backs, so that both extremes need to be avoided.

Too large or too small horses should be avoided, about 15 hands, or a little over, generally making the best roadster. If too closely approaching a thorough-bred, his stride will be too long, and he will seldom be found able to trot, which is the most general pace he is ridden. If below this standard, and of sufficient strength, he will be found safe and pleasant to ride, and on this account many prefer a riding horse to be hollow-backed. But these, although they generally are well adapted to make a good lady's horse, and will canter well, are not able to stand very hard work, nor carry continuously the weight of a heavy rider, without being knocked up.

The chief points, therefore, to obtain in a riding horse, is to have the fore legs perfectly straight, the back straight and short, yet roomy enough to leave comfortable space for the saddle between the shoulders and the "huck," without pressing on either. The pastern should be short, but oblique enough to give pleasant action without causing him to be incapable of occasional hard work, and the constant wear and tear of heavy employment.

The feet are a very important feature, and these, though corresponding with the size of the horse, should neither be too hollow nor too flat, open at the heels, and perfectly free from corns and thrushes.





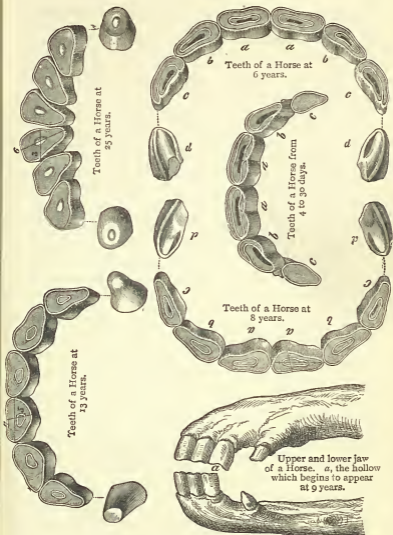
CHAPTER III.

AGE, MEASUREMENT, AND USES.

Age of Horses—Teeth—Computation of Age—Terms Applied to Horses—
 Measurement of Horses—Uses of the Horse—Agricultural Horses—Ploughing
 —Value of Horse—Labour in Agriculture—Miscellaneous Uses of the Horse
 —Mares' Milk—Horse-flesh as Food—Uses for Hair and Mane of Tail—Uses
 of the Hide, &c.—Distinguishing Colours of Horses.

46. **AGE OF HORSES.**—The age of a horse is known by his teeth up to nine years pretty accurately, the foal at his birth being usually without teeth in the front of his mouth, having only two grinders on each side of either jaw, or sometimes three, but at the end of a few days the two middle fore teeth, or *pincers* as they are called, make their appearance. During the first month a third grinder comes, and during the succeeding four months two more fore teeth show themselves. Usually when nearing seven or up to eight months the corner teeth, or side incisors are produced, together with a fourth grinder, when the first teeth-cutting of the foal is completed.

47. **TEETH.**—Up to the age of three years the changes in the appearance of the teeth of the young horse are contingent upon the wearing away of the fore teeth, which they will do more or less, and the black hollows become obscured or obliterated by their grinding action upon the food consumed by the animal. In rather more than a year, generally about sixteen months, the hollows on the surface of the *nippers* are obliterated, when they are technically said to be *razed*.



aa, Incisor Teeth; *bb*, Middle Teeth; *cc*, Molars; *dd*, Eye Teeth. The round marks appear at 6 years at *aa*; at 7 years at *bb*; and at 8 years at *cc*.

The teeth of the horse are sometimes spoken of amongst stablemen and others as being "filled up." But this is wrong, as the mark never fills up, but the peculiar cementing substance which occupies, so to speak, the funnel made by the dipping in of the enamel, does not grow up, but the ridge of the enamel is worn down, and then it follows that the blackness at the bottom is rubbed off.

The yearling usually has six nippers and four grinders above and below in each jaw, the alteration in the appearance of the nippers that has been referred to enabling a pretty accurate estimate of the age of the foal to be arrived at, subject to the variations arising from the period of weaning, and the nature of the food upon which he is fed. The nipper teeth are termed *incisors*, or *cutters*, by naturalists, but the former is the more familiar term amongst those who have most to do with horses.

At two years a fifth grinder will push out, and a change will begin to take place in the first teeth, for the jaw increasing *pari passu* with the rest of the frame of the horse, will cause the teeth to be separated from each other at too wide a distance for the proper mastication of food, for which nature has made a provision in the cavities of the jaw beneath the first teeth, in the nucleus of a succeeding set. These gradually increase with greater or lesser rapidity, and press upon the roots of the first teeth, which by degrees disappear, and seem to become absorbed in the process going on, until that part which is above the gum, and forms the crown of the first teeth, being deprived of the fang, and having no support, drops out; when the second and permanent teeth take their place, which are larger and stronger, and better fitted for the requirements of the animal, now grown bigger.

When what are termed "wolf's teeth" come, this is occasioned by the second teeth not rising immediately under the milk-teeth, but springing by their side, which will be the case in a few instances, which causes swelling and soreness of the gums, and sometimes even a wound in the cheek, and this may probably last for some time. These diminutive teeth are generally drawn, or punched out, as soon as they make their appearance.

The earliest teeth change first, and at two years the first grinder is succeeded by a larger and permanent tooth; and it is at this period that deception is sometimes resorted to by horse-dealers to make the young colt appear older than he really is; and to give him a three-year-old looking mouth, the two middle nippers are displaced, which get succeeded by two permanent teeth.

At the time when the central milk-nippers of the colt are falling out, and

those which are coming are not sufficiently perfected, as the young animal may have some difficulty in grazing, he should be fed with mashes and cut corn.

The illustration on page 557 shows the teeth of the horse at different ages. We have first given those of an animal of from four to thirty days old, then those of one at six years old, then at eight years, then at thirteen, and, last of all, at twenty-five years of age. The reader will also find represented the upper and lower jaw of a horse, the hollow shown beginning to appear at nine years.

48. **COMPUTATION OF AGE.**—The ages of horses are always counted from May, but as some colts are foaled as early as January, and, if well fed and cared for, by May will be good-sized animals, they sometimes have an additional year's age put upon them; and to make their teeth come three or four months earlier than they otherwise would, dishonest dealers punch or draw the central nippers out, and the natural mechanical opposition of the milk-teeth being thus removed, the growth of the succeeding teeth is more rapid than it otherwise would be, and it enables the breeder to dub him a colt of the preceding year. An experienced judge, however, would detect this attempt at imposition from the small development of the forehead, and some enlargement or irregularity about the gums, caused by the violence used in this unnatural displacement of the teeth, as well as the small growth of the first and fifth grinders, and the non-appearance of the sixth grinder, which, if not through the gum at three years, is very perceptible beneath it, preparing to emerge.

At three years of age the young horse will stand thus as regards his teeth:—The central nippers should be growing, the other two pairs wasting, which they will do as respects the fangs to a considerable extent, before the crowns fall out, the fangs, their support, having wasted and become absorbed, as it were, in the general system of the animal; six grinders in each jaw above and below, the first and fifth molar teeth level with the others, whilst the sixth is protruding.

Between three and four years old the next pair of nippers will be changed, and the appearance of the mouth present such general indications as will not be easily mistaken, the central nippers having attained nearly their full growth; a space will be left where the second stood, or they will be showing above the gum, while the corner ones will be diminished in breadth and worn down, the mark becoming small and faint. At this time, also, the second pair of grinders will be shed.

When four years have been attained, the central nippers become fully developed, the sharp edge being partially worn off, the mark being wider and fainter. The next pair will also be up, but they will be small in size, with the deep mark extending quite across them, the corner nippers being larger than the inside ones, yet smaller than they were, being flat, with the mark nearly obliterated, the sixth grinder having by this time risen to a level with the others, and the tushes begun to appear.

There are four tusks, two in each jaw, situated between the nippers and the grinders, and closest to the nippers, and nearer in the lower jaw than in the upper, the space increasing in both jaws with the age of the animal, which at this period is almost peculiar to the horse, castration not appearing to retard their development. All mares, however, have the incipient formation in the chambers of the jaw, and in old mares they appear externally in most instances. It is supposed that in a state of nature these are designed as weapons of offence, by which an enemy can be firmly seized and held; and in droves of wild horses, those stallions that remain, and are not driven away from the herd, place themselves on the defensive before the mares, and often present a firm front to assailants, upon whom they frequently inflict wounds with these tusks.

49. **TERMS APPLIED TO HORSES.**—Between four and five years the last important changes take place in the teeth of the horse. The corner nippers are shed, and the permanent ones make their appearance; the central nippers are somewhat worn, and the next pair begin to show that they have been made use of to a considerable extent. The teeth by this time have mostly become fully half an inch in length, and have a rounded prominence externally, with grooves on either side; and at this period the colt is termed a horse and the filly a mare.

At five years of age the horse's mouth is almost complete, the corner nippers being quite up, with the long, deep mark irregular on the inside, and the other nippers plainly showing the amount of use they have experienced. The tusk is now much grown, the grooves having nearly or entirely disappeared, and the outer surface has assumed a convex form, though still concave within, and with nearly as sharp an edge as it was possessed of six months before, the sixth molar being quite up, but the third molar being wanting, the last three grinders and the tusks never being shed.

At six years the teeth present a somewhat different appearance, the mark on the centre nippers being worn out, though there will

still be a difference of colour in the centre of the tooth; the deep hole in the middle, with the blackened surface which it presents, and the raised edge of enamel, will have gone.

The mark is shorter, broader, and fainter in the next incisors, the edges of the enamel in the corner teeth being more regular, and the surface more worn. The tusk has attained its full size, being about an inch in length, concave within and convex outwards, the extremity being somewhat curved and tending towards a point. The third grinder is fully up, the whole of which are now level.

At six years, or perhaps a few months earlier, the horse may be said to have a fully-developed mouth, the teeth having all become fully grown, and, so far, have received no deterioration from long usage, and he will have acquired them without any of those constitutional trials which often accompany dentition in other animals, and the young human subject, the gums and palate being sometimes hot and swollen, but this is all.

When seven years are attained, the mark is worn out in the four central nippers, and is disappearing in the corner teeth, and the tusk is beginning to be altered, being rounded at the point and edges, remaining round outside, and beginning to get round inside; while, at eight years, the mark has disappeared from all the bottom nippers, the tusk is rounded, and the mark may now be said to be out of the horse's mouth, nothing remaining in the bottom nippers which will afterwards clearly indicate the age of the horse, so that a *positive* opinion may be arrived at.

The tusk in different horses will very often present a different appearance altogether. It may sometimes be blunted at eight years of age, and in the case of others will remain pointed at eighteen.

Some veterinary surgeons consider that the indications of age are to be determined by certain signs, but these of necessity partake very much of the nature of guesses, as at six years the nippers are all oval, the length of the oval running across from tooth to tooth; but as the animal gets older the teeth lessen in size, diminishing in width, but not in thickness, becoming a little apart from each other, and their surfaces rounded. At nine, the centre nippers have very plainly assumed this appearance, and at ten the others begin to have the oval shortened. At eleven, the second pair of nippers are quite rounded, and at thirteen, the corner ones wear that appearance. At fourteen the faces of the central nippers become somewhat triangular, while at seventeen they are all so. At nineteen years old the angles begin to wear off, and the central teeth are

again oval, but in a *reversed* direction—from outward, inward; and at twenty-one years they will all assume this form and general appearance.

Although a tolerably correct estimate of the age of the horse may be arrived at from an inspection of the teeth, perfect accuracy is not always to be relied on, partly from the fact of the circumstance alluded to before. The age of horses being calculated from the 1st of May, it is not always possible to decide whether the animal is a late foal of one year or an early one of another.

Horses that are invariably kept in stables obliterate the mark on their teeth sooner than those that are kept out at grass; while a crib-biter, from the large amount of practice that he imposes upon his teeth—entirely a work of supererogation, as it is always looked upon by his attendant—may deceive even a shrewd judge, to the extent of a couple of years in some cases, as to his real age.

Horses have been known to live till they have attained sixty years, from thirty-five to forty years being by no means rare, though, generally, the lives of horses are shortened considerably by being put to work, and frequently at tasks beyond their strength, before their limbs are properly knit and they have attained their full strength.

Measurement of Horses.—The height of the horse, as is well known, is estimated by the *hand* of four inches, a scale of measurement which appears to be confined exclusively to these animals, which has occasionally puzzled inexperienced persons, as in the case of a well-known witty lady who, in one of her amusing letters to a friend, describing in a mirthful manner an immensely tall horse upon which she was mounted upon one occasion at a country house, told her friend, in all seriousness, that she was placed upon an animal *17 feet* high. Her bewildered correspondent would naturally have wondered how she ever managed to attain to the back of this fine horse.

50. **USES OF THE HORSE.**—The uses of the horse are very various, of which the foregoing description of the different breeds, and the purposes to which they are mainly applied, will give a sufficiently comprehensive idea; but it has only been comparatively in recent years that horses have been extensively used in agricultural occupations. A good many years back, when British agriculture may be said to have been in its infancy, oxen were the only cattle employed in tillage in this country, and they are mainly so employed in many countries of Europe at the present day, and occasionally also in Britain, though it is comparatively rare that ox-teams may now be seen at work in the fields.

It has been remarked before that it is questionable whether the land then under cultivation, under the defective management that used to prevail, could have supported the necessary number of horse-teams for the purposes of tillage,

and of oxen for food, but after the introduction of the artificial grasses, and the adoption of turnips, potatoes, and other esculent roots into field culture, a new epoch of farming operations dawned upon the husbandman, and the fields which used formerly to lie fallow until they had recovered from the previous exhaustion to which they had been subjected by the growth of an ordinary crop, were used in the production of green crops, which, by feeding a greatly increased number of cattle, created the necessary amount of manure to keep it in heart; and the drill and the horse-hoeing system of husbandry, invented by Jethro Tull, caused the more general employment of horses, and to a great degree superseded the bare-fallow. These quickened operations of farm labour called for a quicker and more active exertion than teams of heavy oxen could give, and as a deficiency of fodder no longer existed, and there was plenty to give horses, the employment of oxen gradually fell into disuse, except there may occasionally be found an advantage in their use arising from special local circumstances, where oxen still maintain their position as beasts of draught.

51. AGRICULTURAL HORSES.—One of the pleasantest sights in the whole round of rural occupations is to see a skilful ploughman dexterously managing a pair of well-trained horses in the field, and of late years very great improvements have been made in the implements of husbandry in common use, foremost amongst which stands the plough.

Parkinson* mentions an instance of an Irish ploughman who, in a medium soil and with a nine-inch furrow, turned over at the second ploughing, with a pair of horses of the heavy dray kind, 1 acre and 20 perches (Irish measure) in six hours and ten minutes, which is at the rate of nearly 4 acres 2 roods in eight hours, which was thought a wonderful thing to do at that time, as the horses must have walked at the rate of three miles an hour; but he admits that no horses, with any keep, could have maintained such daily labour for a continuance. This rate, however, has not only been equalled, but excelled in modern ploughing matches; but the common calculation in ordinary farm work is that, at the most, an acre and a half is all that can be ploughed with a common furrow on any kind of soil; but, on the average, from an acre to an acre and a quarter in summer, and but three-quarters of an acre in winter, is thought to be a fair day's work for a team, the strength employed being in proportion to the stiffness of the land.

52. PLOUGHING.—The daily labour of a team necessarily has to be regulated by the manner in which it is employed, as well as by its strength.

It was the practice in some of the southern, eastern, and midland counties for the carters when they slept in the house to rise at 4 o'clock in the morning, feed, clean, harness the horses, get breakfast, and be ready to go to field-work at 6 o'clock in summer, or after 7 o'clock in winter, when they would work till

* Parkinson on "Live Stock."

2 o'clock, making at the outside a yoking of eight hours. When the horses returned to stable, they had a little hay given to them, while the men took their dinners, by which time 4 o'clock would arrive, when the stable-man would curry, feed, and litter them down, while another man fetched the provender, either green food or dry, as the case may be.

A lounge at the smithy, where perhaps a plough-share might have been taken to be pointed, and a gossip with the smith or with some of their acquaintances, would often perhaps consume the intervening time of these men under whose peculiar care the horses and implements were, until 8 o'clock, when supper at the farm-house would finish up the daily round of work.

In the northern districts of the kingdom, however, the usual hours of work were in the spring and summer from 6 until 11, and from 2 till 6 or 7; the intervening hours being set aside for rest or feeding; and in winter, at the outside, from 7 till 4 o'clock, with one or two hours' rest at mid-day, though it was considered at that time of the year a better course of practice to finish the day's work without going to the stable, at one spell or bout of seven hours, during which period the horses might get a feed from their nose-hags, while the ploughman consumed his own lunch, which he carried with him afield.

We say *used* to be the custom, for farm customs and methods of living have changed so much of late years, and steam-ploughing has effected such a revolution in farm-habits and customs, that the methods of procedure formerly practised are not now at all of an universal nature; but according to the usual plans followed, the common calculation used to be that, taking the whole year round, an acre of land was ploughed in a day, the number of horses employed depending upon the nature and condition of the soil, the season, the kind of cattle employed, and the way in which the work was performed, which all had to be taken into consideration, for, according to the *Berkshire Report*, in some of the red clay-land of the Newbury district, *five* horses found hard work in turning up three-quarters of an acre in a day.

53. VALUE OF HORSE LABOUR IN AGRICULTURE.—The value of horse labour in agriculture must of course be considered relatively to its cost, and this would mainly depend upon the quantity and kind of food on which farm-horses can be supported at constant labour.

This would vary considerably according to the situation of the farm with respect to markets, particularly in reference to hay and roots, which are variously affected by the neighbourhood or not of large towns, where there is a brisk consumption of these articles, which fetch comparatively high prices, which vary considerably even at a few miles' distance; and mangold, which will fetch but 10s. per ton in a country district, will, in the neighbourhood of large towns, where numbers of cows are fed, be worth 18s., or even 20s. per ton at times of high prices.

But when working cattle are not judiciously as well as economically fed, they either get out of condition or some food is necessarily wasted; and, in certain years, horses will require more corn than in others, as from the failure of the second crop of grass they are put earlier upon corn and hay than they otherwise would be.

There is no doubt that too much corn is occasionally given to

working horses, and Sir John Franklin speaks of the heating effects of unusually large quantities of corn upon horses being well worthy of great attention, and in support of this view, cites an instance of an extensive coach-master who regularly allowed three bushels of oats per day to each of his sets of eight horses, out of which, during many years' experience, he usually lost a great number. Upon reflection, however, he changed his mode of feeding, and allowed instead, to each set, one bushel of beans, one bushel of oats, and one of hay and straw cut into chaff, the result of which change of diet was that his horses were as hearty and well able to perform their amount of work as ever they were, while, at the time the report was made, he had only lost one horse since the adoption of the plan.

In those counties where carrots are extensively grown, as in Surrey, Suffolk, and Berkshire, they are often economically substituted for corn, and in the sandlings of Suffolk carrots have formed a large proportion of the food of horses, which used at one time to be extensively given after the following ratio:—6 horses, 2 loads of 40 bushels per week, no corn, and little hay; 6 horses, 1 load, with corn in the spring-time, and a little hay; 6 horses, 72 bushels per week, no oats, and half the usual allowance of hay.

A good many years ago the late Mr. Curwen, who is said to have tried more experiments in the feeding of cattle than most men, kept nearly a hundred of his farm-horses and colliery-horses during the winter upon cut-straw and potatoes steamed together, instead of hay; and found that some which were worked in the same manner, but fed with hay instead of potatoes, were not equal in condition with the rest.

His method of feeding, detailed by the Carron Company, who adopted his plan, as communicated to the Board of Agriculture, was as follows:—

"They have three tubs steaming at a time, and one of chopped straw, chaff, or dusting seeds; they empty one tub of potatoes into a large mash-tub, by way of bottom-layer; then the tub of chopped straw, and last, the remaining tub of potatoes; the whole is wrought up and mixed with a large wooden pestle; and to this they add a small quantity of salt. A bucket is brought for each horse with his feed of corn (bruised oats) in the bottom, and his proportion of the mash is filled in above; when it is emptied into the manger, the corn is of course uppermost, and the horse-feeder puts his hand through to mix it."

In the north a good many roots are given to horses, for the most part being steamed, which is a better plan than giving them raw, as they assimilate better and are easier digested; but too much of this bulky food is not good for working horses. It must be borne in mind that, unlike the stomach of the ox, the horse's stomach is a comparatively small one, holding, as nearly as may be, about three gallons, while that of the ox is considerably larger, having indeed four stomachs, the first being considerably bigger than that of the

horse, the working animal economy of the latter plainly being the consumption of a moderate quantity of food, and often; while that of the ox is evidently to consume a large quantity at one meal, the horse, in consequence, necessarily requiring food of a more concentrated description.

Of the different methods of feeding horses we will, however, speak under another head, merely adverting to general principles upon this occasion, which appear to demand reference in the course of the subject.

54. MISCELLANEOUS USES OF THE HORSE.—The skin, flesh, and hair of the horse are applied to different purposes, the latter being very extensively employed in some branches of manufacture.

55. MARE'S MILK.—At one time mare's milk used to be recommended to be given to invalids in certain cases, but its consumption appears to have died out a good deal lately in this country. The medical faculty generally are found to be all recommending the same thing at the same time, there being a fashion in medicine, as in everything else, and mare's milk for the present appears to have gone *out* of fashion.

It is related that the Dukes of Muscovy, "for nearly two hundred and sixty years, were in the habit of presenting Tartar ambassadors with the milk of mares. If any of this milk fell upon the mane of the horse, the Duke, by custom, was bound to lick it off."

56. HORSE-FLESH AS FOOD.—The flesh of horses is eaten as food in many countries, especially among the Tartars, while in Paris great efforts have been made of late years to get it recognised as a standard dish, several houses having been established in different parts of Paris for its sale. The same has also been endeavoured to be carried out in London, but, up to the present, without much apparent success, the Londoners evidently preferring beef to horse-flesh, though, it is said, it may be eaten (cooked in a certain way) without its being distinguished from beef. Evidently something of this sort was the case in the instance of the French nobleman, who was once an *emigré* in England at the time of political trouble in France. Hearing upon one occasion, at a party in his native country, English beef praised for its superior quality, he gravely asserted that such was not the fact in his own experience, though he was struck with its extreme cheapness; for, when he lived in the neighbourhood of Soho Square, in London, a man used to leave regularly every day, stuck upon a skewer, for a penny, as

much beef as he could eat for his dinner; the poor gentleman having mistaken the cat's-meat man for the butcher.

57. **USES OF HAIR OF MANE AND TAIL.**—In addition to fishing-lines that are made out of the hair of the horse's tail, hair cloth is extensively used, a certain kind of which is made to dry hops upon, and is found to answer better than any other material for the purpose. Ladies' petticoats used also to be made out of hair-cloth, a material much in vogue with the gentler sex when fashion prescribes substitutes for crinoline, when hair-cloth is found to answer admirably. In Suffolk a considerable business is at times transacted in this hair-cloth, which is a different kind to that used for covering chairs.

For stuffing sofa cushions, pillows, and mattresses horse-hair is also extensively used.

58. **USES OF THE HIDE, &c.**—The hides of horses are tanned, and used for some of the ordinary purposes of leather, and a large trade is done in skins from South America. The hides are pickled in salt, and come over here in a wet condition, made up each in a square parcel, secured with rope. Railway cartloads of these may be sometimes seen passing through the streets of London on their road to the dealers, it being a regular branch of commerce, passing in the trade under the term or designation of *East Indian hides*, though the larger portion come to us from the various ports of South America, as Buenos Ayres, Monte Video, the River Plate, &c.

The hooves are made into gluc, and no portion of the carcase of the horse is wasted, the flesh being consumed as food for dogs and cats chiefly.

59. **DISTINGUISHING COLOURS OF HORSES.**—The colours of horses are classed in accordance with the following list.

60. **BAY.**—A somewhat reddish brown shade, or nut-colour in varying hues. By dark bay is meant a tinge of colour nearly approaching black, excepting on the flanks and tip of the nose, where they are mostly of a reddish colour. Golden bay, or light bay, is of a somewhat yellowish tinge. Dappled bays are so named from being marked on their rumps with spots of a darker hue than the colour of the rest of their bodies. Some bay horses are extremely handsome, the mane, the tail, and extremities being black.

61. **BLACK HORSES.**—Under the descriptive term of black horses three distinctive shades of colour are included. *Coal-black*, which is the darkest of all, much in request for animals to draw

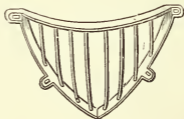
mourning coaches, and which are very often entire horses, carrying their crests arched and proudly; an ordinary shade of black, no way remarkable; and *rusty-black*, the hair being of a brownish tinge.

62. **DUN-COLOURED.**—There are several shades of dun, some of them being very striking, of a yellowish hue, the manes and tails of these horses being mostly either white or black. Some horses of this tinge of colour are marked with a black line along the vertebræ, which has a somewhat peculiar effect.

63. **CHESNUT.**—Takes its name after the skin of the well-known Spanish or horse-chesnut, both being of the same shade of colour, of which there are various hues, from a light, or reddish tinge, to a hue which nearly approaches black in the horse. It is said of chesnut horses that they are generally either very fast or very slow; but we merely mention the saying, and give it for what it may be worth.

64. **GREY.**—Grey colour is made up of a mixture of white, black, or bay, iron-grey being the most serviceable. Dapple-grey horses are marked with round spots, either of black or some other colour, on the back or different parts of the body. Horses so marked are much in request by proprietors of circuses for exhibition and performing purposes. Grey horses, as they advance in age, and become old, are mostly brown-white.

65. **PIEBALD HORSES.**—These again, like the former, are much in request by the showman, the marking in some instances being very remarkable. In those cases where the spots are very small and black, animals so distinguished are termed *flea-bitten*.





CHAPTER IV.

REARING AND BREEDING.

The Rearing of Horses—Choice of a Stallion—The Mare—Reckoning the Horse's Age—Weaning the Foal—Breaking-in—Early breaking advisable—Feeding the Colt during Breaking-in—Breaking to Harness—Breaking for a Hunter—Breaking-in a Lady's Horse—Castration—Crossing.

66. THE REARING OF HORSES.—It is usually the practice in making remarks upon breeding to insist upon the general principle, which should ever be kept foremost in the mind, that like produces like, and it has been proved to demonstration that, even what may almost appear accidental faults, only partially partaking of the nature of diseases, are continually bequeathed both by sire and dam to their offspring; and hence the reappearance in the foal of spavins, curbs, ring-bones, and even blindness, roaring, thick wind, and broken wind.

Both peculiarity of form and constitution will be inherited, and hence the desirability of breeding from as good specimens or animals as can be selected, and both sire and dam should be skilfully paired, and where some trifling defect or other exists in one, excellence in that particular part should be sought for in the other, to counterbalance any ill-effects on this score which otherwise might arise.

The careful breeder may breed for any point he chooses, while the unskilled one will often pair the animals with so little judgment as to reproduce the defects of each in even a more confirmed manner, so that the progeny are actually inferior to both parents. Although;

as a rule, the stallions used for breeding purposes are mostly good, well-bred animals, the mares are often not what they ought to be, and the excellence of the mare is really of as much importance as the horse.

This is well understood by the Arabs, who prize the mares more highly than the stallions, considering that the female is more concerned than the male in the value and excellence of the issue, according to the accounts of various travellers, the genealogies of their horses being always reckoned from the mothers.

The enduring qualities of horses are undoubtedly transmitted to their progeny, but the mare would appear to stand in need of certain qualifications, especially that she be long in body, to allow of sufficient room for the growth of the foetus; yet this development should be combined with adequate compactness of form and shortness of leg.

Compactness of form, indeed, is equally necessary in the stallion, so that as much strength and power as possible is condensed in as little space as may be. It is too often the case that many farmers consider, so that they get a foal, and the mare is crossed by a good horse, they have done what is essential. But careless breeding must ever be a great lottery, in which there are a great many blanks and few prizes. Breeding should ever be done with caution, and the most perfect specimens of the same breed should always be selected.

The indifferent breed of horses to be found in most of the country districts in Ireland, which one would naturally imagine ought to be a good horse-breeding country, has been attributed, according to the Report of the survey made of Meath, Antrim, Cavan, Down, Wicklow, Cork, Kildare, and Kilkenny, to the careless method followed. It has been said that "almost every farmer who occupies so much as 100 acres of tillage keeps one or two mares which he breeds from, and works to within a fortnight of the time for dropping their foals. These colts he either sells at three years old, or employs them in his own team; but the only qualification that is thought of, regarding the stock, is the size of the sire, and the price of covering, which is seldom allowed to exceed three half-crowns, or, at the most, half a barrel of oats. This, of course, prevents improvement. Another cause also arises from their crossing with shambling blood horses, which produces an awkward race of mongrels, that are ever sure to disappoint the expectations of the breeder. The introduction of well-proportioned stallions, of a moderately compact size, would produce cattle adapted to the cars of the country, and better suited to the purpose than tall, leggy horses, or even thoroughbred waggon cattle, which are too large. Some improvement has, however, been made in the north by a cross with the Galloway breed, which is stoutly built, somewhat between the saddle and the cart kind, and seems to agree with hard work, besides being easily

maintained. He appears clumsy from the roughness of his coat, which seldom enjoys the comfort of a roof; but he is a well-formed animal, with great strength of sinew, and, when tolerably kept, is capable of enduring great fatigue.

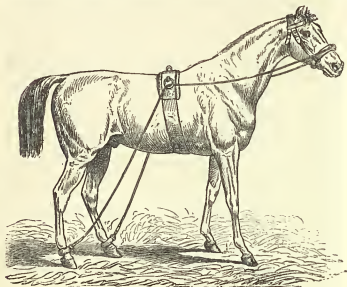
Next to early working and feeding, the bad breaking-in of horses is to be complained of. In this branch there is not any pains taken by the generality of farmers: the most usual way is, when the horse is three years old, to put him to the harrow, and, should he prove spirited, to work him down; if sulky or stubborn, to flog him unmercifully, often about the head, and gentler means are seldom tried. Thus his temper is ruined by ill-treatment, and the animal grows vicious, when with proper usage he would exert every nerve in the service of his master. Young horses should be coaxed into their work. If gentle means fail, harsher means may be tried, but should only be tried with great caution and with *temper*; for with nine horses in ten gentleness succeeds better than severity. The reader experienced in this subject will recognise in a moment how much of truth there is in this that applies equally the same to the bad practices followed by some breeders, who are not breeders by occupation or calling, but who recognise the advantage of rearing a young horse now and then.

Farmers, who occasionally rear an animal or two for the purpose of employing them upon their own farm, will find it a good plan, in order to bring them up gradually to be accustomed to be handled, to put them in the plough with a steady old horse, under the care of a painstaking ploughman, and bring them by degrees into use when two years old, or in course of the summer, but work them only a little at a time, say half a day's work, and not hurry them while they are doing it. It is by calling upon them to exert their speed before their full powers are developed that the mischief is done, not only to young but older horses; for, if the labour is slowly executed, a working horse seldom suffers by it, unless his speed is materially increased beyond the ordinary natural walking pace that is common to him.

67. CHOICE OF A STALLION.—In choosing a stallion a fine, large, powerful animal should be selected, yet one that stands comparatively short on his legs, whose entire *tout ensemble* would ordinarily deceive one at first sight in respect to his height, appearing shorter and smaller than he really is. This is a proof of compactness of form, and that the horse is symmetrically formed.

In breeding draught-horses the hock is a most important point to have as near perfect as may be, this part being very much taxed in drawing heavy loads, and, consequently, liable to strains. Any diseases of this point, whether curbs, spavins, or thoroughpins, ought to prevent the use of an animal for breeding purposes. The hocks should be broad in front, neither too straight nor too crooked, and be thoroughly well proportioned. The shaft horse of a waggon, when going round a corner, or down hill, often has a load of four or five tons to deal with, the whole weight devolving upon him alone, and in walking an immense amount of strain is put alternately upon each hock, so that the importance of having this point as perfect and free from disease as possible is very palpable.

The fore-legs should be strong and flat below the knee, and not "gummy" before or behind; cart-horses being more inclined to swellings and humours, as may be observed, than any other horses. Some consider that the less white hair there is about the legs the better the indication in this respect. The fore-arm should be strong and muscular, and should not stand too much under the body, for although, in the case of the cart-horse, not so important, perhaps,



CONTRIVANCE TO PREVENT KICKING AND BOLTING.

as with other horses, the feature recommended is extremely desirable. The shoulders should be tolerably oblique, for when this is the case the horse is likely to be a good walker. The elbow should not be placed too close to the shoulder, but there should be a sufficient space to allow of the hand being placed between them. The neck is better thick than too thin, and should be moderately arched, it being an especial fault in a cart-horse to have an ewe neck; and the angles formed by the junction of the head with the body should not be too prominent, for these horses, it will be found, have a disposition to throw up their heads suddenly, and are liable to poll-evil, striking their polls against some object or

other at times, such as a low doorway, which they may have occasion to pass under.

The back should be straight and broad, with ribs well arched, and the false ribs of proper length, so as to furnish the abdomen with capacity and roundness; the quarters full and muscular, and the tail well set on, and not drooping.

The feet in draught horses is another point of great importance, and had better be too large than too small. Many horses have a tendency to thin horn and flat feet, which are very objectionable features. Such are the salient points that should be looked for in the horse. To choose a horse rightly, it may as well be said, is an affair of great difficulty, and we would seriously advise no one to attempt it who has not had much experience of horses, and acquired a profound knowledge of all the tricks and dodges practised by too many of those who are in the habit of dealing in them.

68. THE MARE.—RECKONING THE HORSE'S AGE.—The mare should possess in the same degree the qualities we have enumerated above, and be free from vice and vicious habits. She goes eleven months in foal, the greater number of which are dropped in May, the age of all horses being reckoned from the 1st of May, with the exception of racehorses, which are computed from the 1st of January; but this is a very early date for a mare to foal; though February is common enough.

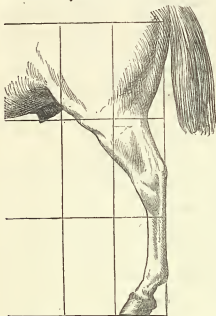
A mare is capable of breeding at three or four years old, though some people commence to breed before the form or strength of the animal is sufficiently developed; and this early breeding is adverse to her proper development, and materially interferes with her growth. If a mare has done but little more than ordinary farm-work, she may continue to breed until she is nearly twenty years of age; but mares that have been hardly worked continuously will not be found so prolific.

The mare comes into heat in the early part of spring, and although she is nominally reckoned to go with foal eleven months, there is, at times, an irregularity in this score, some instances occurring where they have foaled five weeks under this period, and others have extended the time six weeks beyond the eleven months.

It is of importance to racehorses that they go to cover as early as possible, on account of the method followed in the computation of their age, as four months makes a great deal of difference in the growth and strength of an animal that has to compete with others; yet there is a risk attendant upon this practice, some foals turning out nearly worthless on account of their being deprived of that additional nutriment which nature has designed for them. For breeds of horses other than racehorses, the beginning of May is the most convenient time for them to go to cover, as the mare would foal in April, when the

ordinary supply of food coming round is sufficient for her and her foal, without keeping them confined to the stable.

It is best to keep the mare at work from the time of her covering to that of foaling, the exercise, provided it is not of an immoderate nature, being more beneficial to her than otherwise, mares that have been worked having an easier time of it than those which have not. When just about to foal, this circumstance will be indicated



PROPER FORM OF NEAR HIND LEG.

by an adhesive matter that makes its appearance upon the teats. She should then be kept near home under the superintendence of a painstaking man who can be relied on.

When she has been in foal about half her time, the mare should be supplied with better food, and have a feed or two of corn in the course of the day. Abortion most frequently takes place about this time, good feeding and moderate exercise being the best preventatives. The act of parturition is generally easily performed by the mare; but, in cases of difficulty, it is best to have recourse to the aid

of a veterinary surgeon, and not risk the safety of perhaps a valuable animal by injudicious attempts to relieve her.

When the mare has foaled, she should be placed in a well-sheltered pasture, in which is a shed to which she may run for shelter upon occasions of necessity, and if she has foaled somewhat early, and the grass is scanty, she should be allowed a couple of feeds of corn daily—insufficient food arresting the growth of the colt—and the corn should be given in a trough on the ground, in order that the young animal may eat with its mother as well.

A month from the time of foaling the mare may be put to moderate work, the foal at first being shut up in the stable during the hours of labour; but if at slow work, where it can be conveniently allowed, the foal and the mare are better together. The work does no harm to the mother, but, on the contrary, is calculated rather to do her good, while the foal will be drawing the milk more frequently, and thus be thriving better, as well as being gradually familiarised with the sights and occupations amongst which it will have to live in the future, which will cause it to become tractable.

While doing work, however, it is imperative that the mare be well fed, two feeds of corn at least being added to the green food she obtains when turned out after the work is done at night.

.69. **WEANING THE FOAL.**—The foal may be weaned in five or six months after its birth, according to its strength and growth, when it should be either turned into some distant rickyard, or be housed for three weeks or a month, the mother being put to harder work and supplied with drier fodder. If her milk becomes troublesome, and she pines after her colt, one or two urine balls, or a physic ball, is recommended to be given.

The colt should be well fed during its growth, but at this time in particular; bruised oats and bran being perhaps the best food that can be given. The leeward side of a rick under which he may shelter himself, as occasion may arise, is generally thought sufficient shelter for any kind of horse (not a racing colt, for which a stable is prescribed), or at all events some rough shed where he can go in at night, or out of the rain.

The colt, like every other young animal, should be liberally fed during the whole time of his growth, but especially so when he is first weaned, or separated from his mother. Money is very far from being wasted that is expended upon the liberal feeding of the colt (which, however, should not be rendered delicate by excess of care), and bruised oats and bran ought to form a considerable portion of his daily provender.

It may as well be said here that, in choosing horses to breed from, it is thought the best practice to use young stallions with old mares, and young mares with old stallions; also, as soon as the foal is born, the mare should be allowed to clean it, and the secondaries removed by the attendant, and a little warm gruel should be given her, and if much exhausted by the act of parturition, a pint of strong ale should be given with it as well.

It sometimes happens that a mare will not take to her first young

foal. In order to cause her to do this, her usual attendant should soothe and quiet her as much as possible, and milk her; and when her udder has been made somewhat empty, she will then mostly allow the foal to suck, when previously she has refused this nourishment to her offspring; and till this point has been satisfactorily settled, they should not be left alone together, in case the mare does the foal an injury, which may be done immediately. After just being born, and before the coat of the foal is dry, the mane should be combed all on one side, which gives it a neat appearance, and does away with the unsightly look the little animal presents when half the mane hangs upon one side and half upon the other.

Nothing but warm gruel and a little hay should be given to the mare for the first twenty-four hours, in order to prevent heating of the system, but as soon as the proper secretion of milk is fully established, and all appears to be going on well, she should have corn, bran mashes, lucerne, sainfoin, or some green food, according to the time of year.

70. **BREAKING-IN.**—There is always an amount of trouble incurred in breaking-in young horses, a good deal of which might be saved by a little judicious *anticipatory* management, and this may be done partially, and be begun from the very commencement of the period of weaning. The foal should be handled daily, and made accustomed to the halter, partially dressed and led about, so as to accustom him to a little restraint, which he may readily be made to fall into. When kindly treated by a considerate man, the young animal will allow considerable liberties to be taken with him, which would alarm his fears when proceeding from a stranger, or when an entirely novel set of circumstances is forced upon his attention, and his liberty inconveniently restrained in an unaccustomed manner.

The success of this preliminary management will depend very much upon the man who has the care of him, who should not be rough in his gestures, but considerate and kind. Many grooms and horse-keepers appear to think that a horse or colt should not be spoken to without a hearty thwack with the open hand upon his flank, or the portion of the animal's body that is closest to the wisecre; but the tractability, good temper, and even, to a certain extent, the disposition of a horse depend a good deal upon his early trainer, whose manner should be invariably kind and gentle, though firm when firmness is required to be exercised.

The spiteful tricks that many horses acquire in the stable are often

due and might be traced to unkind and inconsiderate behaviour on the part of their early attendants; and anyone who at all aims at rearing young horses should make an invariable rule of discharging every man convicted of cruelty to the charges under his care.

When farm horses are reared, after being accustomed to the preliminary steps that have been recommended, after the second winter the work of breaking-in may be seriously begun. The young animal should be first hit, with a hit not sufficiently large to hurt his mouth, of a smaller size than those commonly used, which he should be allowed to champ and play with, so as to get accustomed to this novel piece of furniture, for a few days in succession. When he has been made sufficiently acquainted with the bit, portions of the harness should be gradually added, and after all, blind winkers. A few days after this he may be tried in a team, the best arrangement being to have one horse before and another behind him, as well as the shaft horse, so that they may all appear to be promenading without any great amount of constraint put upon them, and that the motions of the next horses to him may appear free and unconstrained, the whole drawing at first an empty waggon. While this little business is being transacted, he should be patted and encouraged, and he soon will pull with the rest, and understand what is expected of him.

If this method of procedure is contrasted with the rattling, hawling, and shouting that is occasionally resorted to when young horses are being broken, it will readily be seen that half the difficulty is already overcome. As it is desirable for the horse to be ridden, as well as draw a load, the man who has been accustomed to feed him (unless he be an unusually big man), should mount him while the harness is on him, drawing with the others. What with the equal rate of locomotion of the rest, and being hampered with the harness, it will be seldom found that he makes much resistance, but will, in most instances, submit himself quietly to the treatment that has been imposed on him; and while this is being done, he should neither be touched with the whip nor spur, and this may be regarded as his first lesson as a riding horse.

After this has been satisfactorily settled, the more difficult parts of his education should commence, and he may be taught to hack. At first nothing should be behind him: next he may be tried with a light, empty cart, and afterwards with a loaded cart; the greatest care being taken not to hurt his mouth, which if done he will not forget; and if his gums are made sore, he will manifest a decided objection upon the next occasion; this part of the business requiring a good amount of patience and tact.

After he has been made to understand what is required of him, occasional disinclination must be overcome by gentle means, and the *whip* should not be resorted to, unless the exercise of the *voice* fails. It is mostly the case that when obstinacy has been met by cruelty, it is only followed by increased obstinacy; when cruel men have been known to get almost beside themselves with rage, and punish the animal in hand so severely as utterly to spoil the temper of the horse, and defeat the object in hand. Colts are seldom naturally of a confirmedly obstinate disposition, and they are much more easily subdued by kindness than violence, and patience will be invariably found to triumph in the end; and when the animal finds that he suffers no pain or inconvenience, he may soon be made to do all that is required of him; and a cool and

patient breaker will manage the business with less than half the trouble that has been taken by a hasty, bad-tempered man.

Although the whip should necessarily be in the hands of the breaker, it ought never to be used except with extreme caution and gentleness at first; but as he will ultimately have to be accustomed to its use, and *know its meaning* when applied, the breaker walking by the side of the animal should throw his right arm over the back of the colt, at the same time holding the reins in his left, and every now and then quicken his pace to a bit of a run, and at the moment of accelerating his speed just give the colt a slight tap with the whip which he holds in the right hand.

By doing this a few times the colt will learn to associate the use of the whip with the habit of quickening action, the blows being administered a little more sharply gradually.

71. EARLY BREAKING ADVISABLE.—When breaking-in is deferred till the horse is four years old, which is often the case, the job is a much harder one than when the colt's lessons begin at two and a half years of age. The plan usually followed by the breaker is to put on a head-stall, with a cavesson affixed to it, or some other contrivance to pinch the nose, attached to long reins, when a young horse is to be broken in as a hunter, or hackney, being first made acquainted with the rein, by which he is led round and taught his paces. A good deal of importance is attached to the necessity of his acquiring every pace thoroughly, not allowing him of his own accord to leave one for another, but causing him to acquire each distinctly and thoroughly, which must be learnt in separate lessons, patiently taught by the breaker.

The first lesson after the cavesson has been put on the head-stall is to lead the colt quietly about, a careful, steady boy following behind with a whip, and, though occasionally threatening its use, never administering an actual blow, so as to keep him at his proper paces; and when he follows readily and quietly he may be taken to the ring, and made to walk round both ways, right and left, in a very small circle, the pace being taught thoroughly, and a trot never suffered to be broken into.

When he has acquired his walking pace thoroughly, it should then be quickened into a trot, and kept at it, the boy urging him on with the whip in a threatening manner, but without actually striking the colt, and he should be patted and caressed if he conducts himself well, and a few handfuls of corn given to him as an appreciation of his efforts.

When this again has been satisfactorily managed, the length of rein must be gradually increased, and the pace quickened, till he gets perfect as well as docile in the course of his lessons; cropper straps, or something similar, being attached to the clothing, which, flapping about, will cause him to get accustomed to the coat tails of the rider when he is mounted. These at first are very likely to startle him, but, after being used to them for a short time, he will come to disregard them.

Having been made familiar with the furniture and trappings of his harness, the colt should be led out into the road, to accustom him to the sight of passing objects, many of which will be new and strange to him. Even old horses who have been accustomed to the streets all their lives are often dreadfully terrified when they, at times, meet the unaccustomed objects that make up the collection of a travelling menagerie, when the elephants, camels, and other animals, not numbered in an ordinary horse's acquaintance, are made to parade the streets for the purposes of exhibition, as may be remarked from the numerous accidents which have taken place in consequence of these travelling shows.

When thus first taken out into the road, a good deal of starting, shying, and general restlessness may be expected to be exhibited, which may arise either from fear or playfulness; and when the young animal shies at an object, he should be made to re-pass it again at a greater distance off, increasing the distance if the same signs of fear are exhibited, till they become gradually overcome, when he may be brought nearer and nearer, till he will at length take no notice of it.

After he has been brought along so far in the course of his education, it is time to begin to think of putting on the saddle. This should be roomy and well stuffed, so as to avoid giving the young animal any painful pressure, care being especially taken with the withers, which if high, necessitate the saddle being suitably high at the pommel, the withers being very sensitive and soon made sore; the crupper is found a useful addition, the tail having been accustomed to its use, in preventing the saddle from pressing unduly upon them.

Mounting is better done in the stable than out of it, the colt submitting more quietly; and getting on and off should be practised a few times to accustom the colt to the process, and this should not be done hurriedly, by jumping suddenly upon his back, but very little spring should be made, the lad drawing himself up, as it were, in the saddle, caressing him at the same time, and bearing heavily with the arms on the colt's back. If this is submitted to, which will be the case with most good tempered animals, it is well to practise standing one foot in the stirrup, and turn the other leg over and assume the proper sitting position in the saddle.

The usual practice after this is done, the side reins having been buckled to the leathern surcingle, is to lead the colt along with the cavassons and webbing, and walk him about for an hour or more, and then bring him back to the stable with his rider still on his back, dismounting being done in the stable as well as mounting,

for outside at first the colt's attention is often distracted by different objects, and he gets restless or playful, and there is frequently a difficulty experienced in getting on his back. When, however, the young animal has got used to the process a little, he will cease to care about it, and take it as a matter of course. When this has become satisfactorily settled, the rider, who up to this time has not resorted to the use of the bit, may have the reins entrusted to him, the breaker still retaining the use of the long webbing attached to the cavesson, so that he may be ready to give help in case of necessity, the rider using the reins in such a manner as to instruct the colt with the knowledge of their use, as to when he is required to turn, stop, &c.

Firmness must be used when the colt shows an inclination to oppose the wishes of the breaker, and he must be made to understand that he is required to be obedient to the calls made upon him; and this in nine cases out of ten can be effected without undue severity, for firmness, associated with kindness, will always obtain the mastery over a horse much better and more effectually than any amount of ill-treatment will do.

72. FEEDING THE COLT DURING BREAKING-IN.—The question of feeding the colt during the time he is being broken in is a somewhat important one. They are decidedly better for being under-fed rather than over-fed while this process is being performed, as may be naturally imagined; but this will depend a good deal upon circumstances. Some horses fret a good deal, and are inclined to lose flesh, in which case they will require rather better feeding than worse feeding, though in exceptional cases, with animals of savage tempers, they require to be cowed, and short commons will often tend, in a certain measure, to subdue a vicious disposition, but these require longer time and more painstaking. By handling animals early, and dealing with them cautiously, and with tact and judgment, otherwise cross-grained brutes will in time come round, and be subdued, and got into proper trim; and it is by attention to these preparatory particulars that a good deal of the necessity for resorting to any rough usage during the period of breaking-in may be avoided; and varying the method of feeding, in accordance with the disposition and necessities of the horse, should not be overlooked.

A dose of physic is generally administered as soon as the breaking-in is over, and may sometimes be even necessary during its progress. A little green food, too, given with the hay has often been

ound advantageous, as well as an occasional bran mash, which frequently prevents the necessity for administering a dose of physic, which otherwise might require to be resorted to, and staves off the feverishness that often follows breaking-in, when the animal is put to regular or semi-regular work, and enjoys less liberty than before.

73. **BREAKING TO HARNESS.**—More horses are required to work in single than double harness; but, for single work, the horse should first be driven in double harness, until it is clearly shown what he is inclined to do under certain circumstances. The young animal may go all right enough for the first few times, but when he is urged on to gallop, by the whip being applied to him—which must be done to test his temper—he may possibly resent its application by turning aside, stopping altogether, or backing, or doing something or other that he ought not to do; and some horses can never be got to go in single harness at all, although they can be driven easily enough, and be as quiet as possible, in double harness; and, in order to test what the colt will do in single harness, it should be placed in a brake with stout and strong shafts, sufficiently high to prevent his kicking over them.

A safety rein should be used affixed to the lower bar of the bit, and passed through a ring by the side of the dashboard, where it will be at hand ready for use should the horse attempt to bolt, and all precautions should be taken to have him well in hand; but if he should prove very refractory, and make serious opposition, a stout shaft is recommended, with a projecting bar of iron, and an outrigger applied to the splinter-bar, by which a second bar is fixed, when a brake-horse is attached outside the shafts, and the colt is under the necessity of going on, or stopping, according to the paces of the trained horse which understands his business, and whose actions he is involuntarily obliged to imitate. By these means most horses of a somewhat unruly tendency may be finally subjected and brought into proper working order, the reins being applied as in pair-horse driving.

When double-harness work only is aimed at, as in the case of a carriage-horse, a double brake and brake-horse are generally the means of causing a young horse to become docile and tractable in a very short space of time in the hands of a careful driver; but, before this, it is necessary to break him to the saddle, in order that he may be made acquainted with the use of the bit. Amongst the rough-and-ready breakers, it is sometimes usual to put a horse into a strong, heavy cart without springs, and let him kick away to his heart's content, or put carriage-horses in a plough in the middle of a team, and allow them to tire themselves out with their different vagaries; but this is at best a slovenly plan, and has been the

means of spoiling an otherwise good horse; for high-spirited animals have brought upon themselves curbs, while bad-tempered or sluggish ones will be made to turn out jibbers.

When accustomed to the harness, if he is put into the brake in company with a steady old horse, of great power and weight, that has been put in the brake first, if he plunges and starts forwards, the progressive motion is far better adapted to his case when the brake moves forward than a slower method of progress, where a dull resistance to his efforts makes him fret, and injures his temper. When both horses are in the brake and ready for starting, a touch of the whip to the old horse sets the brake gently in motion, and in most cases the young horse will step along with his companion quietly enough, the brakesman walking by his side, and patting and encouraging him; at first not recognising the restraining measures that have been taken with his liberty. Sometimes horses will at first plunge a good deal, and vicious ones may begin to kick, but the brake should be driven gently along for about an hour, a longer period at times being apt to gall the shoulders.

If this lesson is repeated every day until the colt learns to turn and hold back when required to do so, most good-tempered animals will take very quickly to their new work, which they will follow up steadily enough till they may be considered thoroughly broken. Knee-caps should always be used to prevent blemishes and guard against accidents.

74. BREAKING FOR A HUNTER.—In breaking-in a horse that is intended to be a hunter, the necessary routine is very little different to that ordinarily given, except teaching him to jump, and this is done by buckling the reins higher, and keeping the horse at it till he learns to bend himself well, and the rider is enabled to bring him back on his haunches.

The main object sought in the education of the intended hunter is to get him to bring his hind legs well under him, and thus carrying a good share of his weight, he is safer in awkward places, and when crossing ridge-and-furrow in the hunting-field, and ordinarily across country. A fixed bar should be used for him to jump over (not a movable one, as is sometimes resorted to), and when he has progressed fairly well, he may be ridden over a few low fences, but no high jumps should be allowed to be taken without the hounds, being brought up gradually to his intended future work.

75. BREAKING-IN A LADY'S HORSE.—The chief object, beyond the other points that have been referred to, in breaking-

in a lady's horse, is to make him canter well, with the right leg foremost, the left leg being uncomfortable to the rider as she sits the horse; and the breaker must persevere until the colt habitually starts off with the right leg. He also should be taught to bend himself thoroughly, so that his hind legs are brought into harmonious action in the canter as well as the fore ones, and to do this the curb requires to be used, but with moderation and judgment, the



A LADY'S HORSE.

horse being taught his paces more by skilful handling than force, the head of the animal being gradually brought in, while the hind legs are thrust forward, and the mouth steadied without undue pressure.

It is generally usual to strap a horse-cloth on the near-side of the saddle, to accustom the horse to the loose flapping of the lady's habit.

76. **CASTRATION.**—The proper age at which a colt should be castrated depends very much upon circumstances. If intended for

heavy draught-work, or for a carriage-hors, the operation should not be performed, it is generally considered, until he is at least twelve months old, and even then the operation should be conditional upon whether his fore-quarters are fairly developed at that age, and the matter must mainly depend on the breed and form of the colt.

If merely intended for ordinary agricultural work, some recommend that the operation should be performed at five or six months, as few horses are lost when they are operated upon at that period of their lives. But if, as before stated, the horse is designed for a different application, even at twelve months, if he is thin and spare about the neck and shoulders, and low in the withers, it is recommended to allow him to remain uncut for six months longer; but on no account to defer it later, as the animal by this time often becomes very difficult to manage, and the operation is more dangerous.

Late in the spring, or early in the summer, is considered the best time for horses, dry weather being chosen, for at these seasons of the year the air is mild and temperate. Midsummer should be avoided, as the flies are apt to prove troublesome, and the colt needs to be kept as quiet as possible, taking only the moderate exercise which he will get in grazing, which will be advantageous to him rather than not. A large and well-ventilated box is used by many, and to this there is no objection.

Some farmers castrate their colts when very young, without calling in the aid of a veterinary surgeon, by the process of "twitching," as it is termed, which consists of drawing a small cord as tightly as possibly above the testicles, below the belly, which, stopping the circulation, causes the testicles and bag to fall off in a few days, this being done when the colt is perhaps only a month old; but there is no doubt of this process causing great pain and suffering, as it is occasionally necessary to tighten the cord after a couple of days or so, and inflammation sets in at times; and the colt dies eventually, which gives a sufficiently clear proof of what he has had to suffer.

The method of doing this, however, may be safely left to the veterinary surgeon, who should be always employed upon these occasions, the old method being generally considered the best, of opening the bag on either side and cutting off the testicle; searing the vessels with a hot iron, to prevent bleeding.

In the case of the sucking colt, no previous preparation to fit the animal to undergo the operation is necessary; but when a more advanced age has been reached, it is considered expedient to physic well beforehand, so as to get the bodily system of the animal in a cool condition, and after the operation has been performed, he should be well sheltered from any excessive heat, as well as wet.

77. **CROSSING.**—Before this chapter is completed on the breeding of horses, a few extra words on crossing will not be inappropriate. It is very often the case that the farmer who possesses a mare that is not entirely free from defects considers that, if he only

procures a good stallion, there is every likelihood of his obtaining a good foal from her. But it should be ever borne in mind that any peculiarity of form in constitution is equally inherited by the progeny from both parents, and that good points in the mare are quite as necessary as in the stallion. So that persons who wish to breed horses, or to have a foal occasionally, should not depend exclusively upon crossing with a good stallion for results, but have a well-bred mare to breed from. The stallions that are kept and retained to breed by are generally as good in their way as could be desired, the faults being mostly found with the mare; but the stallion, be he never so perfect, if the mare is but an indifferent animal, it is very seldom that a good foal will be cast.

Old mares that have been good in their day, but are past doing their full ordinary work, are very often considered good enough to breed from; and although her original good qualities, as those embodied in a shapely form, and good blood, will not be without their proper influence upon her offspring, the latter, to a greater or lesser degree, will inherit a portion of the lack of vigour caused by age and hard work, and a deteriorated constitution.

Although it is true in the instance of some of our animals, that perfect specimens of celebrated breeds have been produced by breeding in and in, as in the case of Leicester sheep and short-horned cattle, a principle that has been persevered in by many upon the ground that the introduction of fresh blood often has the effect of grafting certain bad qualities of the cross upon the perfected stock, yet it is generally admitted that, after a certain time, strict adherence to one breed, however excellent that one may happen to be, will in length of time produce gradual deterioration.

The fact is that crossing requires the exercise of a considerable degree of judgment and experience, needing great caution; and to guard against both evils, a special course should be adopted, and while the same breed should be selected both in the mare and the stallion, they should be taken from different stocks, and not be related to each other.

Mares are sometimes made to breed at two years old, but this is so generally considered injudicious, and interferes with the work that is expected to be got out of them during their youth, that it is not commonly allowed, for at this period her form and strength is not fully developed, and early breeding will interfere with it; but at three or four years old a mare is considered to be quite capable of breeding if required to bring a foal, and if she does little more than ordinary farm-work, in the case of farm-horses, she may continue to be bred from until she is nearly twenty years old; but, as before said, if she has been hardly worked, and her constitution has been a good deal shaken or injured, whatever she may have been in the early period of her existence, she will disappoint

the expectations of the breeder in the foal she brings in her old age.

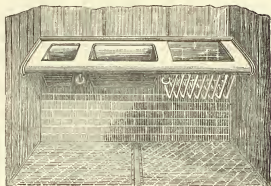
When the mare gives birth to her foal, as has been insisted upon in the foregoing, uniform gentleness and consideration should be shown to the young animal, whose affection and dependence upon the kindness of his master, or his attendant, should be thoroughly gained, and to whom, in most instances, due obedience will be rendered when the young animal is made to understand what is required of him.

Good and clever management in bringing up the young animal is the main thing, and everything should be done gradually, especially, as we just pointed out, during the period of breaking-in.

A foal intended for farm-work, after the second winter, should be taken in hand, and first bitted with a small bit that will not hurt his mouth, and should be allowed to champ and play with it for an hour or so on a few successive days. Then, when he has become used a little to the bit, portions of the harness should be put on him, finishing up at last with the blind winkers. After this has been done he may afterwards go in the team, it being considered best for one horse to go before and one behind him, besides the shaft-horse, and the waggon at first to be empty. If he is coaxed and petted, and the whole affair is not hurriedly performed, he will soon begin to draw with the rest, when the food should be gradually increased.

A certain amount of pains must necessarily be taken, but everything to be done well requires pains to be taken, and in the rearing of horses the trouble incurred will be amply repaid in the results ensured ultimately, which will be demonstrated in the kindly disposition and docility of the animal reared.





PATENT MANGER.

CHAPTER V.

THE STABLE AND ITS FURNITURE.

The Stable and its Furniture—Situation of the Stable—Plan of the Stable—Ventilation—Stalls—Loose Boxes—Mangers—Racks—Hay-lofts—Bedding—Litter—Returning to the Stable—Stable Clothing—Stable Routine and Attention to the Feet of Horses—The Heat of the Stable affecting New Comers—Cleaning—Sal ammoniac to be made in Stables.

78. **THE STABLE AND ITS FURNITURE.**—The health and condition of the horse depends to a very considerable extent upon the stable wherein he is placed, and the state in which it is kept. When the dung is allowed to remain, and there are no drains for carrying off the urine, a process of fermentation is going on which evolves injurious gases that the horse inhales, and, while some stables are too hot, others are often too cold, each of which is apt to produce separate and distinct disorders; and thus, at times, animals that have stood for hours in hot stables are at length turned out into the bleak air, with all the pores of their skins opened, and afterwards, having completed the work and journey that has been set them to perform, retire to the same vitiated and heated atmosphere after sharp exercise in the cold. Indeed, the return to a hot stable is quite as injurious to the horse as issuing from it into the keen atmosphere of a winter's morning, as in some cases it is the means of producing fever.

The implements used in the stable should always be kept ready at hand for immediate use, in one definite, appointed place; so that

either the curry-comb, the body-brush, the dandy or whalebone-brush, the mane-comb, rubber, or foot-picker, may be taken up in a moment, without search having to be made for them, as well as a *wisp* of two sorts—one made of straw for rough purposes, and another of soft hay, to be damped and used at a later stage of the horse's grooming.

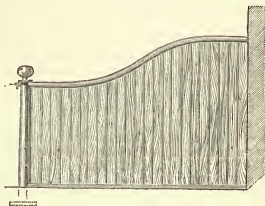
79. SITUATION OF THE STABLE.—The stable should be situated upon a well-drained site; but where, from circumstances, it is necessary to occupy a somewhat low position (for one cannot always obtain just what one would like in this respect), some substance impervious to water should be interposed between the foundations and the super-imposed walls.

The stable, with the loft over it, should not be less than twelve feet high, and each horse should be allotted a sufficient cubical space, which is generally put down at about 12,000 feet, and it is better where there is no loft over, but the stable left open to the roof, in which there should be openings for the escape of heated air, while no draughts are thus admitted. So many stables are built with lofts over them, that they must perforce be made use of as they are found to exist, and these have been so arranged with a view to handiness and convenience for feeding the horses; but the drawbacks to this sort of arrangement have been pointed out before by writers who have remarked that, in the act of filling the rack, and while the horse is eagerly gazing upward for his food, many a grass-seed has fallen into his eye, and produced considerable inflammation; while at other times, when the careless groom has left open the trap-door, a stream of cold air beats down on the head of the horse; and further, where there is foul air arising from the stable, it penetrates to the hay above, and injures both its taste and wholesomeness; so that no openings should be allowed above the racks, when these arrangements have not already been made. Care should be taken not to permit the foul air to ascend to the provender.

It is very essential that a stable should be both light and airy, for however congenial warmth may be to horses, especially to thoroughbreds which have descended from horses of Eastern origin, whose constitutions, it may naturally be supposed, have been originally adapted for existence in a warm climate by nature, it is well known, either in the case of human beings or animals, that inhaling the same air over and over again is injurious to the lungs.

When stables are kept hot, the great difference in the temperature within and without causes horses to catch cold when issuing from them into the open air; and, while a stable should be kept moderately warm, it should be well ventilated at the *top*, the foul air always ascending. It will be found a good plan, therefore, to regulate the heat of the stable by a thermometer, which should be always hung up in it, 50 to 55 degrees Fahrenheit being usually considered an appropriate temperature during winter, and 65 degrees a fitting summer heat.

There are more advantages than one arising from having a *light* stable. In the first place light is the natural enemy of dirt, which stares even slovenly stablemen in the face, until they are compelled perforce to remove it; while, where the stable is dark and obscure, to which the horse gets accustomed, when he passes out of it into the light the newly received glare gives a painful stimulus to his eyes, and his imperfect vision causes him to start, for which an ignorant groom sometimes administers the whip, with the professed object of making the animal behave himself, which needs no correction; and although horses may apparently thrive and get fat in



STALL DIVISION.

dark stables, the fatness thus caused more resembles the fattening of a hog than the healthy condition of an animal that has thriven under the cheerful influence of the sun's rays, good feeding, and being generally well cared for.

80. **PLAN OF THE STABLE.**—As before remarked, a good many people are compelled to put up with stables as they find them; but narrow stalls are very prejudicial to horses, often occasioning strains in the back; and whenever a stall is less than six feet wide no horse should ever be allowed to be turned into it. With a view of effective drainage, the floors of some stables are laid upon too great a declivity, which is often a serious objection, for they occasion a horse to have a false bearing, from too great weight being thrown on the heels, so that the back sinews are put upon the stretch, and there can be no doubt that the lameness which comes upon some

horses, from no apparent cause to the owner's knowledge, is often assignable to this reason.

This has been recognised as an objection in many good stables, and to remedy it, and allow the urine to flow freely off, a small grating is sunk in the middle of the stall to receive the urine; but this is not well adapted to mares, and a slight slope with a grating at the bottom of the stall is a preferable arrangement, which, communicating with a gutter, carries off the moisture. Where these communicate with one common cesspool, it should be often emptied and covered up, otherwise it produces a draught of cold air which is objectionable to the well-being of the horses that are in the stable. Bars or rails are objectionable in stables, though commonly made use of in some districts, as the horses can easily play with one another over them, and occasionally administer a kick or two. Where they are separated by bars only, as all do not eat alike in point of quickness, the slowest eaters get deprived of their proper share of the food which is collectively given to them.

The most usual plan upon which stables are constructed is that of the form of a parallelogram, with stalls for each horse, that are made by the erection of partitions along the whole or part of one of the side walls across or to some distance across the building; the trough, &c., being fixed on the same wall, and the horse fastened to the manger by the head.

By this arrangement the horses stand across the stable; and the windows and doors are formed either in the end walls, or in the wall behind the horses as they stand; and to afford room for the grooms to work, a sufficient space should be left to allow of a horse being led along the passage thus made, without risk of a kick from one of his fellows, which thus requires a width of 18 feet. Many stables are made too narrow, a width of 14 feet only being allowed for this purpose in many instances.

31. VENTILATION.—There are several modes of ventilating a stable when there is a loft over, the best plan being to resort to tubes carried through the loft to the roof; or, where there is not a loft, by gratings close to the ceiling; but, wherever these gratings exist, they should be so arranged as to allow of being enlarged or contracted at pleasure by shutters or coverings; so that, at whatever season of the year it may happen to be, the stable should not be more than 10 degrees warmer than the outer air, *coolness* being a great essential to the health of the horse.

A *warm* stable is held much in favour by many, especially by the great majority of grooms, in whose minds a glossy coat to his charge, or charges, is associated with a nice warm stable; and Youatt points out that nature gives to every animal a warmer covering on the approach of winter, and the horse, in common with others, acquires a thicker and a lengthened coat, in order to defend him from

the surrounding cold; so that, just as man puts on a warmer covering, by which his comfort is increased and his health is preserved anybody who knows anything about a horse, or cares for his enjoyment, will not object to a coat a little longer and a little roughened when the wintry wind blows bleak.

Youatt, in all his writing, is remarkable for the humane thoughtfulness and anxiety he displays for the dumb creatures that are often placed in the hands of cruel, or at least unthinking attendants; and he continues, on this head, to say that the horse's coat in winter time need not be so long as to be unsightly; and warm clothing, even in a cool stable, will, with plenty of honest grooming, keep the hair sufficiently smooth and glossy to satisfy the most fastidious.

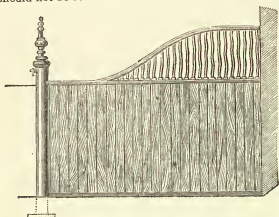
"The over-heated air of a close stable saves much of this grooming, and therefore the idle attendant unscrupulously sacrifices the health and safety of the horse. If the stable is close, the air will not only be hot, but foul. The breathing of every animal contaminates it: and when, in the course of the night, with every aperture, even the keyhole, stopped, it passes again and again through the lungs, the blood cannot undergo its proper and healthy change; digestion cannot be so perfectly performed, and all the functions of life are injured. Let the owner of the valuable horse think of his passing twenty or twenty-two out of the twenty-four hours in this debilitating atmosphere. Nature does wonders in enabling every animal to accommodate itself to the situation in which it is placed, and the horse that lives in the stable-oven suffers less from it than would be scarcely considered possible; but he does not, and cannot, possess the power and the hardihood which he would acquire under other circumstances.

"The air of the improperly close stable is still further contaminated by the urine and dung, which rapidly ferment in the heat, and give out stimulating and unwholesome vapours. When a person first enters an ill-managed stable, and especially early in the morning, he is annoyed not only by the heat of the confined air, but by a pungent smell, resembling hartshorn; and can be wonder at the inflammation of the eyes, and the chronic cough, and the inflammation of the lungs, with which the animal, who has been shut up in this vitiated atmosphere all night, is often attacked? or if glanders and farcy should occasionally break out in such stables?

"It has been ascertained, by chemical experiment, that the urine of the horse contains in it an exceedingly large quantity of hartshorn; and not only so, but that, influenced by the heat of a crowded stable, and possibly by other decompositions that are going forward at the same time, this ammoniacal vapour begins to be rapidly given out almost immediately after the urine is voided. When disease begins to appear among the inhabitants of these ill-ventilated places is it wonderful that it should rapidly spread among them, and that the plague-spot should be, as it were, placed in the door of such a stable? When distemper appears in spring or in autumn, it is in very many cases to be traced first of all to such a pest-house. It is peculiarly fatal there. The horses belonging to a small establishment, and rationally treated, have it comparatively seldom, or have it lightly; but, among the inmates of a crowded stable, it is sure to display itself, and there it is most of all fatal. The experience of every veterinary surgeon, and of every large proprietor of horses, will corroborate this statement. Agriculturists should bring to their stables the common sense which directs them in the usual concerns of life; and should begin, when their pleasures and their property are so much at stake, to assume that authority, and to enforce that

obedience, to the lack of which is to be attributed the greater part of bad stable-management and horse disease. Of nothing are we more certain than that the majority of maladies of the horse, and those of the worst and most fatal character, are directly or indirectly to be attributed to the unnatural heat of the stable, and the sudden change of the animal from a high to a low, or from a low to a high temperature."

82. **STALLS.**—For ordinary-sized horses, the stall should be 6 feet wide; but 5 feet 6 inches in width is sufficient for ponies, or horses of small size. The principal object is having the stall of a *proper* width, neither more nor less than what is wanted, and that it should not be so wide that the horse can turn himself round



STALL DIVISION.

in it, nor so narrow as to give him insufficient accommodation, and cramp him.

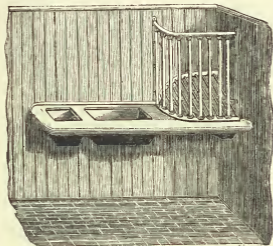
According to this calculation, the width of the stall being 6 feet, and the width of the stable 18 feet, an average height of 12 feet will give the dimensions proper to each horse.

83. **LOOSE BOXES.**—Loose boxes should be attached to every stable where any number of horses are kept, and although a loose box often adjoins the ordinary stalls in many well-arranged stables, they are better situated at a distance, when practicable, in case an animal may have a contagious disease; and sick horses are better away from the healthy ones.

A loose box is preferable to a stall in many cases, but the room they take up is against their common use. For a young horse that is only partially worked, or for a sick animal, a loose box is in-

valuable, where the inmate can lie down comfortably, and for spirited animals, which chafe under the confinement of too narrow space. Working farm horses do well enough in stalls; but hunters and riding horses are better in a loose box, which is also absolutely indispensable for an ailing animal.

The doors should be made to slide along outside, instead of being hung upon hinges, and as fresh air is often necessary, and always desirable, a rail or bar-door is very appropriate; but half-doors should be avoided.

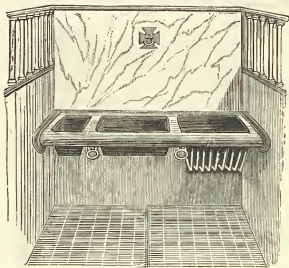


PATENT MANGER.

84. **MANGERS.**—The advantage of manger-feeding is now so well understood that it is almost unnecessary to recommend its invariable use. When chaff is given with corn and beans, the horse is compelled to chew his food, for while grinding the chaff down, the same office is performed thoroughly for the corn, which is not *bolted*, as it often is when given alone, by animals that eat their corn ravenously. Where hay is given in racks, which is looked upon as being quite the orthodox method by a great many people, a good deal of it is pulled down and trampled under foot, and there is much waste in consequence; and although many horses will pick up and eat afterwards much that they have

puffed down, the food will have become dirty, and have received a certain amount of contamination, and is not then in proper condition for the horse to eat. It is, therefore, both a more extravagant method of feeding, and not nearly so efficacious as that of manger-feeding, by which, longer time being taken in the mastication of the food, the animal is considerably benefited.

85. **RACKS.**—If racks are used, there should be no openings above them. In some stables, where a large number of horses are



PATENT MANGER.

kept standing in a row, it is no uncommon thing to see the entire board that is nearest the wall of the floor of the loft above, either removed, or made to lift up and down like a flap, which has been taken away or not, as the case may be, so as to allow the racks to be quickly filled from the loft. In badly-arranged stables, where there is deficient ventilation, the foul air passes through the hay in the racks and ascends above, and its aroma and sweetness are thus destroyed.

86. **HAY-LOFTS.**—It will thus be found more advantageous to the health of the horse, inasmuch as his food will be sweeter and more appetising, to have as little open communication as possible

between the hay-loft and the stable, the space which is often left for access to one and the other being best closed with a trap-door. Of course, a lazy man will not like the trouble of opening it, and think it somewhat hard that he is compelled to do so; but if the horse's health is to be the first consideration, these points should not be overlooked.

87. **BEDDING.**—Clean, dry straw should be always used for bedding, and the straw not be made to do duty too often. It is not enough to remove the dung with a fork and lightly shake up the wet litter that is soaked with urine, for the horse's coat cannot well avoid receiving a certain amount of contamination from a dirty bed when he lies down, the strong fumes which arise from wet litter often injuriously affecting a horse's sight, which suffers from the volatile alkali that is exuded; and where there is any inclination to defective sight, foul litter is very likely to confirm it.

88. **LITTER.**—A good deal is often said about the use of litter contrary opinions frequently prevailing as to the propriety of allowing horses to stand upon it during the day. It is considered only as a matter of course by many of the best stablemen that the litter be removed in day time; but these hard and fast lines are not always to be preserved, for circumstances will often modify the necessity for following opposite plans.

The arguments used in favour of allowing the litter to lie on the floor of the stable during the day are, that it entices the horses to lie down, which is desirable when they are in constant and severe work; and also when the stable is roughly and unevenly paved, it prevents the horses' feet from being hurt by the aforesaid unevenness.

The arguments against its use, which are generally looked upon as stronger than those in its favour, are, that the horses are apt to eat it, which often proves unwholesome. It also retains the urine, the acrid salts of which impregnate the air as they ascend, and injuriously affect the eyes.

Standing on litter constantly also causes the legs of horses to swell, which is proved to demonstration to be the fact, as the swellings subside and the legs return to their proper size immediately the litter is taken away.

Another objection to horses standing upon litter continually is, that when they are out upon the hard road they feel the difference very plainly, and are more likely in consequence to become tender-footed. The warmth and moisture, too, of the litter are very likely to occasion cracked and swelled legs. If for specific reasons it is considered necessary to allow the litter to lie on the floor of the stable all day, those who have recourse to the plan, which is considered so highly objectionable by many, should take care to have it changed as often as it becomes soiled or wet; wet litter being one of the most fruitful sources and occasions of blindness.

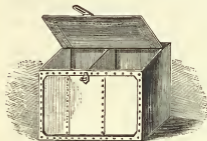
There are other very serious objections to allowing litter to remain all day, as it is apt to occasion contracted feet, the horn having a natural inclination to con-

tract inwards and towards the heat which the litter furnishes, keeping them dry as well as hot, moisture being one of the best preventatives to contraction, which the bare, moist ground would otherwise furnish. When the floor of the stable is bricked, the horses' feet are kept nice and cool by all the litter being removed, and the bricks in summer time being kept watered, which will be found an excellent plan, and from which the horses will derive great benefit.

It is well, perhaps, to use a little straw behind, as the horses are apt to kick up the bricks with their hinder feet, which strewing a little litter prevents, as well as sucks up the moisture of the urine, that is often detrimental to the hinder feet, which are more likely to suffer from thrushes than contraction.

The balance, therefore, is decidedly against allowing horses to stand all day upon litter, though in some stables, where these results are not understood, litter may be seen all day covering the floor of the stable, and the horses' feet getting hot thereby, while the stableman, anxious to attend properly to his horses, has their hoofs stuffed up with moist cow-dung to keep them cool, when if the litter was all taken away the object in view would be effected at once.

89. RETURNING TO THE STABLE.—Although it is not commonly known amongst grooms and illiterate persons who have to



CORN BIN.

do with horses, yet it is the fact that a horse coming out of a cool atmosphere and passing into the hot one of a heated stable, will take cold therefrom nearly as easily as going out of a hot stable into the cold air; the recognised principle in these matters being, that a horse should return to his stable with his skin nearly of the temperature of the

stable. But if the horse, on his return from a journey, comes home very hot, he ought not to be tied up by the bridle at the stable-door till he gets cool, which is very often done, but should be walked about till he is *cool*, but not *cold*.

The feet and legs in dirty weather may be washed and carefully picked; but unless they are rubbed quite dry afterwards, it is better not to wash them at all, in contradistinction to the plan of some others, who think they are doing an animal a considerable service by throwing sundry buckets of water over his feet and legs, and leaving them to dry of themselves; the safest plan being to rub off the loose dirt with a soft broom, and afterwards wisp them till they are dry, after which curry-comb or rub off the dust entirely. If this were always attended to, maladies would frequently be avoided that now commonly occur.

90. **STABLE CLOTHING.**—Sufficient stable clothing is a very necessary adjunct to efficient stable management, which guards the horse against chills, and can be made the means of regulating the heat supplied to the animal's frame. A loose box is always a great desideratum in connection with a stable and its furniture, for not only to a sick horse, but to one fresh from grass, a lame one, or a tired one, the loose box is invaluable.

91. **STABLE ROUTINE, AND ATTENTION TO THE FEET OF HORSES.**—Amongst the various jobs that make up the sum and substance of stable routine, there is nothing more necessary to be observed than the feet of horses, which ought to be objects of particular attention always to every careful groom. Each morning, as part of the regular stable routine, the feet should be carefully picked and examined, so that it may be seen whether the shoes are fast, and their condition; whether the clenches are not raised, so as to cut the horse, and that the heels do not press on the foot.

Whether the shoes are worn out or not, they ought to be taken off once in three weeks, when the feet grow fast, to see if the hoof requires some attention. Immediately the horse's hoof becomes too high, it begins to contract, and in hot weather, especially if the feet are of a hot and dry description, they should be stopped every night; cow-dung, or even horse-dung, being far better than clay, that is used by some persons, which gets dry comparatively soon, and the former is improved by having a small quantity of tar mixed with it.

The litter should be removed from beneath the fore feet the first thing in the morning, and if the feet of the horse should have a tendency to crack, or to be naturally dry and hard, it will be found an excellent plan to wet the stall, as mentioned before; or, better still, wrap some pieces of cloth that have been dipped in water around the hoofs, and each time the animal is exercised, the feet should be carefully picked.

When the horse has taken a long journey, it will be found a good plan to take off the shoes and turn him into a loose box, with plenty of litter under him, which will have the effect of quickly recovering the feet, that may suffer from tenderness alone, without actually being the seat of disease.

92. **THE HEAT OF THE STABLE AFFECTING NEW COMERS.**—The heat of a stable is always found to have a very material effect upon new comers, especially horses that have been turned out at grass; and it will be found the best plan to accus-

tom these, by different stages, to the confinement of the stable by putting them first into a shed, and gradually bringing them into work and the stable by degrees, as these sudden changes have a great effect upon the constitution of the horse. To these new comers the temperature of the stable will be a very vital matter, and care should be taken to regulate it in accordance with the recommendation before given as nearly as possible, which, of course, must be read conditionally, for when the heat is intense and the thermometer stands very high in the shade, it will not be in the power of the stable-keeper to reduce it beyond a certain standard, and in such cases the advisability of keeping out fresh horses from a hot stable that have been accustomed to the open air and to roam about in the open meadows, will be very apparent. Even the warmth of a stable, however, may be made conditional upon the amount of ventilation to horses that habitually are kept in it; for they will do better in one stable several degrees warmer than another that is badly ventilated, or is subject to cold draughts, which should always be prevented. Animals always thrive well enough in a warm stable that is well ventilated; but to working horses that come out of a hot atmosphere into a cold one, there is a certain amount of danger to be guarded against.

93. **CLEANING; SAL AMMONIAC TO BE MADE IN STABLES.**—Of the necessity of thoroughly cleaning out the stable it is hardly necessary to speak, for, as before mentioned, the sight of horses sometimes becomes affected from the ammonia thrown off by the urine and dung. As a proof of the powerful influence it exerts, if dishes of salt are placed in various parts of a stable that has been closed up for some hours, in which several horses are kept, the salt will fix the ammonia arising from the urine and dung, and convert the common salt into *sal ammoniac*, which in itself becomes a valuable article of commerce, and it may be preserved in this form if put into glass bottles and stoppered down.

A dish of salt, indeed, might often well be made use of to test the condition of a stable as to its ammoniacal fumes, for when the salt is fully saturated with ammonia, it will effervesce, and will thus have been converted into *sal ammoniac* as aforesaid. Nothing could illustrate more plainly than this little experiment the condition of close, ill-ventilated stables, and the nature of salt for attracting and fixing ammonia; and it may easily be seen how these floating ammoniacal fumes are calculated to injure the health of horses through more ways than one, though hot stables are advocated even in the present day by some writers, who say they prefer the former to a draughty one, where there are cold currents of air. The latter, indeed, ought equally to be guarded against, but we incidentally refer to this subject again, in pointing out the necessity for perfect and thorough cleanliness.



CHAPTER VI.

HARNESS, GROOMING, AND EXERCISE.

Harness—Saddles—Stirrups—Girths—Saddle-cloths—Horse-cloths—Head-collars—Halters—Stable Utensils, &c.—Management of the Horse—Grooming—Washing Horses' Legs—Clipping and Singeing—Exercise—The Return from Grass—Turning out to Grass—The Paddock—Physicking.

94. **HARNESS.**—Harness should always be of the best description and quality, and cheap and indifferent harness should never be used, which is apt to give way when any severe strain is put upon it, and the user has to rely upon it the most. Old, jobbish, vamped-up harness is often bought by people fond of bargains, the consequence being that a horse is sometimes let down, or a trace breaks at a critical moment, and an awkward accident is occasioned. On this account second-hand harness, when bought, should always be subject to a strict scrutiny, and be well tested before it is made use of.

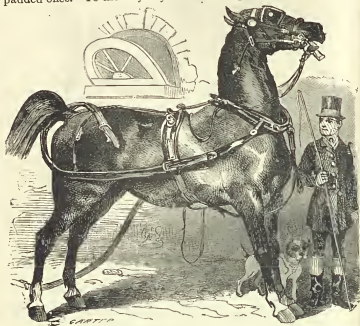
Good harness is somewhat expensive at the first set off, but if of the first quality and kept in good condition, it will last for a long time, and any part that shows signs of wearing should be carefully renewed without loss of time.

A set of single harness will cost from £12 to £16, and double harness from £25 to £35, according to the amount of ornamentation in the shape of brass or German silver that is placed upon it.

The collar is a most important part to look to, which should be always deep enough to prevent the horse's shoulders from suffering, the usual way to test a fit being to lift the horse's head up to

the height he usually carries it when going along, sufficient space being left to insert the hand comfortably between the collar and the horse.

95. **SADDLES.**—Saddles for riding horses are made of various sizes and weight, some people preferring plain flaps, and others padded ones. To the majority of riders the padded flaps are found



DANGER OF A LOW-ROOFED STABLE.

the most convenient, as the knee is kept more firmly in its place, and the leg is consequently maintained in firmer position at those times when the horse has occasion to exert himself somewhat violently, as in jumping in hunting, or when the rider has to recover a stumbling horse.

Accomplished horsemen can no doubt ride as well upon a saddle with plain flaps as padded ones, but most people find there is an advantage in using them padded and these consequently are to be recommended.

The saddle should be sufficiently long and broad to carry the rider's weight fairly distributed over it, so that an equal pressure is applied to the back of the horse; otherwise, if extra weight is thrown upon one particular part, saddle-galls will be produced, which often take a long time to cure when a horse is constantly ridden, and are often very hard to get rid of.

96. **STIRRUPS.**—As frightful accidents have taken place at various times on the occasion of falls, where the rider's foot has hung in the stirrups, these should always be of sufficient size, and not too small, so that the foot may be quickly and easily disengaged. The best saddles are made with spring bars, which release the stirrup-leather when an accident occurs, and these should be kept oiled, so as to be always in good working order, and to be depended upon. The leather of which the stirrups are made should be fine grained, of close, tough texture, as strong as may be, without being too clumsy and heavy.

97. **GIRTHS.**—There should be two girths to every saddle. The most approved kind in use in the hunting-field is the Fitzwilliam girth, one broad girth being used with two buckles at each end, which is put on first, and then a narrower one over it, with one buckle at each end, about half the width of the other. When this description of girth is not made use of, but the ordinary kind, with a buckle at each end, two girths should always be used.

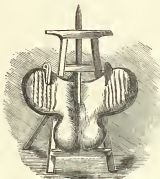
98. **SADDLE-CLOTHS.**—When a horse returns from a long journey, or has got hot in his work, whatever that may have been, whether the hunting-field or not, the saddle must have absorbed a good deal of moisture, and unless it is carefully wiped and cleansed, it soon becomes hard, and not in a proper condition to be made use of by those who value their horses, and study their comfort and well-being, for without care the saddle will remain damp, and if put on in that condition the next day, the horse will very likely take cold. In order to escape this risk, it is advisable to wear a cloth beneath the saddle, which can be easily dried, and, with a little care, it never gets hard.

99. **HORSE-CLOTHS.**—Horse-cloths are necessary to guard the animals from cold draughts of air, and are often in a great measure useful in keeping dust from their coats. Horses, however, are clothed too much in some stables, a single sheet being sufficient in summer time, one good woollen rug being all that is required for winter.

It is generally considered that neither hacks nor hunters should

have head-cloths, while breast-cloths are supposed to be positively injurious by many, as they keep that part warm in the stable which will be the most exposed when out of it, meeting the full current of the air; and the use of breast-cloths has not inaptly been compared to the effects likely to ensue from a man's wearing a muffler round his neck indoors, and taking it off when he goes out.

100. HEAD-COLLARS.—A head-collar should be supplied to every horse standing in a stable, to which are attached a couple of reins sufficiently long to pass through the two rings fixed to the manger. In order to keep them from getting twisted or entangled, a block of wood should be attached to the end, sufficiently heavy to bring it down to the ground, but not sufficiently so as to put a strain upon or confine the free motion of the head of the horse.



WOODEN SADDLE OR HARNESS
HORSE.

With an unruly horse in a stable, a head-collar is indispensable, as he can be secured without risk or trouble at any time.

101. HALTERS.—Hempen halters will be found useful to lead horses about, without having recourse to the head-collar, and no stable should be without a couple of these.

Stable Utensils:—In addition to the curry-comb, body-brush, water-brush, and mane-comb, there should be a *picker*, which is a blunt instrument that should be always ready at hand for the purpose of removing the stones and grit from the horses' feet, to which sharp pieces of flint will sometimes be found attached, as well as the loose particles that are commonly taken up.

A *sponge* is needed to dry the legs after washing, which should never be left wet. *Leathers* and *rubbers* are required to rub the horse down after he returns from his work, and wipe him after dressing.

A *singeing-lamp* and *pair of scissors* are necessary to remove the long hairs, which often give the horse an untidy appearance.

A *wooden box* should be provided to hold the stopping of cow-dung mixed with tar for the horses' feet, and there should be a *tin can* to hold oil, and an *oil-brush* to oil the horses' hoofs before leaving the stable to go to work.

A *pitch-fork* is wanted to make up the horses' bed, which requires to be equally spread over the floor of the stable, and for the purpose of removing soiled or dirty litter, while a *shovel* is necessary for taking up the more solid and smaller particles that need removal. These must be supplemented by a good brick broom or two, to sweep up, and make all clean and straight, while a *manure-basket* must needs be provided for the removal of the droppings, which should be taken away as soon as possible, and before they get trodden about, which not

only causes the stable to be much dirtier, but makes it a more difficult matter to clean it,

A *stable pail* is required for water, which should never be used for any other purpose; and a *sieve* is wanted for the purpose of cleaning the provender, and separating any small stones, dirt, or other objectionable matter from it; while a *quartern* and a *half-quartern* measure should always be at hand with which to measure out each horse's allowance of food.

102. **MANAGEMENT OF THE HORSE.**—Punctuality in all the daily operations appertaining to the stable should be strictly observed; not only should the horse be watered and fed at regular times, but his entire management should be conducted upon a system of thorough routine.

Stable operations ought to begin at the latest at six o'clock a.m., and in fine open weather the door, upon the first entrance of the groom or stable-keeper, should be left open to admit fresh air; and each animal should receive an inspection in turn, to see if they are all right, particularly those which may have been tied up. Sometimes little accidents may have happened during the course of the night—a shoe cast, or the first signs of indisposition may be exhibited by an animal—and these should all be carefully noted, in order that necessary remedies may be applied without loss of time.

The horses should first be watered and fed, and while they are consuming their food their litter should be turned up, and the stalls swept and cleansed out thoroughly.

103. **GROOMING.**—Good grooming to the stable horse is highly necessary and essential, the use of the brush and curry-comb opening the pores of the skin, and promoting circulation of the blood, without which the horse cannot be preserved in health, and good grooming will take the place of exercise in promoting free perspiration through the small vessels of the skin.

Heat will have the same effect, and thus idle grooms like a hot stable, because it is the means of saving them a good deal of trouble; but it will be at the expense finally of the constitution of the horse. Too much grooming is not, however, required for the farm horse that is kept constantly at work, which requires mainly to have all the dirt well brushed off, too much grooming in his case being likely to render his skin more sensitive to the weather. The dandruff which accumulates at the roots of the hair of horses which are turned out altogether acts as a protective to the cold winds, and grooming to these would be positively prejudicial, and they thrive best when let alone under such conditions. Not so, however,

the stabled horse, which lives in an artificial state; and grooming, when it can be avoided, should never be done in the stable, but in an adjoining shed. When a horse is dressed in the stable, the dust gets amongst the hay and corn, falls upon the other horses, and soils the appointments of the stable.

The curry-comb should not be too sharp, nor too freely used to the skin, being best principally made use of in cleansing the brush, for some horses are made vicious by too free use of the curry-comb when too hardly applied, which they dislike exceedingly.

When the coat is thin in autumn, it is best to dispense with the curry-comb altogether, and all unnecessary tickling should be avoided. Many stupid fellows tickle a horse till he becomes restless and impatient, and then chastise him for not standing still.

Even the brushes need not be so hard as they are sometimes found, a soft brush with more pressure being just as efficacious as a hard one with less. The legs should be rubbed by the man with a wisp of straw in both hands, the friction being of especial benefit to a tired horse, causing any enlargement of the muscles to subside, and removing stiffness caused by extra exertion, the legs soon attaining their natural condition, and causing the horse to be speedily refreshed, after which he enjoys his food and rest.

104. **WASHING HORSES' LEGS.**—It is a good thing to wash the legs of horses when they are dirty, but not to drench unmercifully with cold water a horse that has just returned from the work he has been performing tired and hungry, and allow a considerable time to be expended over the operation. It is quite right to remove an accumulation of mud and dirt from a horse's legs and heels, but this should be done as quickly as possible, warm water being used for the purpose in winter, and cold water in summer, the washing being best performed with a brush and a small quantity of soap.

The water should be pressed out with coarse towels made of "hessian" or packing-cloth, that should be kept for the purpose; and instead of rubbing the legs dry by manual labour, the quickest method of drying them is to put on a loose bandage as high as the legs have been wetted, which should not be above the knees unless actually required. The natural heat of the horse's body soon causes the legs to become dry, so that in most cases the groom will be able to remove the bandages and rub down the legs before leaving for the night; and this method will be found to prevent the recurrence of grease or cracked heels, which sometimes result from the legs of horses being exposed to dry in the air after being thoroughly saturated with water.

Bandages are usually made about 4 yards long and 4 or 5 inches in width, the corners being turned down and stitched at one end,

upon which are fixed tapes for tying. For cart horses, with thick legs, the bandages should be a yard longer, and wider in width, 6 inches being more appropriate than the width named. If a horse returns very dirty, as well as being hot and tired, the best plan is to wash him all over with tepid water, scraping him dry as soon as possible, and then clothing him up, flannel bandages for his legs being better than canvas. In warm weather this may be done outside in the open air, and a light suit of clothes put on, for which fresh ones should be substituted when he is dry; but, in cold weather, the horse needs to be washed in the stable, and warm clothes put on him till he is dry, which must then be changed.

Washing the legs of horses is a very necessary operation, which, if neglected, allows the sand and dirt to get fixed in the wrinkles of the skin about the joints, which sometimes becomes raw, and sores ensue, which are often very difficult to cure.

105. **CLIPPING AND SINGEING.**—About the end of September is generally considered the best time for singeing, and the middle or towards the end of October for clipping; but much depends on the condition of the horse's coat when these operations should be performed, some animals shedding their coats much earlier than others.

It requires a practical hand to clip a horse well, which is done with a scissors and comb, and is a much harder task to perform than singeing, when only the thin hairs have to be taken off in winter, which is done either with a naphtha lamp, or one charged with spirits of wine, or by gas. A good deal of difference of opinion exists as to the relative advantages of these systems, singeing upon the whole being considered the best, perhaps, when horses are not afraid of the flame, which many are, on account of its greater expedition, in the minor jobs; but there is a clipping-machine which has been used of late years that does the work very well and expeditiously, and is preferred by many.

Accidents sometimes happen in singeing, the skin being not unfrequently



SADDLE BRACKET.

burned, and sometimes the mane and tail are disfigured; and where a coat has been left too long, or is of a coarse nature, the horse should be clipped first, and then afterwards lightly singed.

Singeing should be repeated every ten days or a fortnight till the coat has done growing, which will thus be kept short, and present its natural colour. When clipping and singeing are performed the condition of a horse is vastly improved, and he is much more vigorous and healthy than one that is allowed to keep on his natural winter coat, which often gets wet and dirty, the animal at the same time being dull and lifeless.

The operation has been objected to as an artificial one, but then stabled horses live in an artificial condition, and there is no doubt of its great efficacy and value. Coughs and colds are much more common amongst unclipped horses than clipped ones, and a dry, short coat for the horse that stands in a stable covered with a rug, will be found to be much better, and more conducive to health, than a long, uncut one. Horses that have been dull, lifeless, and ailing, have been brought round into vigorous condition in many instances, immediately after clipping, and have done their work with an apparently much smaller amount of exertion than before.

The horse should have a gentle sweat, be well washed and rubbed dry after singeing, and then be clothed up, and the next day he will be found ready for his usual work, which he will do in a brisker manner than before the operation was performed.

106. **EXERCISE.**—Regular exercise is very essential for keeping horses in health, as it enlarges the muscles, and removes from them the fat which gets into their interstices when well fed, and very much confined to a stable. A stable-fed animal needs to have a couple of hours' exercise daily, if he is to be kept free from disease and in perfect health and working condition, exercise promoting vigour and strength, when, if he is kept idle in the stable for two or three days out of the week, his health will inevitably suffer.

Young horses require more exercise than old ones, and the amount of exercise given should be proportioned to the age of the horse. Its method also should be consistent; they should first be walked for some little distance, then gently trotted, and in the case of hunters and racers, may be moderately galloped; but this should take place about the middle of the period of exercise, for the horse ought always to be brought in cool to the stable on his return. Sometimes grooms, when exercising, gallop their horses one against the other, and in this way the animal gets perhaps more severe exercise in one hour's probation with the groom than he does in a week's work with the owner, and it has been recommended to always make servants ride to exercise on a slavering bit made very thick, and not allow them to use a very thin snaffle.

Careless grooms very often heat their horses very much during the period allotted to exercise, a horse being afterwards washed on his return with cold water, that is allowed to dry at leisure, so that

the combined heat and moisture encourage a determination of blood to the legs, occasioning swelling, and often grease.

107. **THE RETURN FROM GRASS.**—When a horse has been turned out to grass and returns home, he should not have dry hay and corn placed before him without limitation, when the object is to get him into proper condition; but the corn should be given rather sparingly, and even the hay in moderation, it being the best plan to moisten the latter by sprinkling with water, and give only a small quantity of corn mixed with bran and mashed. Good sound hay and carrots, sliced, without any corn at all, make capital food for a horse returning from grass, for the first fortnight. Bran mashes, also given alone, to produce a gentle relaxation of the bowels, promote condition, and prevent the coat from setting, and the skin from becoming hidebound. The hasty change from green food to dry prevents the horse from getting into proper condition, and sometimes brings on disorders, such as chronic cough, surfeit, &c. After ten days or so, a mild dose of physic should be given, strong purging medicines being unnecessary if the bowels have been kept open.

No horse should, however, be brought up at once from grass and be put into a hot stable, but should be first placed in a loose box, barn, or other cool place, and for the first three or four days some green meat should be given to him, if it is procurable.

108. **TURNING OUT TO GRASS.**—Many owners of horses who have turned their horses out to grass, to have the benefit of a summer's run thereon, have been highly dissatisfied with their appearance when they have returned in August, looking thin and poor, and thoroughly out of condition. This result is occasioned by a too protracted run. With hunters especially, there are few horses that have not suffered somewhat during the hunting season with their legs and feet, and to them there is nothing so refreshing as to have their shoes taken off and be turned out to grass early in May, when the ground is cool, and the springing grass, laden with cool moisture, is very efficacious in removing sprains or any enlargement; taking enough exercise; and when it suits them, in getting their food in the natural manner.

A horse requires no physicking at that time, as the grass acts as a gentle aperient, which carries off various little humours, the result of dry food and partial confinement, and the breathing of an artificial atmosphere; and the good that is done to him is shown in the legs when they have been swollen, or enlarged, soon assuming their proper proportions, their roundness being fined down and all the

muscles and tendons being established in perfect vigorous condition.

Nothing is calculated to do so much good to a horse as turning him out in the spring, but the condition of matters alters very much as the summer advances. The grass gets dry, and loses its succulent and aperient quality, while the ground, instead of being soft and moist, is, perhaps, baked hard, and made hot by a summer sun, beneath whose rays a host of flies of various kinds torment the poor horse all day long, which stamps with his feet, and runs about to rid himself of the pests which plague him; stamping his feet upon the hard ground, while his legs, which have been previously recovered and got in sound condition, are very likely made as bad as ever. Such is often the result with a horse left out at grass during the entire summer, so that by the end of it he comes back to the stables quite out of condition.

To avoid these results, let him enjoy to the full the months of May and June, but when the ground becomes hard, and the flies make their appearance upon the scene, he is then best taken away. By that time he will have derived the benefits to be had from the change, without being exposed to the disadvantages that afterwards ensue from a too long run at grass.

109. **THE PADDOCK.**—A paddock is almost a necessary adjunct where there are many horses, and especially for colts when the breaking is performed at home; and a small paddock, at all events, may be more easily obtained than fields to be placed at the service of horses. Contraction of the feet very often occurs to young horses at training, and this will be in a great measure avoided by the use of a nice shady paddock with good turf. If the colt is turned out into this for an hour or two each morning, and the same time each evening, the middle of the day being devoted to his breaking-in education, he will gradually be preparing himself for the alteration in his diet which will ultimately have to take place; eating his hay in the night, and picking up a little grass during the time he is in the paddock, the little change making him relish his corn when he gets it.

For an over-worked or tired horse, or one that is a little ailing, if his disorder is of such a nature as may be benefited by turning out, a paddock is often found to be invaluable. The gentle exercise that is taken by the horse in the natural manner does him a great deal of good, and the change from the stable may be made highly beneficial to him.

110. **PHYSICKING.**—Physicking horses is looked upon as a regular thing by many, and as quite a matter of course when the horse returns from grass; but, as described under that heading, bran mashes, and other food different to dry corn and hay, should be given, to prepare the system of the animal for the change of diet that he will experience, but the method of administering physic is generally far too summary.

A bran mash or two on the day previous to that on which the physic is given is not enough. The horse should be gradually prepared, and be got in a proper condition to receive medicine, and bran mashes should be given first until the dung becomes soft, when the action of the physic will be more efficacious eventually, and a less quantity required.

Aloes, perhaps, is the safest medicine to give, though some people prefer to use croton made up into a ball with linseed-meal. From five to seven drachms of aloes is a sufficient dose for a horse when this has been done; nine, ten, or even twelve drachms, which are sometimes given, being far too much.

The horse should have a little gentle exercise upon the day when he takes his physic, but as soon as it begins to operate he should not be moved out of his stall till it has ceased to act, or as it is technically called, has become "set," three days rest being required by every horse that has taken a dose of physic, to enable it to overcome the languor caused to the system by its operation.

An interval of a week should elapse before another dose is given, and as much mash as the animal cares to eat, while a little hay may be put in the rack, and the water that is given him to drink should have the chill taken off it. If, however, he will not drink tepid water, it is better to let him have cold than go without; but he should not be suffered to take more than a quart at a time, and not be allowed to drink at less intervals than an hour each time, if he is inclined to do so oftener. Barbadoes aloes are the best to give to a horse.

By pursuing this, so to speak, preparatory method of dealing with a horse before physic is given to him, the weakness and languor that often hang about a physicked horse, sometimes for weeks together, will in most cases be avoided.

Linseed oil is sometimes given as a purgative, and is a good one to use when it is efficacious, but it is often uncertain in its action, and cannot in every case be relied on to perform its expected office, and much the same may be said of olive oil. Epsom salts, which are useful enough in the case of a bullock, is not an appropriate medicine for a horse, who will require at least a pound to a pound and a half, and it is not always a safe medicine to use, while castor oil cannot be always relied on in its effects, and is considered by many an unsafe medicine to give to a horse, though reckoned amongst the most harmless in human cases, being invariably given to young children, on account of its innocuous qualities.



CHAPTER VII.

FOOD FOR HORSES.

The Watering of Horses—Feeding—Chaff—Oats—Beans—Peas—Barley—Wheat—Bran—Oatmeal—Linseed—Linseed-cake—Hay—Maize, or Indian Corn—Locust Beans—Carrots—Potatoes—Swede Turnips—Furze—Tares, or Vetches—Rye-grass—Lucerne and Sainfoin—Clover—Grass—Leading Principles of Feeding—Salt.

III. THE WATERING OF HORSES.—The watering of horses is often done in a very slovenly and careless manner, that calls for especial notice. All horses prefer soft water to hard, and it is infinitely more wholesome; this is made evident by the relish they show for a muddy, chalky pond very often. While it cannot be considered a good plan to endeavour to make horses drink warm water upon every occasion, it is yet worse to give them water fresh from a pump or well, which is very commonly done, and is more hurtful in summer than in winter time, as the water is comparatively colder than in winter, and is more likely to do a horse harm when heated by exercise. It is the safer plan to give horses that drink quickly and immoderately their water in the stable, the quantity being regulated by the amount of exercise and other circumstances, more being needful in summer when the exercise has been somewhat severe.

A large horse will ordinarily require rather more than half a pailful three times a day, and at night time a full pail should be given. Broken wind is often caused by galloping horses after they have been drinking; nor should horses be allowed much water before eating, though on a journey, when a horse is very thirsty, about a couple of quarts may be given to him, and then be fed, and the remainder of the allotted quantity of water given afterwards. Keeping the horse as much as possible from water, from the supposition that his wind and vigour is improved thereby, is a mistake, regularity of watering being of the utmost importance; and to spare the horse the sufferings of thirst, especially in summer-time, water

should always be supplied at least three times a day. Farm horses may be seen going to the pond and drinking without restriction, but observation has shown that, where this liberty exists, and no injurious effects are found to arise from it, they do not drink so much in the course of a day as those animals which are debarred access to water, and who drink greedily when hot and tired, and whenever the water is presented to them. They will then plunge their heads in the pail, and perhaps will not stop till they have drunk the whole up, unless they are prevented by its being forcibly taken away from them. On this account it is best to have the stable fitted with a small water-tank, from which the horse may drink as often as he feels inclined, soft water always being given in preference to hard, which often produces indigestion, and consequently a staring coat.

112. **FEEDING.**—The custom of chaffing the hay given to horses mixed with their corn is now universally looked upon as being the best mode of feeding, for when hay is supplied in racks, which it may be expedient to do upon certain occasions, when a little sweet, fresh hay is found useful to tempt the horse's appetite at times, yet upon ordinary occasions a good deal of the hay supplied in this way is habitually wasted, by the animal pulling down upon the ground a good portion, which is trampled under foot and spoiled, in his search for the sweetest locks, which he likes to eat first, and although he may afterwards pick up a good deal of that which has been cast down upon the ground, a considerable portion of it must necessarily become spoiled and wasted.

A quantity, more or less, of chaffed hay or straw should always be given with corn, which causes the horse to grind it all up together, mastication and digestion both being assisted by the use of chaff. Enlightened farmers are now using a great deal of straw chaff, which forms an excellent and economical food, but more especially suited for the consumption of oxen, whose stomachs are much more capacious than those of horses, and which want filling with bulky food.

Proper feeding may be justly regarded as the most essential part in the care of horses, for though Nature has furnished the horse with but a small stomach, while an ox has four, the intestines of the former are capacious, which points to the conclusion that horses should be fed frequently, but only in small quantities at a time. The bulkier straw-chaff, which, to obtain the elements of support must be eaten in greater quantities, is therefore not so good as hay to give to working horses, but on economical grounds, and for mixing with concentrated food, it may often be advantageously employed. The horse being an animal intended for speed, he would be incapable of making those severe exertions which he is occasionally called upon to perform, the distended stomach pressing against the diaphragm, or muscle of respiration, and thus it may easily be seen how improper it must be to give a running horse a pail of water, or load his stomach too heavily.

Straw-chaff may, however, be often given with great advantage to farm horses when fed upon roots, which should always be pulped. The cheapest food that can be given to horses, while being at the same time useful to the animals' bodily economy, is, perhaps, pulped mangold with chaff. A small quantity of

richer food in addition must be given when horses do a good amount of work, and the pulped roots should be mixed with the chaff a day or two before they are used. Fermentation then takes place, and the food is sweeter, and more palatable to all animals, and there are many economical contrivances of this kind that can be resorted to, which will materially lessen the cost of the keep of a number of animals that have been usually fed upon hay and corn only, and an occasional feed of green food.

Good sound hay will always be esteemed amongst the best possible food for horses, and although roots may often be given with advantage, and notably carrots, it must be borne in mind that the nutriment contained in $4\frac{1}{2}$ cwt. of carrots is only equal to 1 cwt. of hay.

In North Britain the custom of giving steamed roots to farm horses is very much approved of under certain conditions, especially in the case of old horses whose powers of mastication have become impaired. Steamed Swedish turnips and potatoes are then used, mixed with oat straw-chaff, and even wheat-chaff, the practice being to give this description of food from the middle of October till the end of May. Four ounces of common salt are given with each feed of steamed food, about a quarter of a bushel of wheat-chaff being used.

Boiled is considered preferable to steamed food, the experience of persons in Scotland who have kept large numbers of horses upon steamed and boiled food respectively, showing that fewer casualties take place amongst their animals when the latter is mainly used than with the former. Where a number of horses are kept upon a farm, the annual expenditure on their account amounts to a large sum, and it is of great importance to reduce this item whenever it is practicable.

113. **CHAFF.**—The proper proportion of hay and straw to be used in the composition of chaff for horses is generally considered to be two trusses of clover or meadow hay to one of straw, either wheat or oat straw; 8 lbs. of oats, and 2 of beans, are considered also to be the proper quantity to add to 20 lbs. of chaff. Large horses, such as are usually employed in waggons, may perhaps require 40 lbs. of this mixed food per diem, but for the ordinary farm or carthorse, about 36 lbs. is considered sufficient. By giving chaff and corn together, the horse is obliged to grind his food, and properly masticate it before swallowing; horses which eat greedily often swallowing their corn entire, which may be seen in the dung, and which consequently does not do them the good it ought to do.

Of course these proportions are to be varied according to circumstances, some persons considering the proper quantities to be one part oats, one part hay, and two straw, but this method of feeding is not considered good enough for hunters, or horses that are expected to put out, upon occasion, their full speed. For these a liberal supply of old oats, and a moderate allowance of hay is considered essential, oats ranking highest as food, though any kind of grain will nourish horses.

114. **OATS.**—The varieties of oats that are brought into the English market are now very numerous, the Potatoe and White

Scotch oat ranking about the highest, which will weigh from 40 to 46 lbs. per bushel, and are rich in nutritive matter. The common English black oats, and White Tartary oats, which are used in large quantities for feeding horses, seldom weigh more than 36 lbs. to the bushel, and are consequently very inferior to the others.

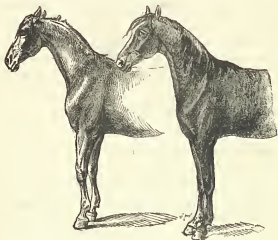
It is generally considered the best plan to bruise the oats that are given to horses, though a strong horse in his prime will be able to masticate his food readily enough, and on this account some writers oppose the system of giving oats bruised; but in the case of old horses which are not in the full possession of their masticating powers, and in the case of greedy horses that bolt their food, the giving of bruised oats is certainly preferable. When bruised and used with chaff, and the whole slightly wetted, the horse cannot very well separate the oats from the chaff, which some knowing ones will do, and the whole must be consequently eaten together. In the case of old horses which cannot digest grain easily, and often pass it whole, the operation of bruising certainly prepares it for more easy and complete digestion. Old oats dissolve more readily in the stomach than new ones, which are more difficult to digest.

115. **BEANS.**—Beans are injurious to horses when given alone, and should never be used at all by animals that are not working. They may, however, be given to great advantage when mixed with oats and other grain, and should always be crushed. Beans are heating and astringent in their nature, and may thus often be given with advantage to animals liable to purge, though too stimulating and binding by themselves. An occasional feed of beans mixed with his other food will often be found very serviceable, and improve the stamina and spirit of the working horse.

116. **PEAS.**—Peas are not so heating as beans, and are in a slight degree more nourishing, while they are at the same time easier of digestion. White, or Canadian peas are considered the best kind for the use of horses by some. Peas also are better crushed, as on account of their round shape they are apt to be swallowed whole at times, and escape the grinding to which it is necessary they should be subjected. It is not considered advisable, however, to give peas to horses that are required to maintain their full speed, answering better with horses of slow draught. Some horses will eat peas very greedily whenever they get the chance, the result being painfully distended stomachs, which have sometimes actually burst when they have become fully gorged with them.

which is to be as much guarded against as the meagrim, or staggers, caused by beans.

117. BARLEY.—Barley may often be given advantageously to horses when mixed with other food, being largely used on the Continent as horse-feed. Barley has sometimes been given to horses just recovering from sickness, and has been found to recruit their strength and tempt the appetite. It is best given in the form of mashes, hot water being poured upon the grain, and the vessel kept covered over with a cloth for half an hour or so. In this form it is easily



RIGHT AND WRONG POSITIONS OF A HORSE'S FORE-LEGS.

digestible, and promotes the kindly assimilation of other food, in conjunction with which it may be used.

118. WHEAT.—Wheat is occasionally given to horses, but it is not a safe grain to resort to, being somewhat difficult of digestion, and apt to cake in the stomach, so that it requires to be bruised and always given with chaff, when resorted to by farmers, who sometimes having unmarketable wheat on their hands, get rid of it by feeding their horses with it.

A horse should not be allowed to drink water immediately after eating wheat, and at first it should be given in small quantities, if the necessity should arise that the horses need to be fed upon wheat, which they will thrive upon after having become accustomed to it, and it is used with discretion.

119. **BRAN.**—Bran, as a laxative, is often given to the inmates of the stable, and in the form of mashes is very commonly used. They are not, however, nutritive, and to animals suffering from weakening complaints they are apt to prolong a state of langour, if administered too freely. It corrects any tendency to constipation, and where horses work hard, and are liberally fed upon corn, it may often be used with advantage in the form of a mash once a week. It contains about the same proportion of nutritive qualities as barley, but is indigestible as a food given by itself, although useful in correcting a tendency towards constipation.

120. **OATMEAL.**—Oatmeal is not so much used in the stable as it deserves to be, being very valuable in the form of gruel for sick horses. They cannot always be made to take oatmeal at first, but if thin gruel is put into a pail, and water denied to them, they will soon begin to drink it, and get even to relish it. About a pint of oatmeal stirred up in a pail of water, from which the chill has been taken off, is a capital drink for a tired horse that has done his work and is ready to take his rest in the stable. Oatmeal and water is useful as an injection, and is often administered with advantage in cases of poisoning or violent purging.

121. **LINSEED.**—Linseed has lately been a good deal employed in feeding farm horses, boiled with roots, the best method of doing this being to keep it in a bag by itself, so as not to let it get mixed up with the other food in the copper or vessel in which the bulky food is prepared. Although very nourishing, it is of a laxative nature, but possesses assimilating properties which cause it to be very useful. The skins of horses that are fed upon linseed are generally very fresh and bright-looking, and this fact has been taken advantage of by horse-dealers and others, who desire to improve the appearance and general condition of animals that have returned from grass out of condition, with rough coats and lean bodies. Too free a use of linseed, or of the oil itself, which is sometimes given, is, however, injurious, and must be avoided.

122. **LINSEED-CAKE.**—Although linseed-cake is occasionally given to horses, yet it is better adapted as food for cattle and sheep, many horses refusing it altogether, and its use cannot be recommended, though it is said to hasten the growth and development of young horses. Like the linseed, the advantages that arise from its use are only to be found in its assimilating properties when consumed with other food.

123. **HAY.**—Good sound hay is a very important article of food to

the horse, but its qualities vary considerably. If allowed to stand too long before cutting, when it has shed the greater portion of its seeds, the value is considerably less than when it is got full of herb and flower. Mouldy and inferior hay, though it can be doctored and made good enough for cows, should never be given to horses, colic and irritable coughs being often produced by the use of mouldy hay. Good upland hay contains twice the nutritive qualities possessed by the inferior sorts, that have been harvested too late in the season.

124. **MAIZE, OR INDIAN CORN.**—Maize has been used to a considerable extent in some large stables with the view of economy, but it has not been found to answer, its effect upon many horses being irritating, producing derangement of the stomach. While there are so many other economical articles of food to turn to, it will not be found worth while to resort to the use of maize for horses, however useful the grain may have been found in the case of the other animals of the farmyard.

125. **LOCUST BEANS.**—For the same reason as the above, locust beans are a doubtful article of food to have recourse to, not being very digestible, and when given whole being apt to accumulate in the intestines; on this account they should always be split, otherwise severe diarrhœa is occasionally produced, which is very difficult to stop at times, the kind of shell in which the bean is enclosed resisting the digestive fluids of the animal's system.

126. **CARROTS.**—Carrots are liked very much as a change of food for horses, most of which are very fond of them when sliced and given mixed with chaff, which is the best way of using them. A change of food is found to be very beneficial to most horses, while others again are not found to benefit from it, any change causing them to scour. But in the spring, when horses cannot be turned out to grass, carrots are often found a capital food for them, particularly for thick-winded horses. Carrots, hay-chaff, and a small quantity of bean-meal mixed with it, forms an excellent food for ordinary horses that are ridden or driven at full speed.

127. **POTATOES.**—Potatoes have frequently been given to farm horses raw, sliced with the chaff, but they form much better food when given boiled, some horses eating them with great relish. When cooked a proportion of one of potatoes to three parts of other food is about a proper quantity to give, and as potatoes contain much water, when horses are fed upon them to any extent, it will be found prudent to curtail the supply of water somewhat.

128. **SWEDE TURNIPS.**—In Scotland Swedish turnips are largely employed for feeding horses, though they are comparatively little known or used as an article of diet for the horse in the Southern counties of England. They are not only easy of digestion in themselves, but they cause straw-chaff to be relished by farm horses, and these should be used without hay.

129. **FURZE.**—Where furze abounds, and is to be had for the trouble of getting, it has been very advantageously used by some people during the winter months, the furze being cut down when at about three or four years' growth, and bruised in a mill and given to horses cut up with chaff, or even separately, some horses being very fond of it, and eating it with evident relish.

130. **TARES, OR VETCHES.**—As spring or summer food, tares or vetches, which are much the same thing, are often found useful, as they sometimes act in the same way as a dose of medicine, and are themselves expressly nutritive. When lumps appear on the skin, and the legs swell, and the heels show symptoms of cracking, and the horse begins to rub himself—signs of a hot and feverish condition of the body—fresh vetches cut up with the chaff, or given by themselves, will in most cases bring about an immediate alteration and condition of relief.

As some horses eat green food of this nature very voraciously, they should not be allowed too great a quantity. Some writers attribute violent colic, sore throats, coughs and colds, influenza, laminitis, and swelled legs to the use of clover and vetches in a green condition, but in moderation there is no danger of this train of ills occurring, though, as stated before, in some few cases a change of food is positively injurious to horses, but not in the majority of instances; the fact being that a change is as welcome to all animals as it is to human beings.

131. **RYE-GRASS**, which is commonly given to working cart horses in early spring, is more apt to scour than tares, is not so nutritive in quality, and is more likely to prove injurious when given late in the spring.

132. **LUCERNE AND SAINFOIN.**—These are very similar in their nature, and when well got make a capital hay, but are chiefly used in their green state, the latter being considered preferable to the farmer. They are easily digested, and the horses thrive that are fed upon them, and put on fat and muscle. They are very efficacious when horses have become hide-bound, for which they are a capital remedy.

In France Saintoin, or Holy Hay, has always been very highly esteemed.

133. CLOVER.—Clover in its green state is usually considered inferior to the artificial grasses that have been previously mentioned for soiling horses, though clover-hay is often preferred for chaff to meadow-hay, and it will sometimes tempt a sick horse to eat, that has, up to a certain period, neglected his food.

134. GRASS.—Of grass, the natural food of horses, as it may be termed, there are many varieties, some much better suited than others for feeding purposes, and becoming ready for the scythe at different times of the year, but unfortunately a good deal of carelessness exists on this head on the part of farmers, who do not pay nearly the amount of attention to the subject which it deserves; and hence grasses are found growing in the same meadow, some ready to cut in the middle of June, while others are not fit for the scythe until the end of July. By the purchase of a few pounds of seed of the right description suited for the meadow, the value of the herbage might often be considerably increased, and the quality of the hay be of a more uniform character.

135. LEADING PRINCIPLES OF FEEDING.—There are a few leading principles that should always be borne in mind in connection with the feeding of horses, relative to the quality of food, and the manner of administering it.

Old hay is more nutritive and wholesome than new hay, on account of its having undergone that slow process of fermentation which sweetens it, and develops its saccharine qualities.

The regular periods of feeding horses should be divided as equally as possible, and upon long journeys, where there may be a difficulty in baiting a horse, a nose-bag should always be taken. By giving the food at regular intervals, the danger is avoided of an animal eating voraciously, which he will sometimes do when kept beyond his usual time without food, which sometimes will bring on stomach-staggers, which is caused by over-feeding.

Some persons when feeding their horses upon the manger system will fill the racks with hay, out of supposed kindness to the horse, which, in the case of a greedy one, will be eating all night instead of resting, and so be less able to perform the work required of him upon the succeeding day.

When a horse is about to have a heavier task set before him than usual, it is customary with some to give him a double feed, with a view of bracing him up for his extra work, and when he has got

through it, he is started on his journey. The extra feeding, however, should be given on the previous evening, when a better allowance of food than usual may be deemed necessary, and he will then have had sufficient time to digest his unusually heavy meal properly.

136. **SALT.**—Salt should be given to horses in small quantities, which are benefited by its use. Some recommend the hay to be sprinkled with water in which salt has been dissolved, as it very materially aids the process of digestion. Horses that have refused mouldy hay have eaten it up with a relish when it has been afterwards sprinkled with brine, but it is a bad plan to have anything to do with inferior hay in feeding horses.

The same with damaged oats, or corn of any kind. Bad oats become at times a powerful diuretic, and increase the secretions of the kidneys, and although the musty smell of oats can be removed by kiln-drying, the kiln-dried oat acquires a heating quality, and is not so good for animals as sound oats.

Although new oats are much heavier than old ones, the difference is simply caused by the presence of watery matter which is gradually evaporated, and it will be always found the best and safest plan not to tamper with doubtful or inferior food, but always supply that of the best quality to the animals that are under one's charge. The cost of the best food can be considerably lessened by good management, and a few economical contrivances for eking it out, taking care that none is wasted, and that each description of food performs its allotted office, in accordance with the intention with which it is given.





CHAPTER VIII.

TRICKS, VICES, AND DEFECTS OF HORSES.

Tricks, Vices, and Defects of Horses—Restiveness—Shying—Rearing—Kicking—Running Away—Backing or Jibbing—Biting—Over-reach—Crib-biting—Wind-sucking—Pawing and Weaving—Leaping into the Manger—Getting Loose in Stable—Halter-casting—Casting in the Stall—Lying under the Manger—Turning Round in the Stall—Hanging Back in the Collar—Vicious to Shoe—Kindness to Horses.

137. **TRICKS, VICES, AND DEFECTS OF HORSES.**—There are some defects that are natural to horses, as in the case of shying, which may be caused by timidity, or defective sight, and others which result from bad temper and bad education.

138. **RESTIVENESS.**—Amongst the latter must generally be included restiveness, which is both annoying and dangerous, according to the form that it assumes, and which frequently ends either in kicking, rearing, plunging, or bolting. It doubtless first arises from bad temper, and has in many cases been aggravated by harsh treatment, and confirmedly restive horses are extremely difficult to cure, although they will allow themselves to be managed by certain people, who, by kindness or firmness, or the union of both qualities, acquire an ascendancy over them. The true disposition or nature of the horse is, however, likely to break out at times, and although there are many instances on record of the most untractable horses having become subjugated, as by Rarey and others, yet in most cases they have broken out again, and have resumed their old vices; and restive horses are most difficult to treat, and are but very rarely cured, and it is seldom worth the while of any one to attempt it who has not plenty of patience, and time on his hands.

139. **SHYING.**—As before stated, shying may arise from defective sight, spring from timidity, or from bad temper. If caused by timidity, the animal should never be punished, and made to approach

the object which causes it over and over again and then beaten. Encouragement and firmness will assure the timid horse, whose fears will thus be overcome; and when the case with skittish horses, even then they should not be punished and forced up to it, as they will learn to associate punishment with the object ever afterwards. When arising from wilfulness, it should, however, be always treated with marked displeasure.

140. **REARING.**—A rearing horse is very dangerous to ride, and is sometimes caused by playfulness and sometimes by vice. A deep curb and sharp bit will sometimes make horses rear, and those horses which contend against their use should be ridden with a snaffle only. Rough-riders sometimes cure vicious horses of this habit, but ordinary riders had better give such animals a wide berth.

141. **KICKING** is another bad habit, which often is not natural to a horse, but has been caused by his being teased in the stable. There is seldom a cure for this vice, and kicking horses are very dangerous in a stable, sometimes breaking a man's leg, or doing him some other serious injury, though grooms learn how to keep out of the way, or get so near as to cause the kick to be harmless, while some use a chain run through a pulley in the stall-post, which pulls the horse's head towards the post, and puts him in a position where he cannot do harm. A kicking horse in driving is never to be depended on in harness, and although kicking-straps may be used, they sometimes break and serious accidents result.

142. **RUNNING AWAY.**—There is said to be no cure for horses that are in the habit of running away, when it is caused by a vicious propensity alone. The commonly attempted cure when a horse given to this vice runs away, is to spare neither curb, whip, nor spur, whether riding or driving, and force him up hill, and give him a great deal more hard running than he likes, and make him keep up the game a good deal longer than is pleasant to him.

143. **BACKING OR JIBBING.**—Bad breaking very often has been the occasion of causing the horse to jib, and is a very dangerous vice, either in a saddle or harness horse. When horses that do not commonly show this vice display it upon occasions, there may be some reason for it, as the withers being wrung or the shoulders galled, and the animal should then be treated with consideration; but a confirmed jibber had better be got rid of as soon as possible. When a horse jibs in harness, a stone put behind the vehicle will sometimes cause him to go forward, as he finds it to be

much easier than going backward; but it is often very dangerous to contend with a horse that backs.

The writer once bought an old horse and a dog-cart for £17, for the sake of the latter, which was a remarkably good one, knowing of course that the horse, which had been down and had broken knees, could be of no value. The old horse turned out to be an inveterate jibber, but could go well enough when he chose, and was sometimes used as an odd horse when the others were absent, or had done enough work. In using the whip at the foot of a hill upon one occasion when the horse jibbed the thong came off, and upon standing up in the dog-cart to apply the stick of it to the contumacious animal, not liking to be stuck in the road in the middle of the journey, the horse immediately set off, and went away as evenly and as well as possible, and it was subsequently found that merely standing up in the dog-cart was always quite enough to make the old horse put on his best paces and best behaviour. No reason could ever be discovered for this, but the writer surmised that possibly *Old Tom* had always been an inveterate jibber, and had, in the course of his various ownerships, fallen into the hands of a butcher, or some other unceremonious driver, who had been in the habit of using a goad or prick at the end of a stick, which he would thrust into the horse's hind-quarters whenever he jibbed, which it was necessary to stand up in the cart to use. As may be imagined, when this was found out, instead of punishing him, standing up in the dog-cart was always resorted to, which the horse could at once detect by the extra weight that was thrown forward, and which he always took as a signal to go on, and answered far better than the whip.

144. **BITING.**—This is another bad habit that often has its origin in horses being teased by grooms and stable-boys. If at first only done in play, it should be at once checked and discouraged, or otherwise it will become a habit that will ultimately take the form of viciousness. A muzzle should be used to horses that have this habit confirmed, which neither kindness nor severity will then cure.

145. **OVER-REACH.**—Some horses, when trotting, strike the toe of the hind-foot against the shoe of the fore-foot, making an unpleasant clicking noise that is technically called "over-reach." Although often not taken any notice of by their drivers, beyond checking or retarding the pace somewhat, it is not always free from danger, as the repeated blows falling on the heel of the shoe sometimes displace it, or the shoes have got locked together, and a horse has got a nasty fall at times.

The fault often arises from the horse not being properly taught his paces by the breaker, or if an animal possesses high hind-quarters and low fore ones. In the latter case the skill of the blacksmith may be called into requisition, and in shoeing, the toe of the hind-foot should be made as short as possible consistent with safety, and keep the heel of the fore-foot low.

There are many inconvenient tricks and faults possessed by horses which they practise in the stable.

146. **CRIB-BITING** is one of these, the result being that the teeth are injured and worn away, and the vice is supposed to arise in many cases from some constitutional defect (though the fault is a contagious one), the crib-biting horse being more subject to colic than other animals. Idleness sometimes is the cause of this vice, and grooming in the stables is likely to produce it, the horse acquiring the habit of laying hold of something with his teeth.

Straps buckled tightly round the neck have been used to cure this vice, but the strap sometimes, by its pressure, produces irritation of the wind-pipe; and medicine appears to be useless.

147. **WIND-SUCKING**.—This is similar to crib-biting, the horse pressing his muzzle against the manger and sucking in wind. A muzzle is recommended with spikes that prick whenever this is attempted, to deter its practice, this vice being also contagious.

148. **PAWING AND WEAVING**.—Short-tempered, irritable horses paw the floor of the stable sometimes violently, not only making the stable untidy, but wearing out their shoes, and sometimes bruising their feet and spraining their legs. The best plan, when this is carried on to a great extent, is to shackle the two legs close together with two padded straps united like a pair of fetters by a small chain about a foot long. "Weaving," as it is termed, consists of the animal moving his head almost incessantly from side to side of his stall, and is a sign of a restless disposition, opposed to that of a steady worker, that will do a good day's work and then rest and feed well.

149. **LEAPING INTO THE MANGER**.—Some horses that are allowed to remain too long in the stable without exercise acquire this habit, which, if likely to get confirmed, should be prevented by the use of a short halter, that will not allow him to raise his head high enough to effect his purpose. If a horse should happen to get himself awkwardly fixed in this position, the groom should go up to his head and push him to the opposite side of the stall, and back at the same time.

150. **GETTING LOOSE IN STABLE**.—Some horses have a persistent knack of getting loose in stable, and this often gives a good deal of trouble. In order to prevent this, a head-stall should be made with a strong throat-lash, which, if tightly buckled, will defy the horse's efforts to get it off. If the horse uses his teeth and bites his halter, a chain must be substituted, but as this makes a rattling noise, its use is best avoided if possible.

151. **HALTER-CASTING**.—Sometimes, in pawing with his fore-

leg, or in endeavouring to rub his head with his hind-foot, the leg gets over the halter, and in struggling to free himself the leg is often seriously wounded by the rope, halter, or chain. The spring catch, although it will not prevent this accident, will mitigate its effects especially when two collar-reins are used. In accidents of this nature the advantage of the groom sleeping within ear-shot of his charges is very apparent, particularly in the following.

152. CASTING IN THE STALL.—The inclination which horses have to roll over is not attended by any serious consequences when they are in a meadow, but when this inclination is sought to be gratified in the stall, which is sometimes the case, the horse at times gets thrown upon his back against the wall, and is then unable to get back again, and he is often found doubled up awkwardly in a helpless condition; while in others his struggles have been so violent as often to cause rupture and death. If a halter is thrown over both legs, the animal may be drawn over on his side, when he will be able to get up without further assistance.

153. LYING UNDER THE MANGER.—Young horses that have not long been accustomed to a stable are most given to this vice; when, getting their heads under the manger, they are prevented from rising. To get them out of the "fix" they have put themselves into, which is supposed to arise from a desire to hide themselves, or to get out of the way, they need to be drawn backwards by a girth round the breast. The remedy to prevent a recurrence of this is to board up the space beneath the manger flush with the outer edge of the top.

154. TURNING ROUND IN THE STALL.—Some horses have a persistent knack of turning round in their stall, and this can be remedied by the use of two reins, as previously recommended.

155. HANGING BACK IN THE COLLAR is done with the intention of getting free, and the strain on the halter has caused it sometimes to give way suddenly, and the horse, falling back, has injured himself severely. To prevent this, a chain and very strong head-stall should be supplied, when the horse, finding his attempts to free himself are useless, will give over. The stable-keeper should also lie in wait and catch the horse in the act, and then use his whip freely from behind, this being one of those cases when the use of the whip is imperatively demanded.

156. VICIOUS TO SHOE.—It is very often difficult to shoe young horses, and they should be humoured as much as possible, and the blacksmith should not be allowed to use a horse roughly, or to *twitch*

him, except the latter is strictly required. In shoeing, it is better to let him follow in his turn some steady old horse which goes through the operation quietly, whose example will be beneficial to him. In Landseer's celebrated picture of the horse and the donkey at the blacksmith's forge, the original of the former never would stand quietly to be shod unless in company with the latter, and horses will at times want a little humouring, but if punished when taken to be shod, the operation will in time get to be both difficult and dangerous.

157. KINDNESS TO HORSES.—Nothing, in fact, is more necessary than kindness in dealing with horses. With kindness and firmness combined, the attendant who looks after a horse, who feeds him regularly and sees after his well-being and comfort, can do almost anything with an animal, which will often put confidence in him, and do things that are evidently in opposition to his own inclinations, and which plainly excite his fears, when firmly commanded to do them by one he loves and respects.



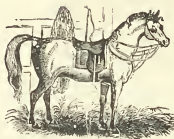
BEST FORM OF HORSESHOE.

sometimes navicular disease. There is also a considerable degree of judgment needed in leaving that part of the horn in the sole which will best defend its internal part, and yet allow the external part to descend, the quantity of horn to be removed varying with different feet, this being a really more important matter than the construction of the shoes.

There are various kinds of shoes in use, and many new ones are being constantly introduced, the leading kinds being the common horse-shoe, the concave or hunting shoe, which is highly esteemed by some, but which does not suit all horses; the bar shoe, the lip or short shoe, the plate or racing shoe, the Charlie shoe.

When a horse's feet are much battered, and especially when the sole is thin but healthy, leather soles placed between the shoe and the foot will be found of great advantage in ordinary cases, but in those of pumiced feet with convex soles they are calculated to do harm.

158. SHOEING.—Shoeing is a very important matter, and the proper paring of the horse's foot is often a good deal neglected, for to do it thoroughly takes up a considerable amount of time. The growing portion of the hoof, which would be worn off by the horse if he went about unshod, is often allowed to accumulate from time to time, which leads to corns and contractions, and



CHAPTER IX.

THE DISEASES OF HORSES AND THEIR TREATMENT.

The Diseases of Horses and their Treatment—Firing—Blistering—Hide-bound—Worms—Bots—Glanders—Farcy—Mange—Grease—Chapped Heels—Surfeit—Broken Wind—Thick Wind—Catarrh, or Cold—Chronic Cough—Roaring—Pneumonia—Bronchitis—Pleurisy, or Pleuritis—Pleuro-Pneumonia—Influenza—Rheumatism—Phrenitis—Mad-staggers, or Inflammation of the Brain—Stomach-staggers—Apoplexy—Gripes, or Colic—Strangulation of the Intestines—Rupture of the Intestines—Diarrhoea—Diabetes—Lameness in Horses—Corns—Quittor—Sand Crack—Thrush—Canker—Laminitis, or Fever in the Feet—Pumiced Feet—Navicular Disease—Splint—Spavin—Ring-bone—Saddle and Collar Galls.

159. THE DISEASES OF HORSES AND THEIR TREATMENT.

—There are a good many diseases of horses for which firing is prescribed, but as the operation disfigures a horse very much and lessens its value, it is not practised to so great an extent as formerly was the case.

160. FIRING.—Firing is perhaps resorted to with most advantage in the case of old strains, that are accompanied with considerable swelling, to which willing horses and good workers are sometimes subject, the operation, as it were, supplying a permanent bandage to the part, by tightening or destroying the elasticity of the skin, and reducing its surface. It is also resorted to for raising an active inflammation and thus exciting absorption. The parts are frequently blistered after being fired, as in cases of bony swellings, but when a horse is fired for the cure of grease, blistering is of course omitted. The necessity of resorting to this operation must be left to the judgment of the veterinary surgeon, and there are various ways of doing it, but it is generally recommended that when fire is

applied to the limbs, the lines should be perpendicular, which the more readily and effectually contract the skin.

161. **BLISTERING.**—Blistering is often a useful operation and is a very safe one, the advantage of the use of a blister being upon the well-known principle that, as two inflammations seldom exist in the vicinity of each other, if an artificial one is raised in the neighbourhood of such a seat of disorder as inflammation of the lungs, bowels, &c., it may be removed from vital parts to others of less importance, by drawing a large quantity of blood to the part through inflammation of the skin, and separating its watery portion, or scum, which forms the running matter.

Where blisters are applied, the hair should be cut as close as possible from around the part where it is intended to place the blister, and the blistering matter should then be well rubbed in for ten minutes or a quarter of an hour, after which it should be smoothed down and a little more spread on the surface.

When the pasterns and fetlocks are to be blistered, it will be found a good plan to smear tallow, lard, or melted mutton suet over the heels, which will prevent grease or troublesome sores forming, should any of the blistering ointment fall there.

162. **HIDE-BOUND.**—Hide-bound, though generally spoken of as a specific disease, in reality comprehends numerous diseases of the horse, being common to many complaints. It is rather a symptom of disease than a disease in itself, although it may be regarded as a forerunner or primary disease, existing chiefly in the extreme ends of the blood vessels of the skin, produced by such means as suddenly checking perspiration.

From the diseased condition of the secreting vessels the coat will stare and feel harsh and dry, and will appear to have lost its usual elasticity.

Other causes, however, besides arrested perspiration, are productive of the condition termed hide-bound, as slow inflammation of the liver, as well as the presence of worms, which are often thus detected by the appearance of the skin; but if the staring appearance is the result of ill-condition only, a dose or two of physic, and proper diet and attention, will be beneficial; and in those cases where the coat falls off in patches, the skin will derive benefit from being treated with flower of sulphur and oil, mixed into the consistence of treacle. The whole of the skin should be well brushed with this, against the hair.

Hide-bound may proceed either from debility, and be accom-

panied with emaciation, or may be the result of over-feeding, more especially when beans and barley have been used; and when this happens with full-fed horses, the quantity should be reduced. When, on the contrary, horses are hide-bound and emaciated, green meat in summer and carrots in winter will often be found very serviceable and efficacious.

163. **WORMS.**—We have spoken of worms as sometimes causing hide-bound, but as horses are commonly infested with one kind or another of worms, which are the occasion of much alarm to some persons, while others regard them indifferently, especially in the case of *bots*, it is worth while to examine the opinions of different writers on this subject.

164. **BOTS.**—In the twenty-first edition of Francis Clater's "Every Man his Own Farrier," that writer says:—

"*Bots* are bred in the stomach, and are frequently the cause of convulsions; they appear very large and much resemble maggots. Those of the stomach are commonly of a redder colour than those which are found in the intestines, or straight gut. *Bots*, in general, appear in the months of May, June, or July, and are very much like large maggots, or grubs, composed of circular rings, with sharp prickly fat along the sides of their bellies, which appears to be of use to fasten them to the parts where they are bred. From the muscular coat of the stomach they suck their nourishment; and by their ulcerating the parts very often destroy the horse. The symptoms indicating *bots* in horses are few: they are first discovered in the dung, and are frequently seen sticking to the straight gut, near the fundament, from whence they are often forced off with the dung. The animal generally looks lean, and his hair stares like that of a surfeited horse. He frequently strikes his hind-feet against his belly, and, in many respects, appears like one that is griped. I have known horses at the latter end of a dry summer (when the ponds, or springs, have been very low, and the waters become muddy by reason of cattle standing in them, and filled with swarms of insects) to be much infested with *bots* in the stomach; which is the chief cause why so many hundreds of them die in the low, fenny, and marshy countries."

Youatt, almost invariably a correct and reliable writer, makes light of *bots* in the horse. He says:—

"In the spring and early part of summer, horses are much troubled by a grub or caterpillar, which crawls out of the anus, fastens itself under the tail, and seems to cause a great deal of itching and uneasiness. Grooms are sometimes alarmed at the appearance of these insects. Their history is curious and will dispel every fear with regard to them. We are indebted to Mr. Bracy Clark for almost all we know of the bot.

"A species of gad-fly, the *astrus equi*, is in the latter part of the summer exceedingly busy about the horse. They are observed to be darting with great rapidity towards the knees and sides of the animal. The females are depositing their eggs in the hair, which adhere to it by means of a glutinous fluid with which they are surrounded. In a few days the eggs are ready to be hatched, and the slightest application of warmth and moisture will liberate the little animals which they contain. The horse in licking himself touches the egg, it bursts, and a small worm escapes, which adheres to the tongue, and is conveyed with the food into the stomach; there it clings, by means of a hook on either side of its mouth, to the cuticular portion of the stomach, and its hold is so firm

and so obstinate, that it will be broken before it will be detached. It remains feeding there on the mucus of the stomach during the whole of the winter, and to the end of the ensuing spring; when having attained a considerable size, and being destined to undergo a certain transformation it disengages itself from the cuticular coat, is carried into the villous portion of the stomach with the food, passes out of it with the chyme, and is at length evacuated with the dung.

"The larva or maggot being thus thrown out, seeks shelter in the ground, contracts in size, and becomes a chrysalis or grub, in which state it lies inactive for a few weeks, and then bursting from its confinement, assumes the form of a fly. The female becoming impregnated, quickly deposits her eggs on those parts of the horse which he is most likely to lick, and so the species is perpetuated.

"There are several plain conclusions from this history. The bots cannot, while they inhabit the stomach of the horse, give the animal any pain, for they are fastened on the cuticular and insensible coat. They cannot stimulate the stomach and increase its digestive power, for they are not on the digestive portion of the stomach. They cannot, by their roughness, assist the trituration or rubbing down of the food, for no such office is performed in that part of the stomach—the food is softened, not rubbed down. *They cannot be injurious to the horse, for he enjoys the most perfect health when the cuticular part of his stomach is filled with them, and their presence is not even suspected until they appear at the anus.* They cannot be removed by medicine, because they are not in that part of the stomach to which medicine is usually conveyed; and if they were, their mouths are too deeply buried in the mucus for any medicine that can safely be administered to affect them; and last of all, in due course of time they detach themselves, and come away. Therefore, the wise man will leave them to themselves, or content himself with picking them off when they collect under the tail and annoy the animal."

The long round worm, *teretes*, or *ascaris lumbricoides*, are not so common as bots; the needle-worm, or thread-worm, *ascaris vermicularis*, causes great annoyance from the itching it produces; and the tape-worm, *tænia*, is sometimes, though not often, met with in the horse.

Teretes are much more prejudicial than bots, giving rise to defective digestion, and sometimes colic.

The *æstrus hemorrhoidalis* produce bots something like the *æstrus equi*, but smaller and whiter, the parent fly depositing her eggs on the lips instead of the legs and shoulders, being commonly known as the red-tailed, horse-bot fly.

Delabere Blaine, speaking of bots and *teretes*, remarks that "the ill effects resulting from worms are not brought on by bots, but by the *teretes*, and though the indentations remarked in the cuticular portions of the stomach have led to a fear that they sometimes penetrated through, there is reason to believe this is totally without foundation. Nevertheless, I cannot suppose with Mr. Clark that they perform any salutary purpose in the constitution. As these animals live on pure chyle, it is probable but little is necessary to their support; and this may be a reason why no medicine taken into the stomach, however active, has ever been found to affect them."

The general symptoms of worms, the same author continues (who was a man of great practical experience), are indicated in the case of the bots "by their sticking out at the anus; when this is the

case they should be removed by the hand; one of them so remaining there will tease and irritate a horse very considerably. When a horse is troubled with the *teretes*, he has a disposition to rub his tail, and a yellow matter appears without the anus; and if they affect his health, he eats heartily and yet does not thrive; the skin sympathises with the stomach and intestines, and hence the coat feels, as grooms express it, unthrifty, and there are frequent attacks of slight gripes; the horse stands with his legs wide apart and his belly low. The breath is often hot and fœtid, and it is not unusual for there to be a short, dry cough. He recommends the following vermifuge as a remedy in all cases:—Powdered arsenic, 8 grains; pewter or tin finely scraped, 1 oz.; Venice turpentine, $\frac{1}{2}$ oz.; mix into a ball, and give every morning, fasting, for a fortnight, unless it should prove too diuretic.

The ill effects alluded to by Francis Clater when the ponds have been low, to the horses that frequented them, were very likely due to the beetle *lixus paraplecticus*, and its larvæ, which live in the stems of the water-hemlock, which cause paralysis when eaten by horses; and the larva of a fly (*helophilus pendulus*) is recorded to have been found lying upon the spinal sheath of a horse, which caused inflammation and death.

165. **GLANDERS.**—This formidable disease is distinguished under the heads of acute glanders and chronic glanders, and consists of a discharge of pussular matter from the nostrils, or at times only one nostril, with a hard enlargement of the submaxillary glands. Ulcers form in the nostrils, and respiration is impeded, until at length death is caused from suffocation.

In chronic glanders the disease is usually confined to one nostril, and may go on for years, till acute glanders at last terminates the life of the horse.

It is hardly possible to cure a glandered horse, but animals have been destroyed before now under the supposition that they have had glanders when they have been suffering only from a prolonged and severe cold. The ravages of the disease are not nearly so great in the present day as was the case at one time, coach horses formerly suffering very considerably on account of its highly contagious character. Vegetable and mineral tonics are resorted to in its treatment, but few cases are dealt with successfully.

166. **FARCY.**—Farcy is sometimes produced by hard work, bad provender, or a course of general bad treatment, and is a somewhat different exhibition of the same character of animal poisoning

as glanders. Its presence is generally first indicated by lameness, and swelling of one of the hind-legs, on which a wound may appear, and unless the progress of the disorder is checked, the whole system may become affected. When the disease is grappled with early, and is confined to a single limb, a ball given twice a day of the following ingredients will often effect a cure:—

Sulphate of iron	1 drachm.
Gentian, powdered	1½ "
Pimento, powdered	½ "
Iodide of potash	5 grains.
Cascarilla bark.....	1½ drachm.

The ball is usually made with treacle. The hair should also be cut from the enlarged absorbent and a mixture of mercurial ointment and iodine ointment rubbed in; while the bowels should be kept well open with vegetable food, and a liberal diet given. Some veterinary surgeons open the farcy buds and cauterise them with a hot iron, or use caustic as a milder course of treatment.

167. **MANGE.**—This is an offensive disease in horses, and highly contagious, being due to the presence of an insect—*acarus equi*—that burrows beneath the skin. The best mode of treatment is in the first place to wash the skin thoroughly, and then rub it all over with a liniment composed of the following:—

Linseed oil.....	1 lb.
Oil of tar.....	4 oz.
White hellebore	2 drachms.
Sulphur vivum	4 oz.

These ingredients should be well incorporated together, and briskly rubbed into the skin.

168. **GREASE.**—An offensive discharge from the heels is called by this name, which is very common amongst farm-horses and cart-horses that are kept in crowded and dirty stables, and are much neglected; the result being that an animal so affected is often lamed by the pain caused. When allowed to go on unchecked, an excrescence termed *grapes* sometimes forms, which may be removed by caustic or the knife.

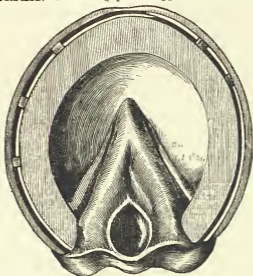
The horse should be purged and linseed poultices placed on the heels, and a lotion applied to them, consisting of four drachms of sulphate of zinc, four drachms of powdered alum to one pint of water. The poultices also should be moistened with the same.

169. **CHAPPED HEELS.**—Grease and chapped heels are kindred disorders, which call for much the same treatment; hairy legged horses, that are kept wet and dirty, being subject to broken heels

owing to the skin and parts beneath being inflamed. Purgatives should be given, and when their operation has ceased, the following ingredients to form a powder will be found of a healing nature, when applied to the affected part :—

Alum	1 drachm.
Powdered chalk.....	1 oz.
Bole armeniac	4 drachms.
Sulphate of zinc	1 drachm.

170. **SURFEIT.**—Sudden eruptions appear on the skin in the



UNDER SIDE OF HORSESHOEN.

shape of circular swellings about the size of a shilling, which are supposed to arise from a disordered stomach, the neck and quarters being the most prominent parts that are subject to this visitation.

Bleeding is sometimes resorted to, and afterwards the subject is mildly purged, the following diuretic medicine being afterwards given, mixed with the food, about twice a day :—

Nitrate of potash	3 drachms.
Yellow sulphur	4 "
Antimony	2 "

171. **BROKEN WIND.**—This often common disorder arises from a rupture of the air cells of the lungs, so that the air escapes from

them, and inflates the pleura that covers them, which prevents them from getting rid as quickly as they should do of the air inhaled, the disorder being mostly brought on by sudden exertion upon a full stomach, as well as from dusty and foul provender, which is often given to farm-horses, which are the chief sufferers. A double inspiration and a short dry cough, and a disposition to expel wind from the fundament, indicates the disease.

As the disease cannot be entirely cured, it must be palliated by careful dieting, concentrated food being mostly given as corn, and but little hay, and no straw-chaff; so that the stomach be distended as little as possible, carrots being used in place of the bulkier green food which is required at times by horses. A cough mixture may be given when medicine is deemed necessary.

172. **THICK WIND.**—A horse that is thick-winded is not so fit for even the same amount of severe exertion that a broken-winded horse may make, being more liable to an attack of inflammation, thick wind being mostly caused by chronic attacks of inflammation of the lungs, but the same mode of treatment as that followed in the instance of broken wind must be adopted.

173. **CATARRH, OR COLD.**—Sneezing at first, with a cough and a discharge of mucus from the nostrils, are generally the indications of a cold, which consists of inflammation of the membrane which lines the chambers of the nostrils and throat; when the latter is affected being sore throat. Change from heat to cold, or the reverse, is the most fruitful source of colds, and when only a slight affection, may be soon cured by a few bran mashes. In severe cases the throat should be stimulated externally with tincture of cantharides, and two or three drachms of aloes given if the bowels are constipated. The following is a recipe for a cough ball, the various ingredients being made up with Barbadoes tar:—

Linseed meal	3 drachms.
Nitrate of potash	2 "
Tartarised antimony	1 drachm.
Powdered digitalis	1 scruple.

174. **CHRONIC COUGH.**—This is often associated with thick wind, though sometimes quite independent of it, being due to too great dryness of the membrane of the larynx, and sometimes to its thickening. It may be only a slight affection, chiefly manifested on leaving the stable in the morning; but when a fresh cold is caught the old cough will become aggravated, and there is necessarily a greater predisposition to catch one.

When the cough gets worse the throat should be stimulated, and, if very bad, a seton underneath it has often been successfully applied. The cough ball, as recommended for catarrh, should also be given.

175. ROARING.—This is caused when a partial obstruction to the passage of air to and from the lungs takes place, which thus causes the noise that gives its name to the disease, arising commonly from a thickening of the lining membrane of the windpipe, or contraction of it, or distortion of the muscles which open the cartilages at the mouth of the larynx.

In the case of carriage-horses, it is said to be often caused by tight reining, and there are various modifications of the disorder as well as of the sounds emitted, which are characterised and described in the case of the different animals affected, and variously called pipers, whistlers, wheezers, and high-blowers, the former term signifying a broken-winded horse amongst horse-dealers.

176. PNEUMONIA is of two forms, congestive and ordinary pneumonia, and is a very dangerous disease arising from over-exertion, or sudden changes from heat to cold, or the reverse.

Bleeding is generally prescribed, but when the pulse is weak, before this is done, two ounces of nitric ether and one ounce of solution of acetate of ammonia is given in half a pint of water, with the intention of bringing warmth to the skin, and so making the animal bleed better, the amount of blood-letting to be in accordance with the strength of the pulse.

The sides should be blistered, and a seton put in the brisket, and a ball given every six hours, composed of the following:—

Nitrate of potash	2 drachms.
Proto-chloride of mercury.....	$\frac{1}{2}$ drachm.
Tartarised antimony	1 "

177. BRONCHITIS.—Bronchitis is another dangerous disease of the lungs, resembling in its nature the insidious character of the



CORNER MANGER.

well-known symptoms in the human subject, creeping on for several days in the guise of a common cold, and all at once changing to formidable indications of an alarming nature.

Purgatives are often ignorantly given upon occasions of an attack of bronchitis, but this is bad practice, moderate bleeding being the better course of treatment to pursue, it being the mucous membrane that is affected, though blood-letting must be done very carefully, as in diseases of this type there is not the stamina to support it. In addition to giving the same ball as in catarrh, the throat is sometimes stimulated, and the course of the wind-pipe blistered, and counter-irritation is produced by inserting a seton in the brisket.

Good nursing is the main thing, linseed and oatmeal gruel being given in summer with grass, and carrots with gruel in winter.

As soon as the inflammatory symptoms are got under, it will be found advantageous to administer a mild tonic.

The following tonic ball made up with treacle is recommended:—

Powdered gentian	2 drachms.
" pimento	1 drachm.
Sulphate of iron	1 "

The latter ingredient it is sometimes advisable to omit.

178. **PLEURISY, OR PLEURITIS.**—Exposure to cold when the body is in a heated condition gives rise to pleurisy, which is an inflammation of the membrane which lines the interior of the chest, as well as the lungs, the latter adhering to the sides of the former in fatal cases.

Active blood-letting is usually prescribed, till the pulse becomes almost imperceptible, once or twice in twenty-four hours, as may be deemed necessary. The sides also should be blistered, and the action of the blisters well sustained. The ball as mentioned above may be also given.

179. **PLEURO-PNEUMONIA.**—This especially fatal disorder to cattle, which has attained an unenviable notoriety of late years, though not so common to horses, is a combination of pleurisy with pneumonia, in fatal cases extensive disorganisation of the chest taking place. The disease sometimes assumes an epizootic form which is fatal, in the shape of influenza. The treatment must be modified according to circumstances, and after the same way as the other diseases of the chest and lungs which have been enumerated, the difficulty being to find so much apparent benefit from bleeding

as may be seen in cases of a more definite character, where the symptoms are unmistakably clear.

180. **INFLUENZA.**—This disorder appears to be a low nervous fever, attended with great falling-off of strength, more particularly of the mucous membranes, the air passages chiefly being affected, sore throat and bronchitis resulting, loss of appetite, nausea, and irritation of the bowels being the forms it assumes at times, and at others inflammation of the chest and abdomen. The treatment recommended is to administer a medicinal stimulant, as:—

Nitrate of potash	4 drachms.
Potassio-tartrate of antimony	1 drachm.
Spirit of nitric ether	1 oz.
Warm water	10 "

Unless the pulse is strong bleeding is to be avoided; and no aperients are required unless the bowels are very costive, when two or three drachms of aloes will be sufficient, for the debility may be increased by too great purging.

After the fever has subsided, and the debility and loss of appetite remains, it is as well to administer a tonic, composed of the following ingredients:—

Linseed meal.....	2 drachms.
Powdered gentian.....	1½ drachm.
Sulphate of iron	½ "
Powdered pimento	½ "

After the first draught has been taken about six hours, the following ball is recommended to be given twice a day for several days:—

Linseed meal.....	3 drachms.
Nitrate of potash	2 "
Proto-chloride of mercury	3 scruples.
Potassio-tartrate of antimony	2 "

Formed into a ball with soft soap, as before stated, to be followed by the tonic recommended.

181. **RHEUMATISM.**—Horses do not suffer so much as cattle from rheumatism, but they are visited by it occasionally in an acute form, and it is then called a chill, the muscular fibres being the seat of the disease.

The respiration is disturbed, while the pulse is quick, hard, and strong, and the animal betrays symptoms of great pain and difficulty in moving.

A copious bleeding is recommended, and the bowels afterwards opened by aperients, injections being used for this purpose as well, the bowels being usually very costive

The aperient may consist of six drachms of aloes and two drachms of ginger, dissolved in hot water, together with an ounce or two ounces of spirit of nitric ether; after which a ball should be given twice a day, made up with soft soap, of the following ingredients:—

Linseed meal.....	4 drachms.
Proto-chloride of mercury	2 scruples.
Potassio-tartrate of antimony	3 "
Nitrate of potash	2 drachms.
White hellebore.....	1 scruple.

The shoulders should be stimulated, and should the chest appear to be much affected, a blister applied to the brisket may be desirable.

182. **PHRENITIS, MAD-STAGGERS, OR INFLAMMATION OF THE BRAIN.**—Heavy horses are more subject to this disorder than light ones, but the disease is much less frequently met with now than formerly. In the first place, there is unwillingness to move, a loss of appetite, and a redness of the eyelids, delirium following these symptoms, when the horse will plunge about and injure himself, the disease being caused by overcharged blood-vessels, arising from want of exercise or over-feeding.

Profuse bleeding is the remedy adopted, as much as six or eight quarts of blood being taken away. Strong doses of aperient medicine are afterwards given, with fever medicines to follow, and cold applications to the head.

183. **STOMACH-STAGGERS.**—This also is caused by over-feeding, the stomach being distended with food, which brings on oppression of the brain. It used to be a much more common disease than it now is, owing to the better management of horses, and their more appropriate feeding. Purgatives, and purgative injections should be used, of an oily nature, but when the stomach is very much distended the complaint is often very difficult to cure.

184. **APOPLEXY.**—The pressure of a tight collar will sometimes produce apoplexy, which consists of a sudden determination of blood to the head, while the horse shakes, and stops suddenly in his work. High feeding is one of the principal causes of apoplexy, horses being more liable to its attacks in spring and early summer than at any other time. If the horse is bled immediately the attack comes on, relief is generally given at once. A few doses of physic should follow, and these, when given in spring, are often a preventive to apoplexy.

185. **GRIPES, OR COLIC**—This disorder is frequently brought

on by careless feeding, too free use of the succulent grasses when first given to horses, and by unwholesome food. The abdomen is considerably distended, and the animal will lie down and roll violently, and show that he is suffering intense pain.

An ounce of tincture of opium, mixed with two ounces of spirit of nitrous ether, will sometimes give immediate relief; but if not, the horse should be bled freely and oily purgatives given. In very obstinate cases friction, and hot fomentations to the abdomen are useful, coupled with frequent injections.

186. **STRANGULATION OF THE INTESTINES.**—There are several varieties of this disease, the causes of which are obscure, but are chiefly due, it is supposed, to sudden exertion upon an overloaded stomach, and as in the case of rupture of the intestines, they are often fatal, and extremely difficult to cure, but may be guarded against by preventive measures being used against these and similar disorders.

187. **DIARRHOEA.**—Fresh grass and green food most commonly bring on this disorder, but new oats and new hay will also produce it. A change of food, and the following medicine, given two or three times a day, in thick gruel, will be found the best course of treatment to adopt:—

Powdered ginger	1 drachm.
Prepared chalk	1 oz.
Powdered gentian.....	3 drachms.
Opium	$\frac{1}{2}$ drachm.

188. **DIABETES.**—In this somewhat singular complaint there is excessive staling, and a tendency of the liquid evacuations to be of a sugary nature. Kiln-dried oats, or new-burnt hay will produce it, and once developed it is sometimes difficult to cure.

Wholesome food must take the place of unwholesome, and the following ball be given twice a day:—

Opium.....	$\frac{1}{2}$ drachm.
Sulphate of zinc	1 $\frac{1}{2}$ "
Gentian	2 drachms.
Ginger.....	1 "

Made up with treacle. Linseed tea is better than water to be given with which to assuage thirst.

189. **LAMENESS IN HORSES.**—There are a number of diseases which are classed under the head of lameness, but which often proceed from very different causes; and, odd as the assertion may seem, it is not always quite clear as to the leg affected with lameness. The prick of a nail or nails which fasten on the shoe are a

common occasion of lameness; when this happens the shoe must be removed, and if any matter has formed, it must be allowed to escape, the foot poulticed, and the wound stimulated with a little tincture of myrrh.

Lameness arising from stones and other foreign substances becoming impacted in the foot, or when it may have been bruised, requires to be healed in a consonant manner.

190. **CORNS.**—Thus corns are occasioned by a bruise of the sensible sole in the space between the crust and the bar, frequently occurring on the inside of the foot, though sometimes on the out-



HORSESHOE FOR FIELD WORK.

side, or both. The shoe should be taken off, and the horn pared away near the corn, almost to the quick. A linseed poultice should be applied, and allowed to remain for several days in the instance of a bad case, and be afterwards daily touched with the butyr of antimony, or some other strong caustic, which causes healthy horn to grow. If any sinuses have formed, it is necessary to open them with a knife, and after a sound, healthy surface has

been secured, dress with the following ointment, which will promote the growth of healthy horn.

By attending to any lameness at once, and submitting the part to proper treatment, a good deal of time and trouble may be saved, for the foot of a horse with its iron shoe is different to that of a dog, in which case temporary lameness often wears off, but that of the horse in all probability may be getting more and more confirmed each day. The ointment referred to consists of—

Oil of turpentine	4 drachms.
Sulphuric acid	4 "
Barbadoes tar	8 oz.
Palm oil	4 "

The two first ingredients should be mixed first, and after the boiling has subsided, be well blended with the two last named.

191. **QUITTER** is often produced by a blow or tread from another horse, but will take place from any severe bruise, an abscess forming in the coronet, mostly on the inside, with sinuses tending in different directions, and often affecting the cartilages. Linseed poultices should also in this case be applied, and a healthy action be made to ensue. Tincture of myrrh, or solution of sulphate of zinc will be found useful; but there are various modes of healing the disease, the method depending upon the aspect of each case.

192. **SAND CRACK.**—Sand crack is a splitting of the crust mostly inside of the fore-feet; the sand crack of the hind-foot is mostly confined to cart horses; those animals with thin, brittle hoofs being the most subject to it.

The progress of the crack should be stopped, the foot poulticed to soften the horn and encourage its growth, and rest should be allowed to the animal to allow this to take place.

193. **THRUSH.**—This disease is mostly brought on by moisture and filth, and consists of an offensive discharge from the cleft of the frog, sometimes produced in the fore-feet through contraction and heat, but more commonly in the hinder ones. The cleft should be thoroughly cleaned out and dressed with the corn ointment mentioned above, which will check the discharge and cause healthy horn to grow.

194. **CANKER.**—Canker is often caused by neglected thrush, and is a disease of grave importance; offensive discharges taking the place of the natural secretion of horn. This discharge should be stopped and the diseased growth removed, and a healthy one stimulated.

With this object in view, strong caustic should be used, or the knife applied, and the bleeding stopped with a hot iron. Tar helps on the secretion of horn, and the sulphate of zinc is useful.

195. **LAMINITAS, OR FEVER IN THE FEET.**—This disease consists of inflammation of the sensible laminæ which unites the coffin bones with the crust, and is brought about by long continued standing. The shoes should be taken off and a large quantity of blood taken from either the feet or arms. Setons are sometimes inserted in the frogs, and linseed poultices applied to the feet. Prompt application of these means will quickly effect a cure. Blistering of the coronet will be advisable after a time.

196. **PUMICED FEET.**—Heavy horses are mostly troubled with this disorder, when the soles become convex instead of concave, the crust being uneven and furrowed, and much increased in

obliquity. Relief may be given by putting on a shoe which guards the sole from receiving pressure, and which will yet protect it from injury. The feet should be anointed with a mixture of tar and grease, to promote the growth and elasticity of the horn.

197. **NAVICULAR DISEASE.**—This consists of inflammation of the synovial membrane which covers the cartilage of the navicular bone as well as the tendon.

Heavy cart horses seldom have it, the disease being almost peculiar to the lighter bred horses which are ridden or driven at a fast pace along hard roads, after long confinement in the stable.

A cure can only be effected at an early stage of the disease, by bleeding the feet, paring the sole thin, and covering up the foot or feet in linseed poultices for a week, and keeping a seton inserted in the feet for a month. The pasterns also may be blistered.

198. **SPLINT.**—Splint occurs between the large and small metacarpal bone, mostly inside, and is very often met with; the ligaments being stretched and inflamed in the young horse, and the vessels throw out a bony deposit under the periosteum, or covering of the bone. A small narrow knife is used for cutting down on and dividing the periosteum, in order to relieve the tension and irritation. Splint would appear to be an effort of nature to unite the parts more securely, and if the deposition takes place slowly, then no lameness occurs. In slight cases a blister is applied.

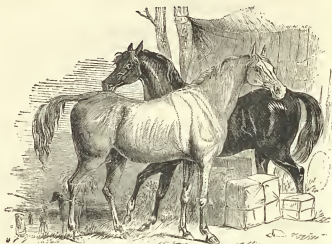
199. **SPAVIN.**—This is more serious than splint, a kind of ossification taking place that is often incurable, but the treatment resorted to in order to effect a cure is by blister, the firing-iron, or by seton.

200. **RING-BONE.**—Ring-bone owes its name to exostosis on the pasterns, which at times spread round them like a ring. It sometimes occurs between the large and small pasterns, and at other times consists of irregular deposits round the small pastern bones, the cartilages at the sides of the foot being turned into bone.

The firing-iron and blisters are resorted to to stay the progress of disease by excessive counter irritation.

Of discolorations, wounds, and fractures, it is hardly necessary to speak, varying as they do, and assuming so many forms; nor of diseases of the eye, an organ of such delicate structure that the services of a veterinary surgeon should always be secured.

201. **SADDLE AND COLLAR GALLS** being occasioned by the pressure of the saddle and harness, can be easily cured if the pressure that occasioned them is removed. A small quantity of blistering ointment is also useful.



CHAPTER X.

MARKETS FOR HORSES.

Markets for Horses—Law of Warranty—Advice in Purchasing a Horse—The Bishop and the Horse-dealer—Bishoping.

202. MARKETS FOR HORSES.—The markets for horses are very numerous, Horncastle fair, in Lincolnshire, being one of the most celebrated, while Barnet fair (at Barnet, near London), attracts great numbers of animals from all parts of the country as well as the metropolis. Drovers of Welsh and Scotch ponies are often sent in great numbers to Weyhill and Barnet fairs, and in almost every large town where there is a cattle market horses are constantly bought and sold.

203. LAW OF WARRANTY.—When a horse is sold and a form of warranty is given with it, it should run thus:—"Sold by John Brown to William Robinson, this day, Dec. 1, 1879, a brown mare six years old off, warranted sound and free from vice, and quiet to ride or drive (or whatever may be the nature of the warranty given).
(Signed) "JOHN BROWN."

When horses are sold at public auctions by dealers, it is usual when a warranty is given to limit any objection to it to some short period, during which time the auctioneer holds the purchase money in his hands, which is paid over to the vendor if no complaint is

made within the time specified, when the transaction is considered closed.

If a horse turn out otherwise than according to the warranty given, the horse should be formally tendered to the seller and the amount of purchase money demanded back. If this is refused, the horse should be sent to a livery stable and sold by public auction, due notice having been given to the vendor, who may be sued for any difference between the price realised and that paid, and all expenses in addition.

204. **ADVICE IN PURCHASING A HORSE.**--There is said to be something so contagious about horse-dealing that a man would take in his own father if he could, either through undue partiality or an extravagant estimate of an animal's worth, there being a kind of mania attached to it by which everybody more or less becomes affected.

We do not ourselves vouch for the truth of this, but these irreverent kinds of reports that have been so commonly circulated have been actually made to include individuals whose position and calling make it very difficult to believe the hard things that are said of them.

The Bishop and the Horse-dealer.--A little bit of sharp practice was actually put down to the score of a well-known bishop who was very fond of a good horse, and the laugh raised against a West-end horse-dealer, out of whose sails the wind was very cleverly taken, as the story goes, which was thus:--The bishop, wanting a good riding horse, was struck by the handsome appearance of a fine animal that had been broken-in either to ride or drive, and ungrudgingly paid a long price for it; and it in due time became an inmate of his stables.

A few trials of the horse, however, proved to his lordship that his purchase was not exactly what he wanted, though a good horse enough in its way, and he accordingly called upon the dealer, and asked him to take back the horse. This was not quite to the vendor's mind, however, and he declined, upon the ground that so high-priced an animal might remain a long time on his hands, and as there was really no defect about him, he must in this case, much against his own inclination, regretfully decline to oblige the bishop in the matter.

"Well, then," resignedly answered the bishop, "as the horse is not quite what I want for a roadster, perhaps you can sell me another one that will match him, so that I might use the pair in my carriage."

Now, this kind of transaction was much more to the horse-dealer's taste, but unfortunately he had not a horse in his stables anything resembling the one in question, and this he told the bishop, adding, "I feel pretty sure I can get a match for your lordship in the course of a few days, for Horncastle fair will be shortly held, and there is occasionally a first-class horse or two to be picked up there."

Without giving the dealer any commission to purchase, the bishop told him he should be glad to hear when he had an animal likely to suit, civilly wished him good-day, and walked off.

When Horncastle fair opened, the bishop sent his horse there for sale, and realised a very handsome price for it, it having in fact been bought by an agent of the horse-dealer's who had sold it to him, and who bought it again with the intention of selling it to the bishop as a match for the one he had, of which a full

description had been furnished. The purchase was no sooner concluded than the horse-dealer waited upon the bishop without loss of time, and told him he had purchased such an excellent match for his horse that it would scarcely be possible to tell one from the other apart.

His lordship, however, it appeared, had then altered his mind, and was not open to buy a horse at the moment, very much to the horse-dealer's annoyance and vexation, who had counted upon doing a stroke of satisfactory business.

205. BISHOPING.—The use of the word "bishop" has reminded the writer of a plan adopted by dishonest dealers, which was originated by a man named Bishop, who, to disguise the age and prolong the mark in the lower nippers, would have a horse of eight or nine years of age thrown, and cause a hole to be dug with an engraver's tool in the almost plain surface of the corner teeth at that age, in shape and depth resembling those of a horse seven years old. This is called "Bishoping," after the name of the rogue who invented this method of deception, the teeth being burned with a heated iron, which leaves a permanent black stain, the next pair of nippers being lightly touched as well.

To purchase a horse that one has never seen before requires the exercise of a good deal of judgment. He should not be sluggish, on the one hand, nor skittish, on the other. In regarding a horse it should be observed whether he is gentle to approach, and while this is being noticed, the position and appearance of his fore-legs should be taken note of, and whether he shakes or knuckles at his knees or fetlocks, or whether he stands with his legs too much under his body.

A riding horse should be mounted and ridden quietly at first, and then at an increased pace, ending by giving him a smart gallop, by which it can be discovered whether he is diseased in his wind.

But, instead of trusting to one's own judgment, it is better to pay a veterinary surgeon a guinea, and take him to inspect any likely horse whose appearance may cause him to be considered suitable by an intending purchaser. It will be a guinea well spent, and be the means, most likely, of preventing disappointment as to some quality which the horse may be supposed to have, but is not really possessed of; the experienced eye of a competent person being able to detect incipient disease, which would often be passed over unnoticed by a less qualified person.

THE COW.





FAT SHORT-HORN STEER.

THE COW.

CHAPTER I.

ENTERING ON A DAIRY FARM.

Questions to be Considered before Commencing a Dairy—Comparative Profits from Making Cheese or Butter, Selling Milk, or Grazing—Dairy Operations in mixed Husbandry Farms—Education necessary for the Dairy Farmer—Rent, Capital, &c—Most Suitable Time of Entering—Stocking the Farm.

1. **BEFORE STARTING A DAIRY**, there are several points which ought to be seriously considered. First, from the situation of the farm, it should be taken into account what it is best to aim at in the way of production—whether milk-selling, butter-making, or cheese-making. This will mainly depend upon facilities for carriage, and the proximity of large towns, upon which often depends the profitable disposal of produce. Next, if in a country situation, where the cows can graze the meadows, the quality of the "feed" should be regarded, for there are many of the smaller kinds of cows that thrive well enough upon rather poor herbage, upon which larger and heavier animals would nearly starve.

In some of the South-Western districts of England, for example, Alderney cows do well upon grass quite unsuitable for the large animals of the old Yorkshire stock, and other similar kinds, which are so much in favour with the London cow-keepers, who provide them with large quantities of food, for the purpose of forcing the milk artificially.†

2. **ARTIFICIAL FEEDING AND NATIVE PASTURE.**—Although much may be said in favour of artificial feeding under certain conditions, yet it must ever be borne in mind that, after all, there is no food which can be compared with that of good natural pasture for milch cows; for not only do they thrive on it, and give a larger quantity of milk, but the flavour of the butter is richer and more delicate, and, in consequence, commands a higher price in the market. It is best to settle these points in the first place, as there is always a drawback in changing one's system, and nothing answers so well as when matters are conducted upon a principle of continuous routine, where everything falls naturally into its place, with system and order.

3. **SIZE OF BREED.**—If the Breed of Cattle is too large for the quality of the pasture, the return in the shape of produce will be considerably less than it ought to be, with more discriminate management; as the bulk of the food consumed will be absorbed in the office of keeping up the animal's system, instead of producing milk.

On very rich pastures it matters not how large the breed of cattle that is placed on it is, as they can obtain an abundance of food, and the yield will be correspondingly heavy. On the whole, medium-sized animals are found the best for dairy purposes, as they are able to maintain themselves upon pastures of an average quality, and they are less likely to become affected when, from certain causes, the ordinary feed becomes temporarily deficient. By skilful feeding, however, these breaks can be so regulated, and their effects lessened, that no serious inconvenience is to be apprehended on this score, by one who thoroughly understands his business, however inexperienced dairy farmers may suffer upon these occasions.

4. **HOUSE ACCOMMODATION.**—Cold winds in spring and summer, if cows are exposed, prevent a full flow of milk, and there should be sufficient accommodation for house-feeding, as well in the summer as the winter months. During a hot summer, again, the herbage suffers from drought, and during these times, if protracted, the cows stand a chance of being seriously injured, unless food of a nature calculated to supply the deficiency is given to them; so that house accommodation is a point that should not be overlooked.

5. **BUTTER-MAKING.**—If in an isolated district, where there is no large demand for milk, it will be found best to produce butter.

Railway communication is now so complete and perfect in all parts of the country, and butter is comparatively such a portable article, that disadvantages of situation can be atoned for to a very considerable degree by the aid of the railway.

6. **CHEESE-MAKING** is more of a manufacturing business, which, to be carried out successfully, requires a considerable amount of technical knowledge, and also experience, and much previous practice. The English cheese-maker has also to enter into competition with cheese produced in America and on the Continent, where it is made upon a very large scale and by a thorough routine system. It will not be found to answer so well (save in very exceptional cases) as disposing of the produce in the form of butter or milk.

7. **MILK PRODUCTION.**—But of all ways of disposing of dairy produce profitably, nothing answers so well as to get rid of it at once, in the form of milk, as it comes warm from the cow. When this system, from proximity to a large town, or where there is easy access to rail, can be conveniently adopted, it is unquestionably by far the most advantageous plan which can be followed by the dairy farmer.

Milk has steadily risen in price of late years, and since the Adulteration of Food Act has come into force, and a purer article is supplied to the consumer, its value as a diet has risen considerably in public estimation, as its quality can now be relied on; and no matter how other articles of food may fluctuate, the price of milk steadily remains the same, and its price is relatively higher than that of the manufactured article when converted into butter or cheese. And under the most favourable circumstances for the sale of his produce, the maker of butter can seldom hope to reach the average from each cow which can be made from the sale of new milk, even under ordinarily favourable circumstances, although the price of butter has risen considerably of late years.

8. **COMPARATIVE PROFITS.**—A prize essay on the profits of grazing, making cheese, and selling milk, written by Mr. W. H. Heywood, was published some years back in the Journal of the Royal Agricultural Society, which showed the profits, in the instance selected, to be much greater from selling milk than from the two other methods, which ranked respectively, milk-selling first, grazing second, and cheese-making last. It is termed cheese and butter making, but the results of cheese manufacture are alone given particulars of, it being assumed that cheese-making and butter-making are equivalent. According to our experience, however, butter-making, where a good market is obtainable for the article, is much more profitable than cheese-making.

The example adduced by Mr. Heywood is a very good one, inasmuch as it

is not a comparison between two different farmers, but the results upon the same farm, from different methods practised by the same tenant, who is described as an excellent farmer, and who therefore may be assumed to know the best methods applicable to each course of management. The farm was originally managed as a cheese-farm, up to a certain time, when, in consequence of the advantage of a railway station within a mile of the farm, and twelve miles from the market town, the tenant sold his milk, delivered at the station, at 1s. 10d. per dozen quarts, keeping the management of the farm in other respects precisely as before; the stock and expenses remaining also the same, except that the number of pigs fattened was reduced.

"I will take the case of the cheese-farm, 200 acres, upon which the stock is 50 milk-cows, 50 ewes (which, with their lambs, are fed off fat), 5 horses, 30 pigs, reared up and fattened, and 12 to 15 young horned cattle, consisting of calves, yearlings, and two-year-olds. The farm is self-supplying as regards all food for stock, having sufficient land under plough, viz., 45 acres in 15 acre shifts—ley-oats, turnips, and wheat—to grow the oats, turnips, and straw required, in addition to the old meadow hay.

The financial results of this farm have been as follows:—

PRODUCE.						£	s.	d.
9 tons 7 cwt. 2 qrs. cheese, at 80s. per cwt.	...	...	...	...	...	750	0	0
70 lambs, at 27s. 6d.	...	...	...	...	...	96	5	0
Profit on 60 ewes and wool, at 15s.	...	...	...	...	...	37	10	0
15 acres wheat, at £12.	...	...	...	...	...	180	0	0
Profit on 30 pigs, at £5	...	...	...	...	...	150	0	0
						<u>1,213</u>	<u>15</u>	<u>0</u>
EXPENSES.								
Rent, 200 acres at 40s.	...	...	...	...	...	400	0	0
Tithes, 3s. per acre; rates, 2s. 6d. on assessment	...	...	...	...	...	58	15	0
Wages—5 men at £40	...	...	...	...	...	200	0	0
2 lads at £20	...	...	...	...	...	40	0	0
Extra men	...	...	...	...	...	26	0	0
Harvesting	...	...	...	...	...	30	0	0
Tradesmen's bills, £52 10s.; grass seeds, £22 10s.; other seeds, £20	...	...	...	...	...	95	0	0
Paid on Improvement Account, including Draining £40,	...	...	...	...	...	125	0	0
Boring £60, and Repairs £25	...	...	...	...	...	50	0	0
Contingent Expenses	...	...	...	...	...	50	0	0
						<u>1,024</u>	<u>15</u>	<u>0</u>
Profit	...	...	...	...	...	189	0	0

"The result under the system of milk-selling is as follows, more milk having been produced per cow in consequence of the supply having been kept up throughout the year by exchange of cows and artificial feeding:—

PRODUCE.						£	s.	d.
Milk of 50 cows, at 1s. 10d. per dozen quarts	...	...	...	...	...	1,055	0	0
70 lambs, at 27s. 6d.	...	...	...	...	...	96	5	0
Profit on 50 ewes and wool, at 15s.	...	...	...	...	...	37	10	0
15 acres of wheat, at £12	...	...	...	...	...	180	0	0
Profit on 10 pigs, at £5	...	...	...	...	...	50	0	0
						<u>1,428</u>	<u>15</u>	<u>0</u>

EXPENSES.						£	s.	d.
As per statement in Cheese-making Account	...	...	...	...	...	1,024	15	0
Add cost of exchanging cows to keep up supply of milk at certain seasons	...	...	...	...	...	100	0	0
						<hr/>		
						1,124	15	0
						<hr/>		
Profit	...	...	...	...	...	304	0	0

"On the grazing-farm referred to the stock is 60 cows, 100 ewes (whose lambs are fed off fat), 4 horses. The result is as follows:—

PRODUCE.						£	s.	d.
Profit on 60 cows, at £12	...	...	...	...	...	720	0	0
140 lambs, at 27s. 6d.	...	...	...	...	...	192	10	0
Profit on 100 ewes and wool, at 15s.	...	...	...	...	...	75	0	0
15 acres of wheat, at £12	...	...	...	...	...	180	0	0
						<hr/>		
						1,167	10	0
						<hr/>		

EXPENSES.						£	s.	d.
Rent, 200 acres, at 40s.	...	...	...	...	...	400	0	0
Tithes, £15; rates, £43 15s.	...	...	...	...	...	58	15	0
Wages—4 men at £40...	...	...	...	...	160	0	0	0
1 man at £20...	...	...	...	...	20	0	0	0
Extra man	...	...	...	...	13	0	0	0
Harvesting	...	...	...	...	20	0	0	0
						<hr/>		
						213	0	0
Tradesmen's bills, £32 10s.; grass seeds, £22 10s.; other seeds, £20	...	...	...	...	...	75	0	0
Paid on account of Improvements, including Draining £40, Boring £60, and Repairs £25	...	...	...	...	...	125	0	0
Paid for oil-cake	...	...	...	...	...	50	0	0
Contingent Expenses	...	...	...	...	...	30	0	0
						<hr/>		
						951	15	0
						<hr/>		
Profit	...	...	...	...	...	215	15	0

"The three systems will, therefore, stand as follows:—

	Receipts.	Expenses.	Profits.
Cheese or Butter-making...	£1,213 15 0	£1,024 15 0	£189 0 0
Grazing	1,167 10 0	951 15 0	215 15 0
Milk-selling...	1,428 15 0	1,124 15 0	304 0 0

"It thus appears that the experience of this district (North Cheshire) is decidedly in favour of milk-selling; but before coming to a definite conclusion on the subject, the strain put upon the land by the two systems—milk-producing and fattening—has to be taken into account.

"I feel that the grazing account may require some little explanation to some whose experience may be somewhat different. The profit of £12 per head on the cows may be thought excessive. I can, however, but state that such is the annual average profit realized by a number of graziers in this immediate neighbourhood, who buy in lean but healthy shorthorns, at an average of £10 to £12 per head, in the first two months of the year. They then freshen them on straw, turnips, and a little cake, putting them out a little each day—weather permitting—until spring, by which time they have fairly begun to grow; and when a flush of grass comes they do not, like cows newly bought, lose time in making a start. They

are then grazed through the summer, tied up in October to turnips, ground oats, oil-cake, and straw, and sold from the middle of December to the middle of January at £22 to £24 per head. The extent of land may also seem small for the number of beasts and sheep kept; but this is accounted for by the circumstance that all the grass land is available for pasture, only a small quantity being required for the horses. Again, the practice is to break up a fresh turf-field every year for ley-oats, to be succeeded by turnips, which, aided by the moist climate of the district, is always a very heavy crop, averaging from 33 to 38 tons per statute acre: hence the large amount of winter-keep from so small an extent of arable land.

"The item of £50 for cake may also appear small, but I may state that cake is not used as the chief article for fattening beasts, but rather as conducive to their health, and as an aid to the corn and turnips, which are mainly relied upon for fattening them. The sheep and lambs get no cake.

"I may also further state that of the 60 cows grazed, not more than 50 are tied up in the autumn, as the remainder either go out from grass or as calvers, of which there are always a few, and which pay equally well, regard being paid at the time of purchasing that they are all right in their milking organs.

"But I should hardly do justice to the merits of this system of grazing by simply giving the practical results in my own neighbourhood, and comparing them financially with those of cheese or butter making, and milk-selling. Grazing has collateral advantages in many forms that do not show themselves in such a comparison, but which assume so large an amount in the aggregate, that, though milk-selling excels it in direct profit by, say, £88 5s. per annum on a farm of 200 acres, I yet consider that, in the main, grazing is the preferable system, as I will endeavour to show.

"In the first place, I consider that the apparent margin in favour of milk-selling may fairly be reduced somewhat, on account of the extra risks attending the system, from the more general tendency to delicacy and sickness, of milking, as compared with fattening, cows. Again, we must not overlook the risk of making bad debts with the milk-dealers; who, as a body in the large towns, are not the best of payers. In saying this I do but speak the experience of milk-producers. Again, under the system of grazing, the farm will regularly increase in fertility, as a much greater portion of the nutriment, either extracted from the ground or artificially supplied, is then returned to it again by the animal, than under the system either of cheese-making or milk-selling. If, then, we suppose a tenant to have a lease for, say, twenty-one years, at a fixed rent, the progressive improvement of his farm under grazing will yearly increase his crops of beef, mutton, and corn; and with improved condition of land comes decrease of expense in cultivation; and thus his profit will yearly go on increasing, the ultimate result being most beneficial alike to himself and his landlord.

"As regards the labour attending the practice of these systems of farming, that of grazing has a decided advantage over the others, not only in out-door labour, as shown in accounts of expenditure, but also in the labour and responsibility saved in-doors, since the care and management of milk, in any way, entails much of both, and requires an amount of skill that has often to be remunerated at a very high rate.

"One of the best indications of the progressive improvement attendant on this system of grazing is obtained by one simply observing the very great difference in the quality of the dung-heaps collected under the respective systems, the comparatively cold, aqueous appearance of that produced from milking-stock contrasting remarkably with the fermenting, oily nature of that collected from fattening-beasts. The effect of this difference upon the farm must be obvious to anyone. In fact, I have myself watched its progressive effect under good management with extreme satisfaction, seeing the ordinary condition of the farm rise gradually to that of high cultivation; the weeds disappearing as the crops became stronger, and the land being more easily worked as it became more disinte-

grated by the more luxuriant growth of the herbage upon it. Here I cannot but state the particular attention paid by the farmers of this district to the mode of seeding down their pastures, which, coupled with the clean fallow, or green crop, is undoubtedly, after draining, the foundation of all good farming, and the secret of success in the cases now under my notice. By attention to this particular, a sod is obtained by the aid of bones which, after a few years' growth, is equal to that produced in the ordinary way by twenty years' ley; and experience shows me that a good sod that breaks up oily and mellow, through the action of the fibres of luxuriant herbage, conduces more to a good and inexpensive course of crops than any manure that can possibly be applied artificially, to say nothing of the economy of restricting the need for such manures; for, after all, artificial manures are but a defective substitute for the elements as naturally combined in a virgin soil.

"Holding these views, and considering the present scarcity and consequent high price of beef and mutton, I cannot commend too strongly a system so conducive to the mutual advantage of both tenant and landlord as that of grazing."

There can be no two opinions as to the remunerative nature of grazing and stock-keeping, and the great importance of having more stock on a farm than is usually kept has been long urged upon the notice of agriculturists by different writers; but it is possible that Mr. Heywood, in drawing his comparisons between milk-producing and grazing, has been guided to his conclusions by the methods which are followed mostly by farmers in this country, who feed their milch cows only upon grass in summer, and the cheapest substitutes which they can procure in winter, when he points to the great difference in the quality of the manure; for, of course, with cake, pea-meal, and other higher feeding, which, it is contended, it pays to give to milking-cows for the sake of a greater yield of milk, the advantage in extra richness of manure is disposed of.

9. **MARKETS FOR MILK.**—There is always a ready market for any amount of milk in London, and the case is much the same in the neighbourhood of our principal towns and cities.

10. **DAIRY OPERATIONS ON MIXED HUSBANDRY FARMS.**—The dairy, and dairy produce may be the chief aim, but there are many subsidiary items which all come in to swell the profits of the business, and these deserve the most careful consideration, though they are very often too much neglected.

Pigs, although, strictly speaking, having no connection with the dairy, can be fattened on skimmed milk, and calves cheaply reared on the same; which in time grow into valuable stock, that can be made to possess the additional recommendation of being bred to one's actual requirements by judicious management.

The best roots also may be sold which can be spared at times; such as carrots, parsnips, &c., as well as cabbages and similar pro-

ducts, which can all be consumed if there does not happen to be a market; and the same will apply to hay, or any produce, if the pasture-land happen to be in excess of the dairy farmer's own requirements.

11. EDUCATION NECESSARY FOR THE DAIRY FARMER.—

There are many points in connection with dairy management in which the inexperienced require to be educated, so to speak, in order that definite results may be obtained, and the business not given up to haphazard, or anything left to chance.

The necessity of this is shown in the example of many struggling men, who work hard, and live frugal lives, and yet can barely obtain more than a decent subsistence, instead of laying by money, as they ought to do; while the amateur in most instances, instead of making money by his dairy farm, often loses a good round sum annually.

We have to fear the competition from butter-makers of Normandy and Holland chiefly, but there would be less cause for apprehension if English dairy-farmers paid more attention to details than they are generally in the habit of doing. There is a good market at our own doors for all kinds of produce, which is the first essential in any commercial undertaking, and without which many praiseworthy efforts would be thrown away; so that there is no fear but that the English dairy-farmer will be amply repaid for all and any effort he may make to improve the routine of his production, for which, it must be confessed, there is great need in many parts of the country. In others, the necessary precautions for ensuring the health of stock are often neglected, and advantage is not taken of the best methods of adding to their food judiciously, by giving artificial aids which stimulate an increased production. In the rich county of Gloucester, almost the entire food of the cows is grass in summer, and hay in winter; and though doubtless this is their natural food, it might, at times, be most usefully supplemented. Again, scarcely any shelter is provided for the milch cows all the year round, "according to the custom of the county," where the old-fashioned system of dairying prevails, which, it must be acknowledged, is a very bad one in the case of dairy stock, whose yield of milk is increased, and whose health and condition is greatly improved when carefully housed, or partially housed. Various examples are quoted in the following pages of experiments and results arrived at by different persons, in different places, and in those cases where the prices of stock and produce instanced are considerably lower than those which rule at the present time, an approximate allowance must be made, and they must be read with relative application to present rates, which are much higher for nearly all dairy produce (cheese excepted) than they formerly were; and they are therefore, necessarily, proportionately remunerative.

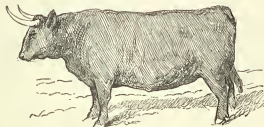
12. RENT, CAPITAL, &c.—

Arable land, as a rule, maintains a much steadier and more equable value in the shape of rent than meadow land, which varies exceedingly according to situation, sometimes pasture land in the neighbourhood of large towns commanding high prices for the sake of the accommodation it affords, many large butchers, and others, being willing, at times, to give as much as

£6 per acre for the convenience of turning beasts and sheep into it; to be ready for slaughtering when wanted; besides being needed for many other purposes, which it is unnecessary to specify.

It is difficult, therefore, to instance, with any degree of certainty, the amount of rent which should be paid for land where dairy and mixed husbandry farming is carried on; and we should not like to commit ourselves to any definite statement on this head, but a practical man of our acquaintance informs us that he could always make a profit out of grass land for which he paid any sum under £3 per acre.

Of course, in such a general statement, very poor land must be excepted for which a rent of £3 might be demanded, but which



DEVON STEER.

could only be called pasture land by courtesy; so that rent must be regarded in conjunction with *quality*. Very rich pasture land would be much cheaper to the dairy-farmer at a comparatively high price, than very poor, thin, unproductive meadows, that might be rented for very little money.

13. AN APPROXIMATE ACCOUNT.—We give a short approximate account of the amount of capital required, rent, &c., in the case of a partly arable dairy farm, in an agricultural district where rents are low, of small size, furnishing work enough for one pair of horses, of 120 acres in extent, 60 of which are pasture—30 acres being mown every year—and the remainder arable, cultivated on the six-course rotation, *i.e.*, 1. Wheat; 2. Beans; 3. Wheat; 4. Clover; 5. Oats; 6. Mangold, Carrots, Turnips, or other roots; the rent of which is 3s. per acre.

The winter stock of food may be put down at 250 tons of roots from 10 acres of arable land, and about 30 tons of hay; and the summer stock at about 400 tons of green food from the clover and grass of the artificial and natural meadows. This would provide for the same amount of stock winter and summer,

and support a dairy of 25 cows, eating nearly 2 cwt. per diem each thus provided.

	£	s.	d.	£	s.	d.
To purchase 25 cows, therefore, at £20 each,						
will take	500	0	0			
To purchase 10 store pigs	15	0	0			
	<hr/>			515	0	0
The out-going tenant will probably require to be paid for the cultivation of the young crop 5. £3 10s. per acre for 60 acres ...	...	...	...	210	0	0
The labour on the farm, including cost of horses and their keep, may be put down at £4 per acre for 60 acres of arable ...	240	0	0			
And 60 acres of pasture land, at 15s. per acre	45	0	0			
	<hr/>			285	0	0
The implements for the necessary use of the farm are generally put down at 30s. per acre. 60 acres at 30s.	90	0	0			
Dairy utensils	20	0	0			
	<hr/>			110	0	0
Rent and taxes, put down at the low sum of 32s. per acre				192	0	0
	<hr/>			192	0	0
The following being a recapitulation of the whole:—						
Stock				515	0	0
Out-going Tenant				210	0	0
Labour				285	0	0
Implements				110	0	0
Rent and Taxes... ..				192	0	0
	<hr/>			1,312	0	0
	<hr/>			1,312	0	0

The above is considered a sufficient amount of capital to work a farm of the dimensions we have specified. There is no doubt but that many dairy-farmers, commencing in a humble way, have succeeded upon much less; but when a painstaking man works early and late, his exertions take higher rank than those of paid labour, for the magic of ownership accounts for many otherwise astonishing results.

But in the regular way an insufficient capital in farming means that a man will be continually behindhand in his operations, unable to take advantage of favourable seasons, or to guard against those which are likely to be adverse; and, as a rule, the more capital that is employed (so that it is judiciously made use of) the better is the result as far as profits are concerned.

14. **MOST SUITABLE TIME OF ENTERING.**—The autumn is the usual time of entry in England, leases generally terminating at the Michaelmas quarter, the reasons seeming to be in favour of commencing a fresh tenancy in the autumn—first, because the corn crop has been removed from the ground, and second, because the benefit of the summer's grazing has been enjoyed by the out-going tenant; but in the north of England the 12th of May is generally fixed as the time of removal of an out-going tenant, and in the south of Scotland at about, or upon, the 15th of May, or Whit-Sunday.

There is a special recommendation in the latter arrangement to the dairy-farmer, as the cattle are then changed from the folds to the fields, and there are greater advantages on the side of a spring than of an autumn term of entering upon a farm.

The out-going tenant having threshed all his corn of the last crop, and sown the seed of the crop he is entitled to of the following harvest, called the away-going crop in the North, and having consumed all his turnips and hay, the in-coming tenant takes possession at a time when his stock can generally depend upon grass, and he has the making of hay, and the working of land for turnips and mangold, or any special crops he may require in his own management.

In the North, where this system is most commonly practised, he does not get possession of that portion of the land under the away-going crop, which it is customary for the out-going tenant to reap and thresh. This double occupation is, however, very inconvenient, and often leads to disputes and misunderstandings between the out-going and in-coming tenants; it is, therefore, much better avoided, which is generally done by means of valuation.

15. **STOCKING THE FARM.**—As scarcely any two farms are alike, each possessing its own particular capabilities, or otherwise, one of the most important considerations, to be carefully entertained, is to stock it to the best advantage. We are, of course, assuming the proper feeding of cows to be the principal object aimed at, so as to ensure the largest possible amount of dairy produce; but unless there is ample space for raising plenty of roots, and growing green crops, it will not be wise to be encumbered with too large an amount of live-stock in the shape of sheep, or other than milch cattle, the proper keeping of which may, at times, become a source of embarrassment. With respect also to the quality of the herbage on the permanent pastures, as we have pointed out before, this should determine, to a great extent, the breed of cows that are to be kept the various points of which we shall afterwards specify.

16. **THE REARING OF CALVES**, again, can be made very profitable, if the business is set about in a right manner, though this branch is often neglected to a surprising extent by most dairy-farmers.

17. **PIGS** are another paying item, when properly managed, but if too many are kept, and a large quantity of food has to be bought for them, there are but few persons who can make them answer, though

this can be done readily enough by those who understand the best methods for bringing about this desirable result.

Although Arable Farming often needs a large amount of capital to be carried on successfully, and the variations of seasons and risks of bad ones have to be taken into account, while profits can never be large, there are comparatively few obstacles to the breeding of stock, or dairy-farming, the profits on which are much larger than when the cultivation aimed at is the production of cereals only.



LEMORISEIN-BREED, ♀



FAT CROSS-BRED STEER.

CHAPTER II.

SELECTION OF CATTLE FOR DAIRY PURPOSES.

Ayrshire Breed—Alderneys—Short-horns—Long-horns—Brittany Cows—West Highland Breed—The Galloway—Herefords—The Suffolk Dun—Irish Cows—Qualities Common to all Good Milking Animals—The Guenon Theory—Choice of Animals, and Length of Time to Keep Them—Best Age for Milch Cows—Management of Stock.

18. **PURCHASING STOCK.**—If the farm is entered upon at Michaelmas, or Martinmas (November), it is best to purchase stock at the time when they have received the bull, so as to accustom them to their new *habitat* for some months before the time of calving, as stock seldom thrives well immediately after being removed to a new farm, this being very clearly apparent if cows are shifted about the beginning of summer, when they are in full milk, the supply of which is easily affected by a difference of water, or pasture.

In stocking a dairy-farm, the common practice is to buy of the breeders, in April, a number of heifers which have completed their second year. Supposing the tenancy to commence at Lady-day, or Whitsuntide, they are put on the grass, and the bull admitted to them about the middle of July. They are allowed to graze during summer and autumn, and housed in the winter, about the beginning of November.

For milk dairies, cows which give an abundance of milk are wanted—no matter what its quality, which is of secondary consequence to quantity. For butter and cheese making, on the other hand, the richness of the milk is a very important consideration, and the dairy-farmer should thoroughly satisfy himself, whether the cows which give the most milk are actually the most valuable to him.

19. **THE AYRSHIRE BREED.**—In its native county every pains have been bestowed to develop the milking powers of the Ayrshire

cow, which is so admirably adapted for dairying purposes that it cannot be surpassed, and is of the highest order. On poor or medium soils it is especially useful, where the food is not over good; and they turn out the best payers of any, perhaps, in those localities where the herbage is anything but luxuriant. As stock animals, for the purpose of the grazier, they are not well adapted, as the bullocks are difficult to fatten, and come light to the scale, and the beef is



SWEDISH COW.

coarse in quality. A cross, however, between an Ayrshire cow and a Short-horn bull will produce a good animal, and these are held in favour by the graziers of the west of Scotland.

20. **ALDERNEYS.**—The Alderney cow resembles very much in appearance the Ayrshire, and, from the superior quality of the cream and butter, is held in high estimation by private families. There is, however, a very opposite difference in the excellence of the two breeds, that of the Ayrshire consisting in the abundance of the milk yielded, while that of the Alderney consists in its richness of quality,

For grazing purposes they are not at all suited; their one good point being confined exclusively to the richness of the milk yielded, the quantity being but small; and it will not be found expedient even to feed a steer for the butcher that may happen to be raised; for although they are known to "cut up" better than the butcher



NORFOLK OR SUFFOLK POLLED BREED.

himself imagines they will do, perhaps, at the time of purchase, the seller does not get the advantage from this consideration.

21. **SHORT-HORNS.**—The Short-horn breed are capital milkers



SUSSEX BREED.

when there is an abundant supply of food for them, and they are universal favourites, especially in those districts where the usual average of arable husbandry is carried on. Their aptitude to fatten, which is such a valuable qualification in the eye of the grazier, is, however, somewhat objectionable to the dairy-farmer, who wants milk and not meat. Their quiet temper and symmetrical forms, combined with their rich colours, cause them to be universal

favourites. Their prevailing colour, and that which is liked best, is black, with deep orange on the naked parts.

22. **LONG-HORNS.**—At one time Long-horns were the prevailing stock in most of the midland counties of England, but they have gradually given way, year by year, in favour of Short-horns, even in those districts where they have been the prevailing breed from time immemorial.

23. **BRITTANY COWS.**—This is a small breed of animals which is sometimes kept as fancy stock by gentlemen, but they do not answer the purpose of the dairy-farmer. The presence, in fact, of these smaller-sized beasts in a neighbourhood is often attended with a certain degree of inconvenience when the calves are saved, as stock



FAT SHORT-HORN COW.

is apt to get deteriorated in time by their admixture with the prevailing breed of a district. They are, in consequence, only interesting as a variety to those who are curious in such matters, but are not worth the attention of the dairy-farmer.

24. **WEST HIGHLAND BREED.**—This is the prevailing breed in the Highlands of Scotland, especially in the larger Hebrides. It is admirably adapted for districts where the pasturage is coarse, and will not only thrive, but will ultimately put on plenty of flesh, where the more tender Short-horn could scarcely exist. They are also known by the name of Kyloes. The cows yield very rich milk, but give only a small quantity of it, and, besides, have a tendency to soon get dry, which causes them not to be desirable for dairy purposes, except in those rugged situations where the "keep" is not sufficiently good for the better kinds of milch cows, which would not answer, nor succeed in a cold, humid climate, upon coarse herbage.

25. **THE GALLOWAY.**—The Galloway is a similar breed to the above, only without horns, possessing a larger frame than the West Highlanders. They are also of a more quiet and inoffensive disposition, which admits of a greater number being kept together in the same enclosure than of any other breed. The Galloway is more adapted to a lower range of pasture, and more sheltered plains, than the preceding, but even in their native district they have been supplanted for dairy purposes by the Ayrshire.



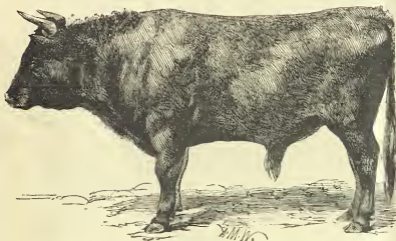
FAT HEREFORD HEIFER.

26. **HEREFORDS.**—In their native district, where they are most commonly to be met with, there are many who maintain that the breed is equal to the Short-horn, and their merits are doubtless great as a grazing breed, suitable for fertile soils; but although both the Hereford and the Devon are fine animals, they do not answer as dairy stock, however well they may turn out as beasts destined for the butcher.

27. **THE SUFFOLK DUN.**—This breed appears to be indigenous to Suffolk, and possesses an undoubted capacity of yielding a large quantity of milk in proportion to the food they require, the dairy

produce of the county having enjoyed a high reputation for a great length of time. They are ungainly in their form, being without horns, and resembling somewhat the polled-breeds of Scotland. The prevailing colour used to be a mouse dun, from which they have taken their name; but this hue has latterly changed to a pale red. For the combined purposes of the dairy and the fattening-stall, the Short-horn is, even in Suffolk, fast taking the place of the original stock.

28. **IRISH COWS.**—Some of the Irish cows turn out very well,



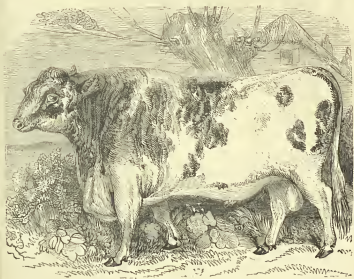
KERRY BULL.

especially the small Kerry, both as good milkers and also for getting into good condition when the time comes round for disposing of them, when they are wanted to put on flesh; but there are a great many very indifferent ones amongst the ordinary run of Irish cows—the Kerry being the best.

29. **QUALITIES COMMON TO ALL GOOD MILKING ANIMALS.**—The quality common to all good milking animals consists in the tendency to produce milk instead of laying on flesh. On this account the Short-horn is not so good a milker as many others, however desirable the breed may be on other points. A Short-horn cow will give as much milk as an Ayrshire, but consumes a good deal more food, and is, therefore, a much less profitable animal to keep.



FAT DURHAM COW.



SUFFOLK BREED (FAT).*

For mixed Arable and Dairy Farming, the breeds which have been found to answer best in Scotland, where young stock are reared, are the Ayrshire, Fifeshire, and Angus breeds, or a first cross of either with a Short-horn; and in England a cross also between a Short-horn and an animal of inferior breed, as respects meat-making qualifications, but one which gives a large supply of milk for the food consumed, is preferred, some one or other of the breeds we have indicated as being good milkers.



KERRY HEIFER.

The highest bred cows, it must be remembered, are not the best milkers, and often the ugliest cow in the herd yields the most milk. Good milkers invariably show very angular outlines; for it cannot be expected the cow should be yielding a large quantity of milk and putting plenty of flesh upon her bones at the same time.

There are no reliable signs by which one can be guided in purchasing a cow beyond the animal's good points which present themselves for inspection, and its general likely appearance, combined with a knowledge of her breed.

Mr. Stevens in his book on Farming says:—

"As the colour of Short-horns is a prominent characteristic of them, I may mention that roan is a handsome colour, and is, I believe, the general favourite now, the fancy for colour having gone from the red to the white, and is now settled on the roan. Dark red usually indicates hardness of constitution, rich-

ness of milk, and disposition to fatten; light red indicates a large quantity of thin milk and little disposition to fatten; but the red in either case is seldom entire, being generally relieved with white on some part of the sides and belly. White was considered indicative of delicacy of constitution, and to get quit of it and, at the same time, avoid the dulness of red, the roan was encouraged and now prevails. The white shows the symptoms sooner than any of the other colours of breeding in-and-in. A single *black* hair on the body, and particularly on the nose, or the slightest blue or black spot upon the flesh-coloured skin upon the nose, or around the eyes, or the least streak of *black* on the tips of the horns at once proclaim that a Short-horn sporting either one or more of these impurities is of mixed blood, notwithstanding all attestation to the contrary."

30. **THE GUENON THEORY.**—A theory which has lately attracted a good deal of attention, called the "Guenon Escutcheon Theory," after the name of the Frenchman who originated it, has been pronounced all "moonshine" by many experienced dairy-farmers. It is based upon the development of the slight fringe above



FAT SHORT-HORNED HEIFER.

the udder of the cow, where the hair points upwards and downwards, which Guenon calls the cow's escutcheon: the longer and wider this is, the more probability of the cow's being a good milker, it is said. No doubt to an experienced eye the general appearance of a cow's udder would present signs by which the judgment would be very materially assisted; but this accidental development of the hair of the cow is pronounced too fanciful to be relied on, beyond, in a certain degree, following the outline and development of the udder, which should be looked at, and not the hair upon it.

In *London Dairies* a good many interesting particulars were collected together a few years ago respecting the London milk trade, reported to the Society of Arts, and published in their journal of Dec. 15th, 1865. Since that time certain changes have taken place in the trade, in which the working of the Adulteration of Food Act has had some principal share; but there are many particulars relating to the

management of a London dairy from which the owners of country ones can take some valuable hints, especially where they relate to such particulars as that of speedily getting rid of unprofitable cows, and the thoroughly systematic manner with which the entire management is conducted, that offers a striking contrast to the careless way that many country dairies are managed, and are yet expected to pay a handsome profit. It is only by the carrying out of strictly business principles that this, or any other calling, can be made to answer in the best degree, and some of the most salient points we shall briefly mention.

In the Selection of Cows London milkmen are guided both by the current produce which the cow yields, and her prospective selling value when they have done with her. Some cows which are tolerable milkers are yet very bad cows for the butcher. To give a striking example, all Alderney and similar breeds come under this category, although they are known to turn out better eventually than their outside appearance commonly gives indications of.

31. **BEST AGE FOR MILCH COWS.**—Thoroughly experienced dairymen do not, as a rule, like very young cows, because their milk is not then at its full yield; nor should a cow be a very old one, because there is some difficulty in fattening her.

The general practice is to buy cows which have had from three to five calves and to keep milking them till they give no more than six quarts of milk per diem. When her milk begins to decrease with the good food that is usually given to a milking-cow, it will be found that she puts on flesh, and is on the road for being in much better condition. Three or four pounds of oil-cake are then given in addition to the ordinary food, and, at the present prices given for meat, she will probably fetch, within a pound or two, as much as was given for her, if bought tolerably cheap; but this, of course, all depends upon circumstances. If second-class beef is low in the market at the time, there may be a greater loss upon her, but this loss will not be a very serious one in the case of the average of a good cow that has been kept for several seasons, speaking generally. It is this consideration which causes the proprietors of many of the first-class cow-houses in London to purchase large-framed animals, wide and straight-backed, deep-bodied, short-horned cows, which display an ability to carry meat, as well as yield milk; though they often cost a good deal of money. These are kept as long as they are profitable, and sold off when their milk decreases, according to circumstances.

Other kinds of cows do not fetch such high prices at the beginning, such as Irish and various foreign cows, that are often found to be very good milkers, and these are disposed of in the same way, whenever it is thought desirable, without any attempt being made to fatten them.

32. **MANAGEMENT OF STOCK.**—In the management of stock, judicious crossing is a main point not to be overlooked; and a skilful dairy-farmer, in the course of a few years, has it in his power to raise an inferior herd of cows into a very superior one, by the ex-

ercise of care and attention; and that without any great outlay in pedigree cattle, for which fancy prices are asked. This can be easily managed if he rears a young bull-calf whenever he wants one. If he has not the particular breed on hand he is desirous of having, there is no great difficulty in procuring a calf of the description he requires.

A course of selection and rejection should be constantly going on, with the view of maintaining the herd in the highest effective condition; and as the cows get old they should be replaced by younger animals. There is, necessarily, always a natural reluctance to part with a good cow, although she may be a little aged; but a cow should never be kept after she is eight or nine years old. The constitution of cows differs, like that of human beings, and other animals; but when the cow has attained a certain age, her milk is liable to fall off all at once, and one who farms to obtain a livelihood for himself and family, has to look for profit, and, unfortunately, cannot afford to entertain those kindly feelings of attachment for the dumb animals which serve them, which gentlemen or private families may indulge in.





EXTRA STOCK SHORT-HORN.

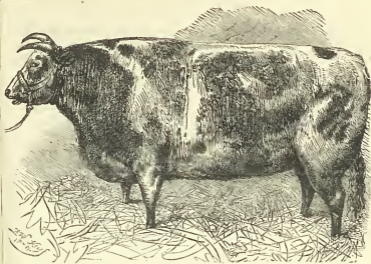
CHAPTER III.

FEEDING.

Summer Feeding—Stall-feeding by the Peasants of the Lower Moselle—Winter Feeding—Steamed Food for Cows—Methods of Feeding followed by London Cowkeepers—Different Examples of Feeding and Management—Shortening the Cow's supply of Food before Calving—Feeding Cows for Milk or Butter—A course of Good Feeding highly Remunerative—Water.

33. **SUMMER FEEDING.**—Instead of allowing a limited number of cows to trample down a large area of the growing grass, as is often seen, if one little field is kept for them, into which they can be turned for air and exercise at certain times, it will be found most profitable to resort to stall-feeding while the crops are growing. A large amount of extra food can be procured for them without any great cost, by economical contrivances. For example, the long grass which grows near the hedges in the fields laid down for hay, can be cut, say, six feet round the field, and when it is cut it will grow in length to equal the remaining portion by the time the whole is mowed. This kind of grass is not seed-bearing, and is somewhat rank, but it is, at all events, good green food, and instead of a considerable portion of the grass being comparatively wasted, a large area can be saved to produce hay.

“*What would be thought,*” says Sydney Smith, “if we walked all over our bread and butter?” And it will be found more economical to mow as much grass daily as is wanted, even if there is no other convenient food to resort to, rather than have a meadow spoiled



FAT DEVON HEIFER.



FAT DURHAM OX.

entirely. That portion which has been mown will be growing again, and will furnish some nice "feed" when the other comes to be cut.

With some people, however, stall-feeding in the summer-time would be reckoned out of the question, and it is considered good practice to pasture the cows about ten hours daily, upon one or two-year old clover and rye-grass lea, two statute acres being allowed to each animal. During the three summer months, the grass is generally abundant, and the cows are kept in the pastures from 5 a.m. to 8 p.m. each day, and get little else beside, but when the grass begins to get hard, and there is a smaller supply of it, a liberal allowance of clover and vetches is given in the house at night.

When the weather is very hot, and the flies are troublesome, it will be found a good plan to keep the cows in the house during the day, and feed them upon clover, turning them out in the pastures during the cool of the mornings and evenings.

Fields adjacent to the house are to be preferred for grazing milch cows, as the fatigue and annoyance consequent on driving them any considerable distance both lessens the quantity of milk, and deteriorates the quality of the produce made from it, whether it be butter or cheese.

It will be found also a good plan to change the cows from one field to another, as regularly as possible, and have one or two fields shut up, so as to allow the grass therein to grow, and freshen, while the others are being eaten down. By this means the cows will get fresh, clean pasture every ten days or fortnight throughout the summer, which is a very important point, both as regards the quantity and quality of their produce. Where a cow is fed entirely upon grass in the summer, one-and-a-half acres is calculated to be required.

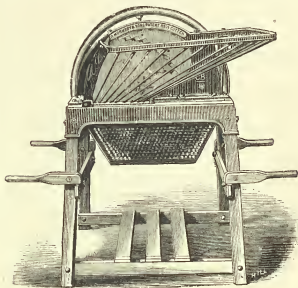
34. STALL-FEEDING BY THE PEASANTRY OF THE LOWER MOSELLE.—Although the method alluded to before is not by any means held up for general imitation, yet the system described by Schwertz, of economically feeding cattle in the district of the Lower Moselle by the poor peasantry, gives a lively idea of what can be effected by economical methods of stall-feeding where the greatest difficulty exists in procuring a sufficient supply of food for the animals. He says:—

" Stall-feeding is general in the Moselle district. In the autumn alone is there some pasturage on the stubbles, and when the after-grass is cut, the meadows are grazed for a couple of hours daily. It is curious to see how the quantity of cattle are fed which are kept on the numerous little parcels of land.

" In the spring the women and children range the fields, cut the young thistles and nettles, dig up the roots of the couch grass, collect weeds of all kinds, and strive to turn them to account. What is thus scraped together is well washed, mixed with cut straw and chaff, and, after boiling water has been poured over the whole, it is given to the cattle. A little later, when the weeds grow stronger, they are given, unmixed, as fodder. The lucerne comes at length to help, and

then the clover, which lasts until the autumn, when cabbage-leaves and turnips are to be had. When these are scarce, potato-haulm is taken to help, until the stubble turnips are fit. In winter, cut straw is mixed with the turnips, and warm feeding begins. In the morning a mash of chaff, rape leaves, pea pods, or cut straw, with bruised turnips, potatoes, or oil-cake, boiled up together. Then barley or wheat straw follows this meal, which is repeated at noon and in the evening. In the middle of the day clover or meadow hay is occasionally given to the cattle.

"In larger farms, where ten or fifteen cows are kept, this kind of mash is only given twice a day. The poor farmer is obliged to be more economical, and must



TURNIP CUTTER AND SLICER.

occasionally try to make good the quantity that he cannot bring together. Even in summer he prepares a soup of this kind for his beasts, but then adds clover, thistles, convolvulus bind, and other weeds, to the mixture. A portion of oil-cake is added while it is hot.

"Turnips carefully preserved, mangel-wurzel, turnip-cabbage, potatoes, and swedes play their part in the spring and winter fodder."

Accustomed to the rude abundance, and often waste, on a farm, the English labourer is sometimes inclined not only to view such economical expedients with contempt, but extend it to the person who, in his estimation, is so *mean* as to pursue similar measures in keeping his stock economically.

35. **WINTER FEEDING.**—The Scotch plan of winter feeding is considered a very good one upon mixed arable and dairy farms, which commences about the middle of October, and is often after the following method, the cows being tied up in pairs in the stalls:—

At 8 a.m. each cow gets boiled food, consisting of 30 lbs. of swedes, $1\frac{1}{2}$ lbs. of linseed, 2 lbs. of bean or pea meal, and a quantity of chaff and light grain unfit for making meal, a liberal supply of oat straw being given after this is finished. At 10 a.m. 60 lbs. of yellow turnips, and oat straw as before. At 2 p.m. about the sixth of a bushel of brewer's or distiller's grains, and at 5 p.m. 60 lbs. of yellow turnips, and oat straw as before; which is the last time they are fed. The accompanying illustration shows a turnip cutter and slicer, manufactured by Messrs. R. Hornsby and Sons, Grantham.

36. **STEAMED FOOD FOR COWS.**—It has been found very advantageous in winter feeding to steam food for cows, some particulars of which we furnish. Mr. Horsfall's management of steamed food for cows has been described in the Journal of the Royal Agricultural Society as follows:—

"The cows are given rape-cake of the kind termed "green" cake, which imparts to the butter a finer flavour than any other kind of cake; and in order to induce them to eat it, Mr. Horsfall blended it with one quarter the quantity of malt dust, one quarter of bran, and twice the quantity of a mixture in equal proportions of bean-straw, oat-straw, and oat shells, all well mixed up together, moistened, and steamed for one hour. This steamed food had a very fragrant odour, and was much relished by the cattle; it was given warm three times a day, at the rate of about 7 lbs. to each cow, or 21 lbs. daily. Bean-meal was also scattered dry over the steamed food, cows in full milk getting 2 lbs. per day, the others but little. He found this substance to be an unfailing means of keeping up the condition of cows while giving milk. When the animals had eaten up this steamed food and bean-meal, they were each supplied daily with 28 to 35 lbs. of cabbage, from October to December (if kohl-rabi, till February) or of mangolds till grass time; each cow having given to her, after each of the three feedings, 4 lbs. of meadow hay, or 12 lbs. daily. The roots were not cut, but given whole. The animals were twice a day allowed to drink as much water as they desired. After the date of his original report, Mr. Horsfall discontinued the use of bean-meal owing to its comparative dearness of price, and gave, in its place, along with about 5 lbs. of rape-cake, an additional allowance of malt-combes, add 2 or 3 lbs. of Indian corn meal per cow. On this food, in instances actually observed, his cows gave 14 quarts of milk a day, at the same time that they gained flesh at the rate of about a $\frac{1}{2}$ cwt. per month.

A correspondent of the *Agricultural Gazette* upon one occasion described the method he pursued of giving steamed food to his cows:—

"I have a boiler containing about 40 gallons, and into it I put about 50 lbs. of turnips, a considerable quantity of water, and about 12 lbs. of straw cut into chaff, and this is boiled for about two hours, when it becomes a dark, nasty-looking mess; one half of this is taken out into two tubs, and whilst warm $1\frac{1}{2}$ lbs. of bean or pea meal is stirred into each, and then given to each cow at about 110° of heat. That which is left in the boiler remains till morning, and if well covered up is still warm enough for use; it is then mixed with the pea or bean-meal, as before, and given to the cows at break of day; this, with hay *quantum suff* constitute their daily diet, and I get about 6 $\frac{1}{2}$ lbs. of butter weekly from each

cow. The butter produced in this way has no taste of turnips; and the avidity with which the cows eat this boiled mess is a good criterion of its value. When given to the cows it should be weak and sloppy."

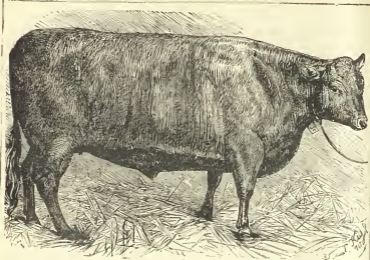
The quantity of butter yielded per cow is not, as will be seen, very large in this instance; but then the amount of feeding fell very short of what is given to cows in order to stimulate a large yield of milk. A useful idea is, however, to be derived from the plan followed of steaming.

Mr. Dancock, of Brompton, a successful manager of cows, whose practice is quoted by Mr. Morton in the Journal of the Royal Agricultural Society, uses steam-prepared food for his cows, giving his meal in the form of gruel over cut hay, or grains, as follows:—

"My plan," says Mr. Dancock, "is to fill with cold water an 8-gallon churn (holding twice that number of imperial gallons) up to the figure 7. This allows room for meal and steam. I then put the steam-pipe within six inches of the bottom, and, supposing the pressure in the boiler to be 10 lbs. turn on full, and in five or six minutes the can is full and the gruel is done. I have sixteen cows, and my quantity is three cans, which allows one large pailful to each cow twice a day. I think this better than giving them meal dry over grains. I milk before feeding, give one bushel of grains to a pair of cows twice daily with gruel over it, and when this is done, give them green stuff and mangolds, a little hay if necessary, then water, and rest till milking-time again, when they are fed as before with grains; then I give oil-cake, about 3 lbs., between two cows, then water, and do up with hay. In the management of cows cleanliness is assential to health—white-washed walls, mangers well cleaned, cows well cleaned and littered down with straw—in fact, everything belonging to cows and a dairy must be thoroughly clean to preserve health. This, combined with energy and attention, will, in due time, bring profit to the owner."

37. METHODS OF FEEDING FOLLOWED BY SOME LONDON COWKEEPERS.—One of the large London cow-shed proprietors, who usually milked thirty cows, has described the routine of the daily work followed.

"At 4 a.m. the cowmen enter the shed, and proceed to milk. In the case of the wholesale milk trade, when the dealers who buy the milk do the milking, one good man suffices for thirty cows. The cowman then only helps, if necessary, at milking-time, and sees that the work is thoroughly done. If he has any reason to suspect that a cow has not been thoroughly milked out, it is his duty to his master to "strip her;" for nothing, as we have previously pointed out, injures a cow more than imperfect milking; and if he succeeds in getting another half-pint from her, his master will give him 6d. for it, and fine the dealer that amount for his servant's default. The milking is begun at 4 a.m., and finished between 5 and 6 a.m. About a bushel and a half of grains is then given between each pair of cows, and they are partly cleaned out, and when the grains are done, a truss of hay (56 lbs.) is divided amongst 12. After breakfast-time, a bushel of chopped mangolds, weighing 50 or 60 lbs., is given to each 2 cows, and the cows receive another truss of hay amongst 12. The cow-shed is then cleaned out, and the cows are bedded, and left. At 1 p.m. milking recommences, and very much the same feeding as previously is given. At 2.30 grains are given as before, followed by the same quantity of hay, and then, being the only time during the 24 hours, the cows are freely watered. They again receive a truss of hay between 12, and are left for the night. The grains are either brewers' or



POLLED NORFOLK BREED (FATTENED).



SWISS BREED.

distillers' grains. The former are much inferior to the latter in value, and are less in price; brewers' grains costing 3*d.* to 4*d.* per bushel, while distillers' are 8*d.* or 9*d.* In the case of cows in heavy milk, and also, for opposite reasons, in the case of those rapidly losing their milk, which must be sent to market as quickly as possible, it is common to give two or three quarts of pea-meal mixed up with the grains morning and evening; each cow thus receiving that quantity daily. When the milking is coming to an end, for three or four weeks before the cow is sold she may receive 2 or 3 lbs. of oil-cake in addition. A full bushel of grains, half a bushel of mangolds, one-third of a truss of hay, and 5 or 6 lbs. of pea-meal in the case of the fattening cow, are thus the daily ration in a London cow-house. The grains at 2*s.* per quarter, the hay at £5 per ton, and the mangolds at 20*s.* per ton, cost 1*s.* 3*d.* per day, and with meal or cake the daily allowance may cost from 1*s.* 6*d.* to 1*s.* 9*d.* per cow—*i.e.*, 10*s.* to 12*s.* per week.

"The difference in the cost of food in London must be taken into account; as, for example, mangolds would not be reckoned worth more than 10*s.* per ton in the country, carriage forming a large item in the cost of London food. Grains in the country are often sold at 6*d.* per bushel (ordinary brewers' grains), which would amount to 4*s.* per quarter instead of 2*s.* In country places these are generally bought and consumed by cottagers for the use of their pigs, and are, perhaps, seldom used to any large extent for feeding cows.

"In summer time in London the cow's food is grass with grains, and meal if necessary. Most cowkeepers, except the very smallest, either have a small suburban farm, or buy a few acres of vetches, clover, or grass, and cart it for themselves. When it is bought daily at the cow-house it costs from 1*s.* to 1*s.* 3*d.* per cwt. during the summer, and the cows receive about that quantity daily, given to them as fast as they can eat it, morning and evening, with their grains.

"Some cows when first put upon grains are very greedy for them, especially distillers' grains, and they yield a large supply of milk upon them, but they soon get surfeited, and it is a bad thing to allow them to have too much at once, it not being wise to allow any description of food to pall upon a cow's taste."

38. DIFFERENT EXAMPLES OF FEEDING AND MANAGEMENT.—Mr. John Chalmers Morton points out, in a paper on "Town Milk," contributed to the Journal of the Royal Agricultural Society, several of the facts to which we refer, and remarks that the suburban cowkeeper, though more favourably situated than the London dairyman as regards the bulk of the food he consumes, the grass, the mangolds, and the hay, is less favourably situated as regards grains; and this disadvantage, combined with the other of distance from the consumer, is such as at least to balance, often to over-balance, any advantage he possesses over the town dairyman in respect of labour, rent, and cheaper farm produce.

Going further a-field, as, for example, to Swindon and beyond it, or to distant stations on the South Western and North Western Railways, you find that the farmer feeds his cows for London just as he has hitherto done for cheese or butter dairying. Bringing them to the pail at all months of the year, so as to have a regular produce to meet his contract with the London dealer, he milks his cows out at pasture during the summer, and feeds them on hay and mangolds in the winter. Receiving 6½*d.* to 8*d.* per imperial gallon for the milk delivered at the nearest station, and getting 500 to 550 gallons from his cow per annum, he receives £15 to £18 per annum for her produce, which is more than he can generally make of it in the form of cheese or butter, at the same time that he avoids all the cost of labour in the dairy.



AUVERGNAT BREED.



CHAROLAISE BREED.

Milk being sent up to town in this way runs the risk of souring on its journey, in which case it is thrown away at the sender's expense. By cooling it before it starts, this risk is very much diminished; and this is done either by standing the full can in running water, or by placing the milk, before filling it into these cans, in large tin vessels, surrounded by cold water, and traversed by cold water pipes. The risk is further diminished by filling the cans or "churns," as they are technically called, so that they do not shake when travelling on their journey, covering them with wetted jackets, so that evaporation may help to keep the contents cool.

Another Method of Management is thus described by Mr. Collinson Hall, of Navestock, near Brentwood:—

"We begin milking at 1 o'clock in the morning; each man should have 15 cows. The milk arrives at 4 o'clock in London. The cows are again milked at 10 o'clock, and the milk is in London at 1 o'clock. They are fed as follows: Each man gives about 4 lbs. of meadow hay to his 15 cows after the midnight milking, and then goes to bed. At 7 o'clock he gives them half a bushel of grains mixed with a bushel of sweet chaff and a handful of salt; the cows are then cleaned and fresh littered; 2 lbs. of hay a-piece are given, and at 11 o'clock one bushel of mangolds are given; at 4 o'clock p.m. 1 bushel of grains and chaff, and at 6, about 2 lbs. or 3 lbs. of hay.

"The cows are not untied, that they may not mix together, and their water is carried to them. We feed often, and avoid giving large quantities at once.

"Lime on the floors, gas-tar enough not to be offensive, and 10 drops of arsenicum (3rd dilution) in the drinking-water, great cleanliness, and all the provender good, not putting too many in one shed, good ventilation at the top, no draughts: these are my precautions."

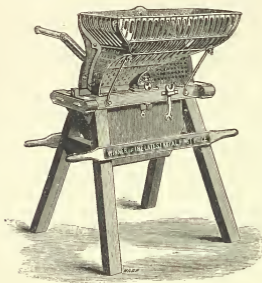
The manager of Lord Granville's dairy farm at Golder's Green, on the Finchley Road, in evidence before the Royal Commissioners on the Cattle Plague, described the management of his cows thus:—

"We give about a bushel and a quarter, or from that to a bushel and a half of brewers' grains to each cow, and about 15 lbs. of hay, and about 30 lbs. of mangold-wurzels, with 4 lbs. of meal (pea-meal principally) in addition to that feed in winter. In the summer, grass is given, instead of hay and mangolds. This mode of feeding, though it damages the constitution of a cow, is adopted in order to force the greatest quantity of milk which the dairyman can get. The gain more than covers all the loss; at least, it is supposed to do so. In our suburban district we give them more air, and feed them more on grass in the fields. We do not feed them so heavily upon grains and artificial food as they do in London. We give them much more natural food. Some turn them out from about July to October, and some do not. The cows always lose condition by being turned out; that is invariably the case. They lose milk, too, to the extent of a quart a-day, unless the pasture is very good indeed."

The allowance of grains we should consider extremely liberal, that is here spoken of as a moderate feed.

Mr. Balls, who managed the dairy farm at Oakington, near Sudbury, in the occupation of Colonel the Hon. W. P. Talbot, has kept from 80 to 100 cows constantly in stalls. They are milked at 3 and 4 a.m., and again at 1 and 2 p.m., and are fed exactly on the London plan, first on grains, a bushel between two, next with a little hay, then with a bushel of either cabbages or mangolds, and then again

a little hay; in the afternoon, grains, and hay, and water (they are only watered once a-day), and again hay before night. The alteration in summer is a substitution of grass for hay and mangolds. A small quantity (3 or 4 lbs. a-day) of meal is given, along with grains in the case of cows nearly dry; or rather this used to be given, for Mr. Balls declared that there was no profit in the attempt to put on extra flesh with extra feeding, while meal was dear and meat so



TURNIP PULPER.

cheap. Meat, however, while this is being written, is very high, while it was very low at the time Mr. Balls was speaking. He contrived, however, by careful purchasing, to get cows which would put on flesh without extra feeding when they got dry:

The Turnip Pulper shown in our illustration is that supplied by Messrs. R. Hornsby and Sons, Grantham.

39. **SHORTENING THE COW'S SUPPLY OF FOOD BEFORE CALVING.**—It is a very common error with many cowkeepers to shorten the supply of food to the cow during the time she is dry before calving. This is a great mistake, as it tends to weaken the

cow when she has most need for all her strength, and it frequently happens that this course has the effect of lessening the supply of milk after she has calved, till she becomes dry again, while it doubtless injures the calf. On the other hand, if the mother is well fed up to her time of calving, her progeny will be strong and healthy.

40. **FEEDING COWS FOR MILK OR BUTTER.**—What cows are fed upon makes a considerable difference in the results, and the appropriateness of the method adopted in feeding. If the production of butter is intended, or whether milk alone is sought to be produced for sale, it makes all the difference as to the kind of food which is given to them.

During the winter and spring months, when roots form a great proportion of the food which is given to cows, some of them are apt to impart a disagreeable taste to butter, injuring its sale. The most commonly objected to, and that most widely known, is the taste of turnips, which is particularly offensive and disagreeable to some people. Yet the butter made from the milk of cows fed on turnips can be had perfectly sweet and good if certain precautions are used. A common practice exists to obviate this by putting saltpetre into the pans; but the unpleasant flavour arising from turnip-feeding may be counteracted by giving the cows a small quantity of concentrated food, the most suitable of which are crushed oats, beans, Indian and palm-nut meals, bran, and oil-cake.

41. **A COURSE OF GOOD FEEDING HIGHLY REMUNERATIVE.**—It is a matter of experience with those who keep milking-cows, that the better the animals are fed, the more remunerative they become; and it pays well to give them linseed, or rape-cake sometimes, in addition to the best food which can be obtained from the farm. Two pounds of rape-cake will cost about twopence for each cow daily, and an increase of one pound of butter per week may be reckoned upon, besides keeping the cow in vigorous health, which a little generous diet will tend greatly to effect, as it will have a beneficial effect upon the rest of her food. The advantage of giving something of this sort constantly, also, will neutralise the ill effects which a change of food dependent upon the seasons will sometimes bring on. As the balance between loss and profit lies in giving just sufficient for the purpose, and no more, care should be taken that these artificial aids should not be administered extravagantly, or of course they will become too costly. Many farmers, who are quite alive to the good effect resulting from this course of treatment, have

discontinued it on account of the extra expense incurred, the food having been given wastefully; but, used with proper caution as auxiliaries, they will be found to well repay the outlay.

42. **WATER.**—It is scarcely necessary to point out that cows should have a regular and sufficient supply of clean water. Many cows will of themselves seem to prefer even, and drink, the fetid water that sometimes accumulates on the surface, into which the drainings from a manure heap have flowed; and they should, therefore, never be allowed to have access to foul water, if there is any means of preventing them.



MILKING PAIL.



CHAPTER IV.

DISEASES OF COWS.

Catarrh—Diseases of the Organs of Respiration—Bronchitis in Cattle—Hoove, Hooven, or Blasting—Choking—Distension of the Rumen with Food—Loss of Cud—Inflammation of the Rumen—Moor-ill and Wood-evil—Scouring—The Scant—Diarrhoea—Redwater—Retention or Stoppage of the Urine—Diseases of the Udder—Rheumatism—Cow-pox—The Drop—Abortion—Slinking—Slipping Calf—Warping—Inversion of the Uterus—Shelter for Cows—General Hints upon the Management of Cows—A Clergyman's Experiment.

43. **DISEASE** is very much influenced by climate and the season of the year, the result being that, in warm weather, affections of the digestive and abdominal organs are the most frequent; whilst in cold weather affections of the chest, rheumatism, and kindred ailments which arise from it, are sometimes common, especially when animals are not provided with sufficient shelter, inclemency of the weather inducing epizootic and endemic diseases.

44. **CATARRH: DISEASES OF THE ORGANS OF RESPIRATION.**—These prevail mostly in the spring of the year, when the wind is easterly, and particularly if the weather is both cold and wet. Stock also are subject to attacks in wet weather in the autumn, the young animals being more sensitive to this, as well as to other diseases affecting the air passages, than older beasts.

Some warm bran mashes, with a little nitre in them, is good treatment in mild cases, and will generally be found efficacious; but in a severe case, bleeding, and a dose of Epsom salts, are prescribed; a stimulating liniment rubbed into the throat, or a seton may be inserted.

The following is a good liniment to rub into the coarse skins of cattle when an external stimulant is necessary:—Powdered cantharides, 1 oz.; olive oil, 6 oz.; oil of turpentine, 2 oz. Mixed together.

When catarrh assumes an epidemic form it is desirable to use vegetable tonics, such as ginger and gentian-root, as there is greater tendency to debility, and it is generally more severe.

45. **BRONCHITIS.**—Neglected catarrh will often bring on bronchitis in cattle, which results from extended inflammation over the same membrane to a more dangerous part on the internal surface of the lungs. The symptoms are similar to those of severe catarrh, but the animal experiences greater soreness in the act of coughing. Bleeding should be resorted to in the early stage of the disease; a seton should be inserted in the brisket, and mild aperient febrifuge medicine administered.

46. **HOOVE, HOOVEN, OR BLASTING.**—Meteorization, which passes generally under one or other of the above names, is literally distension of the rumen with gas given off by the food taken by the animal, which has fermented, and the stomach is soon distended to an enormous size. Cattle which have sometimes broken loose, and have trespassed on a clover field or other green crop, and have eaten inordinately, are very liable to it, and suffocation will take place (from the carburetted hydrogen in the early stage, and afterwards the sulphuretted hydrogen), if relief is not soon afforded.

The treatment is to liberate the confined gases, or to condense them by chemical re-agents; and to do this the hollow flexible probang should be passed down into the stomach, so that the gas may escape through it.

Either before or after this operation the following draught may be given:—Powdered ginger, 3 dr.; hartshorn, 1 oz.; water, 1 pint.

If these ingredients should not be at hand, two drachms of chloride of lime, dissolved in a quart of water, should be given, or some lime-water, which, however, is not so efficacious. A purgative should be given after these medicines to restore the power of the digestive organs.

At an advanced stage, it is sometimes necessary, in order to save life, to make an incision in the flank, on the left side, between the last rib and the hip-bone. An instrument termed a trochar, which is inserted in a tube called a canula, is employed for doing this, the former being withdrawn, and the latter retained until all the gas has escaped; but if this is not ready at hand, a pen-knife may be used, and a quill, or stick of elder can be substituted; the small wound being afterwards closed with a stitch and a bit of plaister.

47. **CHOKING.**—A good many animals are lost from this cause in the course of the year; a piece of turnip, a potato, or a stray apple

which has been picked up, and hastily swallowed, becomes impacted in the œsophagus, and pressing in the softest part of the wind-pipe, interrupts respiration; and if not removed in time, ends in suffocation. Sometimes, in the removal of the obstructing object, the œsophagus is so lacerated that the animal never recovers, a smooth object being more dangerous than an irregular one.

The best treatment for this injury is to administer a little oil or lard, by the horn; a rather large probang, with a knob at the end cut obliquely, should be passed along the roof of the mouth till it enters the œsophagus. When the obstructing body is touched, the head should be alternately raised and depressed, and only moderate pressure of the probang resorted to. If it does not readily pass, it is better to wait a little rather than use force and violence, which has been the occasion frequently of killing animals, and try again a little while after. The longer the obstructing object remains, the softer it gets, and a second time it may be removed very easily. Too great force, when used, will lacerate the lining membrane of the œsophagus and its muscles, as will ragged tube-ends. Laceration is evidenced, when in the neck part, by a swelling which hourly increases, generally above the occidant, in much greater proportion than below. The swelling is hard and tense, from an infiltration of mucus into the surrounding tissues. Fever sets in, and respiration becomes painful. The animal moans, and refuses everything. The breath becomes fetid, and death often ensues from the third to fifth day. As the poor beasts generally die after this laceration, if they are in good enough condition for the butcher, it is thought better to slaughter them at once, and not wait for the further development of the injury. When the animal makes an attempt at vomiting, it usually denotes an obstruction near the entrance of the rumen, when the obstructing body can only be removed by drawing it upwards, this being particularly the case when it is impacted in the roof of the mouth, which will be shown by an uneasy motion of the head and a discharge of saliva from the mouth. The object in this case is best removed by the hand, though sometimes considerable force is required. When these means fail, rather than use too much violence, when meteorization, or hooven, is produced by choking, it is preferable to open the œsophagus and remove the obstructing body. The operation is termed œsophagotomy, and is best performed by a veterinary surgeon, rather than an unskilful person.

48. **DISTENSION OF THE RUMEN WITH FOOD.**—This, though not attended with such acute symptoms in the early stage as

hoove, is more difficult to remove, but is fortunately of rarer occurrence, happening mostly with stall beasts; but it is important to distinguish between distension with gas, and with food, although it is somewhat difficult to do so, the symptoms being similar.

The distension produced by solid matter is not so great, nor the distress so urgent, though the danger may be sometimes greater. The abdomen feels hard in the region of the rumen, and if the probang is used, there is no gas liberated.

In tympanitis, from overloaded stomach, meteorization is often the first symptom, as well as fulness and hardness of the paunch; often the seat and source of the inflammation of the powers of digestion. This variety resists the power of mucilaginous drinks, of ammonia, and other remedies, and even of puncture.

The hard and dried accumulated food in the rumen forms certain pellets, which, on account of their bulk, can no longer be returned to the mouth for a second mastication. The contents of the rumen should be ascertained by means of the trochar; and also to what extent the distension exists, which can be discovered by the resistance offered to the trochar in moving it to and fro.

49. **LOSS OF CUD.**—This is more frequently a symptom of disease than a disease itself, though it is a proof that there is considerable derangement of the bodily functions; and the resumption of rumination is justly regarded, in cases of illness, as a sign of approaching convalescence. When loss of cud occurs without any traces of decided disease, it is best treated by mild purgatives and stomachics.

50. **INFLAMMATION OF THE RUMEN.**—When poisonous plants prevail extensively in a pasture, such as hemlock, water-dropwort, henbane, wild parsley, or even the wild poppy and the common crowfoot, inflammation of the rumen will sometimes be produced, but the cases are extremely rare, as the fine sense of smell with which cattle are endowed enables them to reject those plants that are inimical to health, though they will eat the yew (which is most fatal when withered and dried) from the clippings of trees which have fallen into their pasture.

The effects of this poisoning are usually of a narcotic character, and a change of pasture should be made, and medicine of a purgative character administered.

These narcotic plants, taken with the food, will affect the second stomach, or reticulum, of the animal; but much more frequently the maniplus, or manifolds; and under the term of "Fardelbound" is

an ailment arising from a retention of food in this stomach between its numerous plaits. Too much food of a dry character, and insufficient moisture, tend to this, as well as other causes, to derange the digestive organs.

But the same appearance of the maniplus is also found connected with other diseases, and this constipated state is occasionally found when the bowels are quite relaxed. Aperients, combined with stomachics, is the best treatment to resort to—Epsom salts with ginger, in applicable doses, being the most convenient form.

51. **MOOR-ILL, AND WOOD-EVIL.**—In dry seasons a disease is met with, most frequently in the neighbourhood of woods and commons, when the secretion of milk is lessened, and the animal refuses to eat her usual quantity of food. The appetite is at best capricious, and the cow will pick up stones, pieces of bone, or iron, and will grind them in her mouth for several hours successively. She will also seize and devour all the linen she can possibly get at, and many a poor washerwoman, drying her clothes on a common, has been scandalized by this erratic behaviour of, perhaps, an ordinarily well-conducted cow. She drinks, also, the oldest and filthiest urine she can find, which she prefers to the purest water.

The earlier symptoms are a staring of the coat, and a seeming adherence of the whole integument of the ribs below, so that it can scarcely be raised by the fingers. The belly is tucked up, and the animal gradually loses flesh, the bowels being confined, from the earliest appearance of the disease to its termination. Constipation is a regular attendant of wood-evil, sometimes very obstinately so. Stiffness supervenes in various parts of the body, but more commonly in the fore extremities, the shoulders, or the chest; often shifting from limb to limb. Sometimes great lameness will ensue, and this, in the same way, shifting from joint to joint. When the animal is induced to move, she utters a kind of interrupted moan, or groan, expressive of the pain she is experiencing. There is also a singular cracking noise to be heard when she walks, as if the bones of the joints were moving in and out of the sockets at every step she took. The animal begins to heave at the flanks, sometimes very violently, and the pulse is accelerated at times to more than 100 beats a-minute; the bowels, which all along have been confined, get more so as the disease proceeds. The secretion of milk almost ceases. The animal seldom ruminates, and can be scarcely induced to eat anything.

The proper treatment in the first place is to give a good strong

dose of alces in solution, and regulate the bowels, which, if it does not produce the desired effect, must be followed up by salts, repeated every six hours till they operate. Bleeding should not be resorted to, unless there are symptoms of inflammation of the lungs, in which case it is desirable, and will relieve the animal very much; but this must be practised with caution. The aperients should be followed up with febrifuge and alterative medicine, until the organs of digestion are restored to their natural tone, the diet consisting of mashes and gruel. In addition to this plan of treatment, a seton is sometimes inserted in the dewlap, and, in very severe cases, as much as 10 lbs. of blood have been taken away; and 6 drachms of aloes, 12 ounces of sulphur, 16 drachms of croton oil, with 3 drachms of powdered caraway seeds, administered; the second day 8 lbs. of blood removed, with repeated purgatives in lessened quantities, blistering the animal's sides as well.

52. **SCOURING; THE SCANT; DIARRHŒA.**—The symptoms which denote this disease may proceed from various causes, the relaxed state of the mucous coat of the small intestines being amongst the most simple. In severe cases this may proceed from disease of the liver, stomach, or maniplus; and when the diarrhœa is produced by unwholesome food, a change of diet will sometimes effect a cure, but if it does not cease, the following is a good astringent and tonic:—Prepared chalk, 2 oz.; gentian root, powdered, 2 dr.; opium, powdered, $\frac{1}{2}$ dr. This should be well mixed with thick gruel, and given once or twice a-day, as required. If the animal is very young, a smaller dose should be given.

Should, however, the liver be affected, calomel in combination with opium is more to be relied on; half-a-drachm of each being given twice a-day. In bad cases it is good practice to clear out the intestines by a dose of salts, and afterwards give the calomel and opium.

53. **REDWATER.**—Redwater is a disease of the digestive organs, and principally of the liver, the urine being loaded with biliary deposits, which should have passed away by other channels.

Formerly it was regarded as disease of the kidneys, the dark colour of the urine being attributed to the presence of blood. It is frequent in cows several weeks after parturition. The first symptoms are diarrhœa, soon succeeded by constipation. The appetite falls off, and the pulse and breathing get accelerated, the former weak, with coldness of the extremities. Rumination ceases, and the milk is diminished, the urine becoming brown, and sometimes even black.

The disease is most prevalent after hot, or dry weather; and is sometimes brought about by the change from a poor to a rich pasture; and from marshy and cold to dry, sweet, and stimulating pastures, especially in elevated situations. It is commonly supposed that to take a cow from an inferior pasture, and put her into a good one, is the way to improve her health and increase her produce, and so it will ultimately, but like sudden changes in the human animal, from temperate or spare diet to unaccustomed rich eating and drinking, at first the system is likely to be deranged by it.

The remedy consists in opening the bowels, for which the following is well adapted:—Sulphate of magnesia, 12 oz.; sulphur, 4 oz.; carbonate of ammonia, 4 dr.; powdered ginger, 3 dr.; calomel, 1 scruple; made up into a draught, with warm gruel. One-fourth of the above may be given every six hours; after which, mild stimulants, with diuretics, may be given, as the annexed:—Spirit of nitrous ether, 1 oz.; sulphate of potash, 2 dr.; ginger, 1 dr.; gentian root, 1 dr. To be given twice a day.

54. **RETENTION OR STOPPAGE OF THE URINE.**—This sometimes occurs with pregnant cows, and arises from a pressure of the womb on the stomach. The urine needs to be removed by means of a hollow tube, called a catheter, and the other symptoms which may attend this derangement should be treated according to their several exigencies.

55. **DISEASES OF THE UDDER.**—The udder of the cow is subject to attacks of inflammation, particularly after calving, when it swells, feels hot, and the part affected becomes hard. The secretion of milk is also interrupted. In this condition it is termed *gargel*. Sometimes exposure to cold and wet will bring it on, and in severe cases the cow will lose one, or two quarters of the udder, and occasionally these cases end fatally.*

Hot fomentations should be applied in the first place, and if the inflammation is excessive, bleeding from the milk-veins of the affected side should be adopted. A purgative also will be found useful, but if the complaint commences with shivering, a stimulant is necessary, such as an ounce of ginger dissolved in warm gruel, or ale, with two ounces of spirits of nitrous ether, which will, sometimes, at once stop the progress of the disease.

After fomentation, an ointment composed of the following may be rubbed into the udder, on the part affected:—Camphor powdered, 1 oz.; mercurial ointment, 2 dr.; lard, 8 oz., well incorporated together.

56. **RHEUMATISM.**—Joint Felon and Chine Felon are common

terms for rheumatism, generally produced by exposure to the weather and careless treatment, which may be either general, partial, severe, or sub-acute. The fibrous tissues become affected, and it may either affect the muscles or sinews, or extend itself to the serous membrane lining the chest, and investing the heart. Its presence is indicated by great pain, and stiffness in moving, attended with considerable fever; but when the attack is sub-acute, the joints are generally affected. The common treatment is to bleed in the first instance, followed by a purgative, and with it an ounce of the spirit of nitrous ether. This may be given twice a-day, with a drachm of tartarised antimony, and one of colchicum.

The parts principally affected may, with advantage, be fomented, and afterwards well rubbed with a stimulating liniment.

57. **COW-POX.**—The Cow-pox is not by any means a common disease, and consists of the formation of numerous pustules on the udder and teats, the contents of which are infectious, as is well known in the case of the human subject, where vaccine lymph is employed, and it may be propagated by the hands of the milker, from one cow to another.

A cooling aperient should be given, and a weak astringent applied to the sores on the teats. This can be made with a little powdered chalk, with one-fourth part of alum, which will be found a very useful application, the treatment being simple enough.

58. **THE DROP.**—This disease seldom takes place until the cow has had several calves, and is supposed to arise from a depression of the nervous system, caused by the after-pains, or reaction of the womb after birth, which, added to the previous muscular efforts in expelling the fœtus, produce exhaustion; the nerves devoted to these organs, and the spinal marrow at the region of the loins, becoming over-taxed.

With each successive calf, the uterus becomes more dilated, and, consequently, the contractions afterwards are greater, and more attended with danger, than when the cow has her first calves. It is therefore often very annoying to find a fine cow, which has brought a good calf, and is apparently doing well, attacked by this disease finally, which literally lays her low. There are two varieties of the disease, one acute, the other sub-acute. In the one it is generally fatal, the other being usually curable, the former being characterised by utter prostration of the vital powers, while in the other some degree of animation and appetite is retained, though without the power to rise, or stand.

One of the symptoms is a torpid state of the bowels and stomach; rumination ceases, and the food in the various stomachs remains in an unchanged state. Purgative stimulants should, therefore, be applied. The cow in an acute variety of this disease can take a large amount of medicine, as much as the following:—Sulphate of magnesia, 1 lb.; flowers of sulphur, 4 oz.; croton oil, 10 drops; carbonate of ammonia, 4 dr.; powdered ginger, 4 dr.; spirit of nitrous ether, 1 oz. The above should be dissolved in warm oatmeal gruel, and given slowly and carefully to the animal. In unusually severe cases, the croton oil can be increased; and from four to eight grains of powdered cantharides may be added. A strong blistering stimulant should be rubbed over the spine and loins, and a fresh sheepskin, with the wool outwards, has, with advantage, been placed on the loins of a cow so affected. Every six hours, one-fourth of the above medicine should be given, with the exception of the croton oil, until purging is produced, and if the cow cannot pass her urine, it should be removed by means of the catheter.

In the milder forms of the disease the medicine should be administered in greater moderation; but as prevention is better than cure, in-calf cows should have plenty of exercise, shelter from the weather, and moderate feeding, but not too low feeding, which we have spoken of before. If, however, there is reason to expect a cow may be subject to the disease, it is better not to feed too heavily.

Confinement to the stalls is a bad practice *before* calving, though it may be done with impunity *after*. Sufficient nourishment is necessary for the cow, but the stomach must not be overloaded so as to press upon the womb; and for the proper motion and health of the foetus, exercise is strictly necessary. The animal must not make too much flesh.

Particular care should be paid to the state of the bowels, which should be kept open, and as the period of calving approaches, unless the feces are much relaxed, one-half of the purgative above described should be administered, and a few bran mashes, instead of the usual quantity of hay, be given, in order to prevent the stomach being overloaded with food difficult of digestion.

If the cow does not clean properly after calving, it is advisable not to be in haste to remove the after-birth by manual operation, but to give the mild purgative before advised, and wait a few days; after which, if it does not come away, the hand should be passed up, and the after-birth removed with as little force as possible.

Care should be taken that the in-calf cow is not worried by dogs, or allowed to leap her fences; and, at the same time, protection from the weather must be afforded at ungenial seasons, without too much confinement.

59. **ABORTION; SLINKING; SLIPPING CALF; WARPING.**—Abortion in the cow commonly takes place between the ninth and fifteenth week, but it may occur at any period of pregnancy, the cow being supposed to go with young about nine calendar months, or 284 days, though the period is more often exceeded than the contrary.

Its occurrence is conspicuous at particular seasons, as if there was some unseen connection with the atmosphere, being more frequent after the prevalence of wet weather. The ergot of rye has a very exciting effect upon the uterus, and as rye grass, and grain, are subject to the same disease, it has been considered, with much plausibility, that the unusual presence of this poisonous matter in the grasses has, at times, a great deal to do with abortion. It is said also that the smell of a cow which has aborted has a tendency to produce the same effect upon another pregnant animal.

A cow that has warped once is liable to do so again, and there is danger of the mischief spreading; it having, at times, been necessary to get rid of a large herd from this cause. Cows that do not breed early are more likely to abort than those which are put to the bull as soon as the inclination shows itself.

At an early stage of pregnancy, when abortion takes place, there is little disturbance to health, and treatment is seldom required; but at a late period, serious consequences, such as inflammation of the womb, and even death, follow.

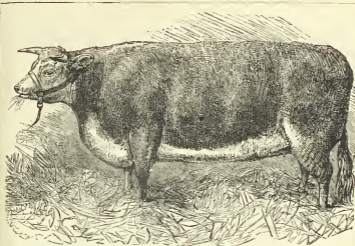
Abortion may be brought about by blows, strains, or even jumping, or riding other cows—from fright, or excitement of any kind, as well as by disturbance of the digestive organs. Some times the causes are of a constitutional nature, and arise from some hidden defect in the procreative organs, high-bred animals in high condition being more liable to this than others.

When treatment is required, a dose of salts should be given to relax the bowels, which may be followed by a sedative, such as an ounce each of laudanum and spirits of nitrous ether. Where there is inflammation of the womb, hot fomentations should be applied externally to the loins, for a good stretch of time together, and warm water is sometimes prescribed, to be syringed into the blood. Bleeding is also occasionally resorted to.

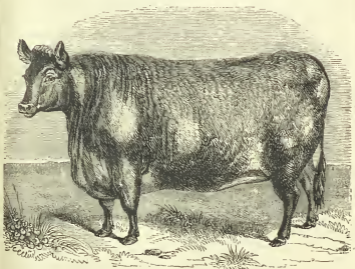
Prompt treatment will often stave off threatened abortion. The cow should be kept quiet, and bled, and one and a half ounces of tincture of opium, and the same quantity of spirit of nitrous ether given; but no purgatives administered. If a cow has aborted before at a particular period, it is a good precaution, and is considered prudent, to bleed her just before this time.

It generally happens that the after-birth is retained after abortion; and it is the best course to remove it, although it may be necessary to introduce the hand into the uterus, and take away the placenta from it, by carefully breaking down the points of attachment.

60. **INVERSION OF THE UTERUS.**—Both inversion of the uterus, and inversion of the vagina, take place occasionally; the



SHORTHORN BREED.



GALLOWAY BREED.

former being the most serious, and generally occurring after parturition. In both emergencies, the parts should be carefully cleansed, and returned as quickly as possible, and a bandage applied, the hind parts being kept higher than the fore ones.

Instances have been known of the inversion of the vagina, produced by violence, which have been successfully reduced, and a healthy calf dropped a few days afterwards.

Unnatural presentation will sometimes prevent a cow from calving, or a scirrhus state of the mouth of the uterus. The proper treatment in the last instance is to divide the stricture carefully. In the case of unnatural presentation, endeavours should be made to return the calf to its former position, which is with the head resting on the fore-legs, that ought to come first. In some instances it is necessary to turn the calf. When the hind parts come first, care should be taken that both feet emerge before the buttocks. Sometimes in these unnatural presentations considerable force may be necessary to assist labour, and in some very bad cases it may be obligatory to take away the fœtus piecemeal, in order to save the life of the mother.

61. **SHELTER FOR COWS.**—From the foregoing list of ailments to which cows are subject, it will be seen that exposure to the inclemency of the weather is a fruitful source of disease in one form or another to them; and that occasional shelter is absolutely necessary, though in some grazing counties, as Gloucestershire, very little is provided for them.

It is especially an important matter to keep milch cows warm in winter, and one of the things which strike a stranger very forcibly when he enters a London cow-house during cold weather, is the warm temperature the cows are kept in. Experience has shown that this has an important influence on their productiveness. They stand very thickly on the ground, one to every 30 to 36 square feet, where the closeness with which they stand causes warmth, and the windows are closed and matted, and no thorough draught allowed, and thus the shed is kept warm. There is generally room enough overhead, and perhaps a tiled roof, which allows ample ventilation; and thus, where the shed is kept clean, the air is sweet enough, as well as warm. If not to be exactly imitated, a useful hint is to be gathered from this method of procedure by the country dairy-farmer.

62. **GENERAL HINTS UPON THE MANAGEMENT OF COWS.**—Upon the well-known principle of prevention being better than cure, it would perhaps be appropriate if we were to close this section of our work with a few general hints upon the management of cows, as a little attention to details, and careful treatment, will often keep off disease, and when dealt with at an early period, incipient disease can be more easily eradicated than when it has assumed a definite form.

The first indication of failing health on the part of the cow is a falling off of the supply of milk. This will often take place before the appetite of the cow fails. By those who pursue an efficient

system, and neglect no precaution in the management of their animals, this symptom is at once noticed.

It may be only a temporary ailment, or it may be the forerunner of more serious disease, and in either case it is thought a good plan to give a drench at once. One ounce of nitre in a quart bottle of water, into which four ounces of flour of sulphur have been shaken, will be found efficacious. Some make a point of giving this mixture to all new animals that are purchased, before they are put with the rest of the stock, from which they are isolated for a few days, so as to give an opportunity of judging whether the fresh arrival is free from disease.

The dry and soft food should be regulated according to the condition of the dung. If a cow becomes costive she loses her milk, so that her dung ought to be rather loose than otherwise, to be an index of her good condition.

Good food and water, regularly given, are the most essential points in feeding cows. It has been proved that cows which have been fed regularly upon inferior food, have yielded more milk than those to which richer food has been given, but not at regular intervals. Irregularity in the hours of feeding is invariably followed by a smaller supply of milk, and where this falling off has taken place it takes some time for the cow to resume giving her proper quantity which she has been accustomed to do with regular feeding.

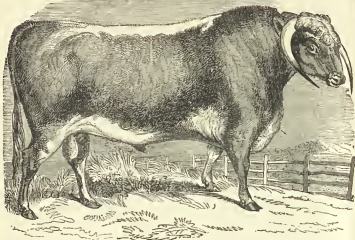
Common salt, given in moderate quantities to cows, increases the quantity and improves the quality of the milk. About four ounces a-day would be considered a proper quantity; and cows ought always to have ready access to water.

Those cows which are nearly due to calve should be kept separate from the others, which sometimes ride them, when there is a risk of the calf turning in the cow, in which case a bad calving may happen.

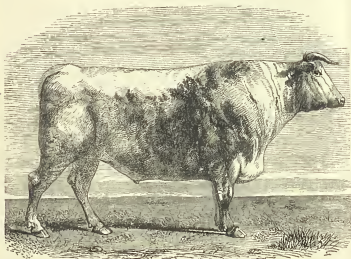
It is usual with many to desist from milking about eight weeks before the cow calves. But this depends upon circumstances. With some cows the milk will have become very reduced in quantity, but in others a good flow will continue, in which case it will be expedient to milk once a-day perhaps, or once in two days.

When there are a large number of cows, the heifers ought to be kept by themselves.

As cows frequently manifest a degree of pugnacity, and quarrel with each other, they should be kept, as it were, "assorted" when they are tied up in the yard, commencing with the "best woman" at top, then next best to her, down to the meekest in the herd last, the least able to bear the ill-temper of the strongest, by which



NEW LEICESTER.



DURHAM-CHAROLAISE BREED.

arrangement all will be able to eat their food in greater tranquillity.

In buying a cow, the purchaser should choose one with a large soft udder, and the teats not too close together. The teats should also be of fair size. When taken home, she should be kept separate from the others for a short time, for she may have some latent disease, which time may develop.

Any falling off in the supply of milk an animal has been in the habit of giving should be at once noted, for it is an unfailing indication that there is something amiss; and this will take place sometimes, as before stated, before the animal's appetite falls off.

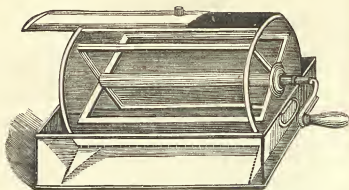
An irritable cow is generally an inferior milker. An animal with a placid, ruminating disposition yields the most milk.

It will be found a good plan to have some vetches, or other green food ready, when the meadows are parched up with the summer heat, and to keep the cows in sheds, or under some kind of cover, to prevent their being tormented with flies; and let them out only during early morning, and evening.

The more pains and care that are taken, the greater will be the return made in produce, and it is really astonishing what may be done by good and regular feeding, and careful treatment in every way.

A Clergyman's Experiment.—A somewhat whimsical course of experience was undergone upon one occasion by an old friend of the writer's, a clergyman, who had but a very small income, but a large family of boys and girls. He had found no difficulty in educating them, for even his girls were familiarly acquainted with the best Greek and Latin authors, in whom he had instructed them himself; but he had considerable difficulty in finding them sufficient bodily food, though they were mentally so exceedingly well-fed; and being very desirous of increasing his income, having perused a treatise upon a certain Yorkshire cow, in which the owner proved to demonstration that it had been made to yield milk and butter which amounted in value to £2 per week, by a certain course of treatment, he resolved to make the experiment himself, and accordingly bought a Yorkshire cow.

He followed the treatment prescribed most accurately, and the results were certainly wonderful; for he had secured a good animal. But then, as he pathetically added, it took up the whole of his time, and that of the boy who did the work about the place, to wait upon this cow. She was to be fed regularly so many times a-day. Water was to be given to her at due intervals; she was to be curry-combed every now and then, and all her requirements were to be attended to with the greatest precision; so that he found the task too much for him, and this cow at last had to mingle with the common herd of cows, after he had resolved to get rid of her, and was ever afterwards undistinguished, beyond being considered an excellent animal, which she undoubtedly was. We often hear of these wonderful results from individual owners of cows, and the secret is, they receive a much larger share of attention than is bestowed upon average animals. Their example is, however, valuable in showing what may be done by that care and attention.



THE "SUSSEX" BUTTER-CHURN.

CHAPTER V.

THE DAIRY.

Situation and Construction of the Dairy—Best Materials for Building—Ventilation and Arrangement—Cleanliness—An Inexpensive Dairy easily Constructed—Vessels and Implements of the Dairy—Milk-Pans—The Churn—Cheese-Presses—Shelving of Stone or Slate—Dairymaid's Duties—Dairies in Town.

63. **SITUATION AND CONSTRUCTION OF THE DAIRY.**—The dairy should be placed tolerably near to the house, for convenience sake, but should be away from the farm-yard, as well as distant from any pond, or stagnant water, for milk is soon contaminated by the near proximity of any decaying matter, and quickly absorbs impurity, and thereby acquires an unpleasant taste.

It is necessary for the dairy to be cool in summer, and warm in winter; and if the main aspect is open to the north and east, it is considered best, and shaded from the south and west by trees or walls.

A Sunken Floor, with a span roof projecting broadly over the side walls, tends to keep the dairy cool in summer; and thatched roofs are liked, as they keep out the sun, which often lies hot upon the tiles with which outbuildings are generally covered in many parts of the country, and are also warm in winter.

The Thatch should be made of clean, sweet straw, or if the roof is covered with *thick* slates it would be even better, as sometimes an old thatch gets unpleasant from decay, and the smell is apt to com-

municate its taint to the milk. The greatest care should be taken to guard against chance of contamination from any source whatever, and there are often unsuspected sources, of which this is one.

64. **BEST MATERIALS FOR BUILDING.**—Slate is the best material that can be used about a dairy, either for shelves, flooring, or sides of the building. Many handsomely-constructed dairies are fitted up with marble, which seems to have become regarded as the best material to use for shelves, but fishmongers find that fish are preserved sweet for twenty-four hours longer on slate than on marble.

A *Slate Floor* also presents a smooth even surface, from off which any spilled milk can be easily removed. When dairies are paved with brick, spilled milk stands in the interstices, and the sour smell which it creates will impart a taint to that in the pans, notwithstanding the floor may be washed with water, as crannies, or inequalities in the flooring cannot always be reached.

Tiles and Bricks absorb a large quantity of moisture, while slates, it is said, imbibe but the two-hundredth part of their weight, and tiles absorb one-seventh.

65. **VENTILATION AND ARRANGEMENT.**—The dairy should be constructed with sliding windows, or valves, to regulate ventilation and secure a constant supply of fresh air. A churning-house should adjoin, divided from the compartment where the milk stands in flat pans, with a boiler in one corner, fitted with vessels, either of lead or slate, for holding the whey. It will be found a good plan to have a tank or receptacle outside, with a pipe communicating to it, by which the whey can be let off for the use of the pigs. Whey keeps longer sweet in lead than in wooden vessels, but becomes very offensive when any sour liquid is allowed to remain in them; slate, however, is better than either wood or lead.

66. **CLEANLINESS.**—Adjoining the dairy should be a wash-house, containing a pump of good spring water, and also a furnace with cauldron for scalding out all vessels and utensils, so that they may be kept sweet and clean. Plenty of cold water thrown down upon the floor of the dairy in hot weather, keeps it nice and cool. Provision should always be made in the pitch of the floor, or floors if they are separate, so as to allow of all the water draining thoroughly off, carrying away with it all traces of the milk which may have accidentally dropped upon it. A long bench should be placed outside the door of the wash-house, on which the utensils should be put to sweeten, and dry in the sun and air, after being thoroughly

well washed. Badly cleaned vessels are often a source of loss to the owner, and should be carefully guarded against.

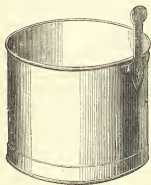
67. AN INEXPENSIVE DAIRY EASILY CONSTRUCTED.—Where there is not adequate dairy accommodation, an inexpensive dairy can soon be constructed, at a very moderate cost. A frame could easily be put up of light square pieces of wood (called quartering by carpenters or timber-dealers), cased outside with half-inch slates.



ROLLER BUTTER-PRINT.



CREAM-SKIMMER.



STRONG MILK-PAIL.



PATENT MILK-PAN.



SIEVE.

The cavities between the quartering to be filled up with solid concrete, or with rubble of brick and stone, plastered smooth inside with a trowel, and lime-washed. Concrete is easily made, in the proportion of seven measures of gravel to one measure of fine stone quick-lime. A flooring of slate, laid upon this concrete, four inches thick, the slates laid in a bed of mortar, makes one of the best floors it is possible to have, and it can, of course, be sloped in any direction for the purpose of draining off the water which is used to wash it. It must ever be borne in mind that, although

water used in plenty for the sake of ensuring cleanliness is highly advantageous, yet water should never be used unnecessarily, as it is highly desirable that the dairy should be as dry as possible, damp being very prejudicial to its operations.

68. **VESSELS AND IMPLEMENTS OF THE DAIRY.**—When dairy operations are conducted upon a large scale, and of a varied nature, there are a good many utensils and implements, of one kind



LAWRENCE'S MILK-REFRIGERATOR.

or another, which need getting together, which may be briefly mentioned as comprising milk-pails, milk-pans, sieves for straining the milk when taken from the cow, cream-pots, or dishes, churns for making butter, scales for weighing, and cut wooden prints, and boards for ornamenting it. When cheese is made, large vessels are required to hold the whey and butter-milk—vats, tubs, curd-breakers, presses, and ladders.

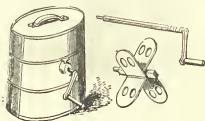
The above sketch represents a milk-cooler, or refrigerator, of which there are various makes and forms.

69. **MILK-PANS.**—Much difference of opinion prevails with regard to the kind of pan which is best adapted for containing the milk while held on the shelves of the dairy. In most places they are of wood, though many people make use of earthenware, but wooden



LANCASHIRE PLUNGE-CHURN.

coolers are generally liked the best. They are liable to fall to pieces if kept for a long time without being used, but otherwise they are the most economical, as there is no breakage, and with care they will last a lifetime. When kept perfectly white from assiduous scouring, and the hoops shining like silver—which some dairymaids who



DERBYSHIRE BUTTER-CHURN.

take a pride in their utensils will cause them to look like—they have quite an ornamental appearance in the dairy; while in winter they possess the merit of not cooling the milk too suddenly, which is a qualification highly advantageous to the rising of the cream. There are also iron vessels tinned, as well as of slate and glass. The high price and brittle nature of the last have operated against their extensive use, though they are liked very much. Milk-pans,

when of wood, are generally made of the best oak or maple. Shallow pans are supposed by many to be more suitable for setting the milk, and throwing the broadest surface of cream which it is possible to get to the top; but in the height of the season, when the dairy is crowded with standing milk, objections have been made to the extra room taken up by flat dishes; while in winter, it is thought that, with a large surface exposed to the air, the low temperature interferes considerably with the quantity of the cream. The conditions are thus exactly reversed to convenience, for when the most space could be given in winter time, it is not desirable to

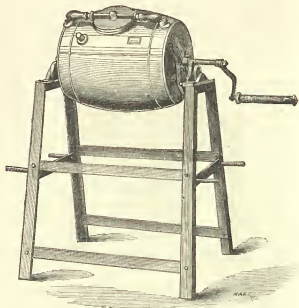


MIDFEATHER-CHURN.

make use of shallow pans, it being vitally essential to retain the natural heat of the milk as long as possible. To ensure this, the pan holding the milk is by some managers put into another containing hot water, which assists the rising of the cream, and renders the use of a stove unnecessary. This may be dispensed with, and the same result attained by putting about a cupful of boiling water in the bottom of each pan, when the weather is very severe.

70. **THE CHURN.**—Churns are of various sizes, from ten to a hundred gallons when worked by the hand, or double that size in large dairies which are worked by the aid of a small horse-gin. The old-fashioned implement called the *plunge-churn* is still extensively used, it being considered to act more efficiently than any other,

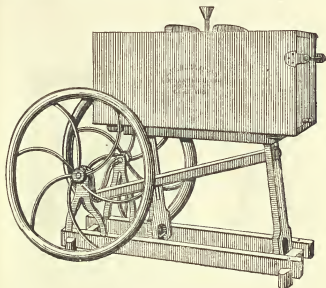
though it is very tedious and laborious in its operation, acting by means of a long handle inserted in a closed vessel, with a circular flat bottom; but this has now very generally given place to the *barrel-churn*, which is both convenient and suitable in every way, and when mounted on patent axles is everything that can be required. These axles consist of two small wheels set in a frame,



ALWAY'S TIN BARREL-CHURN.

and fastened one at each side of the churn-stand. The churn, on being lifted on to the stand, rests in the centre of these wheels, which revolve when the churn is driven, and thus materially lessen the friction, rendering the process of churning much less laborious. Where a large quantity of cream is churned, a horse-gear is attached to the churn, and a pony or horse set to work it, which is easily managed, and the animal put into the desired pace, so that after a while he will perform the operation without occasion for the slightest looking after.

In the making of butter a good deal necessarily depends upon the churn that is used, and it becomes highly necessary to have as good a one as possible, and of a kind the best adapted to the quantity of butter that is usually aimed at being turned out, so as neither to be too large nor too small. A good deal of labour is often thrown away in the process of churning butter by inexperienced people, from the condition of the temperature not being



OSCILLATING-CHURN

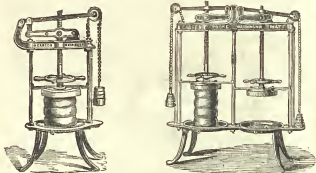
taken sufficiently into account, either of the atmosphere, the cream, or the churn, which may be respectively warmer, or colder, at certain times than at others, and the blame of butter coming slowly is sometimes put upon the churn, which is often entirely undeserved.

Various new churns have put in a claim, of late years, to be considered by dairymen, which possess some peculiar characteristic or other, some of which base their claims to recommendation upon producing butter quickly. This, however, is but of slight advantage when large quantities are made by the aid of horse-gear, as has been suggested; and by making it too quickly, a loss both in quantity and quality is commonly entailed. By over-heating any churn, butter

may be made to come quickly, but a reasonable time should always be bestowed upon the operation, which may be reckoned at from twenty minutes to half-an-hour.

Another arrangement of churn, upon the principle of the hand-churn, is for the barrel to be vertical, and worked by a foot-board. A man stands with each foot upon the treadle-boards, and by alternately throwing his weight on each flap, he draws down the cord on each side which is attached to the axle and fans, which turn backwards and forwards in the upright barrel-churn. The contrivance is simple and efficacious, but is seldom made use of. Another churn is in the form of a cradle, which can be easily swung to and fro, while a description has been given of a churn upon the same principle, made after the manner of a rocking-horse, upon which a child is put astride, and is thus taught to combine business with pleasure, making the butter while amusing himself.

The churn on page 58 represents a tin barrel-churn upon stand.



71. **CHEESE-PRESSES.**—Cheese-presses are made in various forms and weights, proportioned to the size of the cheese which is turned out, and vary from 5 cwt. to a ton. They are generally raised by a block and tackle, but some of them are upon the principle of the lever. Another very common form is of a simple arrangement, consisting of a movable beam fixed by a pivot in an upright post, and having hooked on at the other end a weight which presses on the cheese-vats underneath. This is generally used in turning out small cheeses, when so great pressure is not required. Another is made of iron, in a frame, and consists of a screw which is turned by a winch, the pressure of which can be regulated with greater certainty than by any fixed weight.

72. **SINGLE CHEESE-PRESS.**—The same is also made by Messrs. Carson and Toone, of Warminster, upon a double and treble principle, and cheese is pressed by various methods and

contrivances, some of them indeed of a very rough and makeshift order, which it is never worth while having recourse to, as dairy implements are now to be bought so cheaply, that will perform their allotted tasks with precision and despatch.

73. **THE UTENSILS**, however, as well as the fitting-up of the dairy, must be regulated by the nature of the business aimed at—whether the making of butter or cheese—and by the scale of operations which it is intended to set in motion. These must necessarily be considerations of primary importance, based upon the various capabilities of farm and situation; the object of everyone naturally being to secure as much profit as possible.

There are, however, some arrangements, the advantage of which appeal alike to all, a few of which we shall briefly mention.

Shelving of Stone or Slate.—Stone or slate shelves are better than wood, as being more easily cleansed; but better still, a stone or slate table should occupy the centre of the milk-house for the basins to stand on, so that they may be surrounded by fresh air equally, which can never be the case when placed in out-of-the-way corners, and along the sides of the wall.

The table should be water-tight, and, in the opinion of some, furnished with a water-tight ledge, so that cold or warm water may be thrown around the milk-basins when required. Of course the use of water for a definite purpose must not be confounded with unnecessary water standing about.

To others again, wood, as well as lead or zinc basins, are objectionable—the two latter for the sufficient objection, because they are liable to corrosion, or decomposition from the action of the acid contained in the milk, and the former from the difficulty of keeping the basins clean; but this latter will depend very much upon the dairymaid; from the use of which the advantages we have named may be secured.

74. **DAIRYMAID'S DUTIES.**—Everything will depend upon an efficient dairymaid, and her duties are pretty well defined in the hints upon management we have given in the foregoing, extreme cleanliness being the first essential.

Spilt milk should not be allowed to remain on the floors, tables, or shelves, a single minute longer than can be helped, and she ought to be unsparing in the use of plenty of water—cold in summer and warm in winter—and keep her dishes, and everything else, scrupulously clean.

A little common washing-soda, dissolved in water, will be found

very useful in destroying any taint of sourness the various utensils may have acquired, which, if not removed, is apt to cause the milk to become sour before it would do so naturally.

Neither vegetables nor animal food should ever be admitted into the dairy; yet how commonly is it seen in small private dairies that the larder is united with it, and sometimes even raw meat placed in it on account of *its coolness for the meat!* By right, not even the cream-jars should be admitted. Cloths dipped in a solution of chloride of lime, and hung up on cords stretched out from side to side of the dairy, is a good mode of purifying the atmosphere.

75. **DAIRIES IN TOWN.**—Some very interesting general particulars relative to dairies in town were narrated by Mr. Morton in the *Journal of the Royal Agricultural Society*, who, in referring to results of Lodge Farm, Barking, where, from certain causes, the cost of each cow per week was far too high for the produce they yielded, speaks of the London dairies. As everything is done there upon business system and routine, we must give it as it is furnished, though, as it were, one part of the subject will run into another.

"Very little litter or other bedding is used. I have been over large suburban cow-sheds where there is none whatever used. The cows stand so close to each other that they cannot get across, and thus the dung and urine fall from them into the gutter behind them, from which it is cleared twice or thrice a day, and the lair—an earthen floor—is thus kept dry. At the Lodge Farm we have used sawdust. At present, 8 cwt. is the daily allowance in two sheds containing 85 cows, and there were exactly 21 tons of dung removed from these two sheds last week, being 3 tons daily. Most of the urine runs into a tank, only a portion of it being retained in the litter that is used. Two or three bushels of sawdust are, in the first place, put under every cow, and thereafter one bushel daily is sufficient, as much being daily taken away as fast as it gets soiled. The quantities amount to about 11 lbs. per cow added, and 80 lbs. of dung per cow taken, so that we collect about 70 lbs. per diem of the actual fæces of the animal. I may on this refer to a letter I received twelve years ago from Mr. Telfer, of the Canning Park Farm, near Ayr, who kept 48 of the small Ayrshire cows for a butter-dairy. He found that these cows yielded 60 lbs. of dung and 18 lbs. of urine every 24 hours. Taking their smaller size into account, this agrees very fairly with our experience at Lodge Farm. He adds that the cows yielding most milk, at the same time yielded the most dung and urine, which is not surprising, seeing that these are, in fact, the *débris* of a manufacture, and must be greater, or less, according to the quantity of raw material which passes through the machine. Mr. Telfer's cows lay on a cocoa-nut matting, their dung and urine falling into an accurately-made gutter, which was cleaned out perfectly by a single draw of a drag, made to fit the groove. In London cow-houses the rough causewayed floors are cleaned out with besom and spade into a dung-pit, which the sanitary inspector requires to be emptied at intervals, and the gutters in well-managed houses are washed down from the pail. Before referring to the produce of the cow-house, and to the quality and quantity of the milk obtained in it, it is proper very shortly to insist on the essential need of cleanliness. This, though

especially required in the dairy, is desirable everywhere. The cow, like all other animals, is the happier and more healthy for it. The dairy vessels must, of course, be clean; the pails must be scoured and rinsed after every milking. The milk is poured from them through a strainer at once into the can or 'churn,' which stands ready to receive it at the cow-house door; and in a suburban farm it is at once lifted into the spring-van, which takes it directly up to town. Or in the case of a farm farther afield, the churn is placed to stand in water, and its contents are cooled down before being sent away. These churns must be scalded and rinsed after being emptied at the dealers'; and when returned to the farm they must be again scoured, and scalded, and rinsed, before being used. Having these, and providing as rapid a transmission as possible, the consumer will receive the milk at its very best."



CREAM-BOTTLE.



CHAPTER VI.

MILKING.

Yield—Difference in Milk of Different Animals—Average Yield of Milk of a good Cow—On the Milking of Cows—Skimming, and the Treatment of Milk in Summer and Winter.

76. **YIELD.**—We will still further follow Mr. Morton in his account of the milk produce of the London dairies. It is to be remarked that, in almost all instances where individual care and attention is given by the owner, or some other really good and conscientious manager, the yield of the cows is always much greater than in others where only average interest is taken, and average pains-taking only is given.

"The quality of the milk depends upon the cow and the treatment of her, to which we have been referring. The milk of every cow has its own natural standard of quality, but taking the case of each apart, her milk is rich or poor—first, according to her nearness to the time she calved; and secondly, according to the quality of her food. The milk of a big, ordinary cow, bought half fat for a London cow-house, will throw up 14 to 16 per cent. of cream in three hours in the lactometer during the first few weeks after calving; the same cow similarly fed will not yield much more than half so good a quality when, after six or eight months' milking, she is rapidly diminishing her quantity. At an equal age, however, at the pail, the London cow, fed so as, if possible, to maintain or increase her flesh, will yield a richer milk than a country-fed cow which is being milked at grass. The way to keep a uniform quality when, as in London, a great part of the food (grains and hay) is constant throughout the year, is to keep buying in fresh cows in pretty constant numbers throughout the year. But except in the poorer districts, where the demand for milk does not vary throughout the year, this is not commonly done. A London cow-shed in the West-end, for example, is full only during the spring and summer months, when London is full; and as it is then that a richer milk is wanted for the sake of

the cream which is required at 'good houses' during the season, that is the proper time to buy in freshly-calved cows. At many small cow-houses which I visited two years ago I was told that eleven, and even twelve quarts a-day are obtained on an average throughout the year; that is to say, a house of 10 stalls always full will yield $10 \times 365 \times 11$ quarts of milk per annum, which is equal to 40,150 quarts, or 1,000 gallons per stall. If, as is possible, these cows are changed every eight months on an average, then 10,000 gallons is the quantity yielded by 15 cows during the eight months after calving before they are sold; each cow, therefore, yields 666 gallons in its eight months' milking. This, though a large quantity, is not incredible. In the case of the Frocester Court Dairy (Gloucestershire), of which a full account has been given in the *Bath and West of England Journal*, Mr. Harrison found that, of his 114 cows, 8 in the first year of milking (calving at two-and-a-quarter years old) yielded 317 gallons per annum; 15—also in their first year, but brought to the pail at three years—yielded 472 gallons; 14, in their second year, averaged 535 gallons; 15, in their third year, averaged 616 gallons; 20, in their fourth year, made 665 gallons apiece; 18, in their fifth year, yielded 635 gallons; 9, in their sixth year, made 708 gallons; 15 aged cows averaged 651 gallons apiece. These figures, however, give only an approximation to the truth, if they be taken to indicate the average yield of a cow at different ages, for doubtless, in a large herd like that of Frocester Court, the had milkers, which would keep down the average of the first or second year, would be culled out, so that only the better cows would remain. It is cows in their third, fourth, fifth, and sixth year of milking, which are found in London dairies, and such cows at Frocester, depastured in the summer, yielded from 650 to 700 gallons of milk apiece per annum. They were, however, milked ten months, whereas the London cow is got rid of after eight months' milking in the case I have supposed. But the quantity of eleven, or twelve quarts a-day, which is the extreme report of some of the smaller cowkeepers, does not seem, on a comparison with Frocester, so incredible. On the other hand, if you consult the larger cowkeepers, supplying dealers who come and milk the cows, paying for what they take away, they will tell you that the average yield does not exceed nine, or nine-and-a-half quarts a-day to every stall. It is plain that, where cows are kept on till their daily yield is five quarts or less, in order to get fattened before sale, the average must be less than where the cow is got rid of sooner, and a greater loss submitted to upon her sale. On Lord Granville's farm at Golder's Green, Mr. Pauler, his lordship's agent, has told me that £3,900 was received one year for the milk of 100 stalls; in another year the sum received was £4,300 from 108 stalls constantly occupied; and in a third, £4,900 was received from 120 stalls. This at 1s. 10d. per eight quarts, which was the price received, amounts to 851, 868, and 891 imperial gallons per stall per annum, or 9½, 9½, and 9½ quarts respectively per cow per diem. This is where about 150 cows were purchased and sold every year, at a loss varying from £3 to £4 a-head, to keep 100 stalls constantly full. The cows were thus kept upon an average eight months each, and two-thirds only of the above quantities, 568, 587, and 594 gallons, are all that was taken from each cow during the eight months it was kept. I was informed that 89,236 imperial gallons were obtained in one year upon Colonel Talbot's farm at Sudbury from 80 stalls. The cows were sold earlier than at Golder's Green, not being kept longer on the average than six months, 153 having been sold and brought to keep 80 stalls full. In this case no less than 1,115 gallons was obtained per stall per annum, or fully twelve quarts per stall per diem. The cow here yielded 560 gallons in little more than six months, which is an enormous quantity for the average of so large a number as 80.

It will be seen from the foregoing that it is the common practice in the London dairies to sell off the cows—to make a rule of so doing—when their milk begins to fall off, not after years, but in the

current year; everything is sacrificed to the yield of milk, which is even forced at the risk of injury to the cow's constitution; and when she has done her utmost, she is sold, either to the butcher, or to anybody else who may happen to want a cow, and is willing to purchase her. Persons unacquainted with the extent to which this system is carried, have hesitated to buy a good cow from a London dairyman when wanting one for milking, thinking, very naturally, there must be some grave fault with an animal so disposed of, when the only object in getting rid of her often is that the natural rest enjoined by nature's laws cannot be afforded to be given to her in the London cow-shed, which the animal must obtain elsewhere.

This is quite contrary to country practice, where, in almost all cases, if a good cow is obtained, the owner does not want to part with her; but, appreciating the animal at its due worth, often refuses a good price for her. And this, of course, is as it should be; for in the country the breeding of calves is a very important part in dairy management, and calves are never wanted in the London cow-shed; it is a different line of business, and there everything is sacrificed for the milk. To those who have never had any experience of this system, the thoroughness with which everything is subordinated to this point is very remarkable, and the plan pursued will account for the high average per cow that is made to be given in the yield of milk from a certain number.

77. AVERAGE YIELD OF MILK OF A GOOD COW.—During the months out of one year a good cow is in milk, she will yield about 600 gallons. Many highly-kept cows will give more; but as a great many fairly-kept animals will produce less, it is not safe to calculate upon a larger average, and this result depends very much upon the species. Alderney cows give a much smaller amount of milk than most other sorts; but as much butter can often be made from a smaller yield of this description of animal, on account of its greater richness, as from a larger supply of the lacteal fluid; and this causes the Alderney cow to be in favour with private gentlemen, though they are not supposed to answer the purpose of a dairy-farmer so well. 600 gallons of milk at eightpence per gallon would amount to £20; but as sometimes as much as a shilling per gallon can be obtained by persons who are favourably situated for disposing of their milk produce, the large sum of £30 per cow can be got from the sale of her milk; but these results are not to be obtained unless the animals are liberally supplied with food of the best description, varied with brewers' and distillers'

grains, bean and Indian meal, &c., the method of feeding being kept up with the greatest regularity. An average of 650 gallons is commonly put; but we have in this instance put the figures at 600 for the sake of round numbers.

78. ON THE MILKING OF COWS.—The operation of milking the cows is, unfortunately, often conducted in a very slovenly manner upon some farms, and that attention is not paid to minute cleanliness which ought to prevail during the operation.

Many attempts have been made to milk cows by machinery, and some few years back the American "Cow-milker" was sold largely to cowkeepers and others, who hoped to get a useful contrivance of this sort, but nothing has yet been found which answers the purpose so well as hand-milking. The udder and teats of the cow frequently having particles of dirt adhering to them, which in the course of milking are apt to fall into the pail, they should be well brushed with the hand before commencing to milk; and if the dirt is soft or wet, they should be washed in tepid water. The washing should be avoided if possible, as sometimes the cold is apt to strike the cow, and dry wiping is the safest. Neglect of precaution often causes milk which would otherwise remain perfectly fresh to become tainted, and loss is sustained thereby.

The utmost care should be taken to drain the cow's udder well, or, as it is called, "drip the strippings" from her; for not only is this the richest part of the milk, but neglect of this important particular is apt to cause the cow to become dry. The operation should be performed as quickly as possible, without alarming or causing inconvenience to the cow. Young cows are often very timid and nervous, and from this cause are apt to misbehave themselves. Milkmaids are generally found to take more pains with the animals than men, when this is the case, as it is sometimes not unusual to see men throw the milking-stool at a cow which is not so tractable as it might be; and many a good animal has thus been spoiled by bad treatment. Pain, fear, or nervous excitement is highly injurious to cows, and, in young animals especially, tends to check the secretion of milk.

Many dairymen make a point of feeding their cows during the operation of milking, to put them in good humour; and the whole performance is done in such an orderly manner, that the milk-pail, instead of being a dreaded object by the animals, is the signal for so much enjoyment and gratification.

Everything that tends to ruffle the cow while she is being milked, should be avoided, and she should be kept as quiet as possible; and by good management this task may be made an easy and pleasant one, both to the cow and the milker, if considerate and gentle treatment is adopted. The animals quickly appreciate kindness, and can soon be made to learn what is expected from them.

A good deal of difficulty may be spared in anticipation, by considerate treatment to young heifers which are about to come into milk. They should be daily handled and petted, and made acquainted with the person whose task it will be to milk them. By giving them morsels of choice food, and allowing them to accompany the cows which are milked, they may soon be rendered docile.

Some young heifers are very wild when they are first milked, and by custom-

ing them to have their legs groomed and their udders handled, they will gradually be got into the way, and many a one which would otherwise have turned out a "kicker," has proved a docile animal enough when the time has come round for her to be milked, owing to the precautions and the trouble which have been taken with her beforehand. The traditionary cow which gave the good pail of milk and then kicked it over, was doubtless one which had to deal with a bad-tempered milker while a heifer; and the great point to be observed is, never to give the animal pain, or excite her fears. Many heifers are annually spoiled by hasty and injudicious treatment in "breaking them to the pail," which can best be done by kindness, and by humouring them. The punishment often administered to an animal in the shape of kicks and blows at the time of milking, is naturally calculated to make it hate the sight of the pail, and to stir up apprehension, when there ought to be no occasion for it.

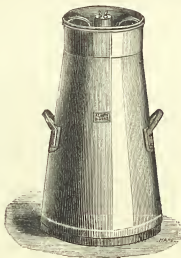
Where cows have been kindly treated, it is no uncommon thing to see them answer to their names when called, and come up at a trot to be milked, when the milker has ingratiated herself in their favour; but this sight, it must be admitted, is more frequently seen abroad than in England, and cows are capable of being rendered very docile by kind and judicious treatment.

79. SKIMMING, AND THE TREATMENT OF MILK IN SUMMER AND WINTER.—Milk is generally skimmed in England for the purpose of making butter, and there are one or two points about this operation which deserve mention.

In cold weather the cream does not rise so rapidly to the top of the dish as in warm, so that while it is usual in summer to skim it two or three times, it is skimmed as often as four times in winter, or continued till no more cream can be got from the milk. To perform this operation dexterously, as the cream adheres firmly to the sides of the pan, it should be separated from the edges by running an ivory or silver knife round it. The cream should then be carefully lifted with the "skimmer," which is generally perforated with small holes, to prevent raising any of the milk with it. There is a method followed by a few, who have a plug in the bottom of their milk-pans, which they remove, and allow the milk to flow off, leaving the cream behind; but skimming is the ordinary practice followed. The length of time that the milk should stand depends a good deal upon the temperature. In warm weather, eight hours is the least, and about twelve hours the average; while in winter it will have to stand much longer. The cream is then placed in a "cream-pot," the most perfect kinds of which have a tap near the bottom, so as to draw off any thin, serous portions of milk which may chance to be there, which, if allowed to remain, act upon the cream and greatly deteriorate the quality of the butter. The contents of the cream-pot should be stirred every day with a wooden spoon, in order to prevent coagulation, until enough is collected to put into the churn. A common error prevails, that no butter can be first-class which is not made from fresh

cream. The formation of butter only takes place when the cream has imbibed a certain degree of acidity, and no good butter can be made from cream that is not more than one day old.

Judgment and experience are the best safeguards to rely upon, as to the length of time cream should be allowed to stand, as its condition varies from altered circumstances. Cream that has been kept three or four days is in excellent condition for making butter in summer, but if the cows are fed on roots, or artificial grasses, or the herbage is coarse, then the sooner the cream is churned the better. The cream from every milking should be kept separate, till it becomes sour, and not mixed with sweet cream until the moment of churning.



"ACME" CHURN.



MILK CARRIAGE.

CHAPTER VII.

MILK.

Properties of Cow's Milk—Adulteration—Whey Butter, Whey, &c.—Cream: Clotted or "Clouted" Cream—Skimmed Milk—Milk considered as an Aliment—Varieties of Food prepared from Milk—Markets for Milk—Transport of Milk—Cost of Production and Profits—Dairying in Flanders.

80. **PROPERTIES OF COW'S MILK.**—We have already spoken of the differences in milk of different animals and under different circumstances, and while in most cases its chemical proportions and properties will not particularly interest the general reader, a practical experiment to determine the butter and cheese-making properties in milk will doubtless be found interesting.

A very definite experiment which is recorded as having been made, published in Morton's *Cyclopædia of Agriculture*, illustrates this point in a very conclusive manner, the object being to determine the exact quantities of butter and cheese in the milk of each cow:—

"A weighed quantity of milk was taken from the noon's milking of each cow, and allowed to stand in separate glass vessels for forty-five hours. A portion of the *afterings* of all the cows, mixed, was also set apart, to determine the amount of butter and cheese in the last-drawn milk. When the cream had completely separated from the milk, a fine-pointed glass syphon—sufficiently wide in the bore to allow the milk to run through it, but not the cream—was introduced into

the vessel, nearly touching the bottom. The air was then exhausted from the syphon, and the milk withdrawn into another vessel. The cream was weighed, and agitated in a glass tube until the butter came, which was then well washed with pure water, and repeated decantings until the water ran off colourless. The weight of the butter was then carefully ascertained; and the difference between it and the weight of the cream gave that of the butter-milk. The butter was then put in a minim tube, and melted at a low temperature, by immersing the tube in warm water. The remaining butter-milk and cheesy matter sank to the bottom on cooling, and the proportion, by bulk, was noted down.

"The skimmed milk was gently warmed to 90°, after adding a little acetic acid to make it curdle. The whey was separated from the curd by filtration and washing, and the latter then dried at a heat not exceeding 212°, until it ceased to lose weight. The weight of the dried curd (pure caseine), when deducted from that of the milk, left, as a remainder, the weight of the whey. The following table shows the relative quantities of butter, caseine (cheese), and whey; the latter includes the butter-milk also:—

Per Cent.	Middle-sized, well-proportioned cow; colour, very dark brown.	Fife-shire breed, long body, broad behind and narrow before. Black.	Cross-breed from short-horn, very broad square cow. Brown and white.	Fife breed—heavy body, wide chest. Black.	Angus breed—low square, well-proportioned figure. Black and white.	"Afterlings" of the five cows.
Butter	4'318	4'209	2'900	3'079	4'700	10'102
Caseine (Cheese)	3'017	3'412	3'144	3'389	3'209	3'294
Whey, &c.....	92'665	92'379	93'956	93'532	92'091	86'604
	100'000	100'000	100'000	100'000	100'000	100'000

"The large proportion of butter in the last-drawn milk is seen from the figures in the last column. It indicates the truth of the remark we once heard made by a dairy-farmer, that the profits of his business depended principally on the perfect performance of the operation of milking.

"The quantity of milk, daily, from each of these cows, during seven days in the month of July, was as follows:—

	Qts.	Qts.	Qts.	Qts.	Qts.
Daily	No. 1, 9½	No. 2, 12½	No. 3, 13½	No. 4, 10½	No. 5, 10½
Weekly ...	No. 1, 68	No. 2, 89	No. 3, 96	No. 4, 75	No. 5, 72

"If we take the weight of a gallon of milk at 10 lbs. 3 oz., the weekly yield per cow, of butter, cheese (caseine), and whey, would be as follows:—

	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
Produce per cow in qts. and lbs.	68 qts. = 173½ lbs.	89 qts. = 226½ lbs.	96 qts. = 244½ lbs.	75 qts. = 191 lbs.	72 qts. = 183½ lbs.
	lbs.	lbs.	lbs.	lbs.	lbs.
Butter.....	7'479	9'540	7'09	5'881	8'620
Caseine	5'225	7'734	6'89	6'473	5'885
Whey, &c.	160'496	209'476	230'52	178'646	168'895
Total.....	173'200	226'750	244'50	191'000	183'400

"Of course, the caseine in this table does not represent the whole of the *cheese*

which the milk contained, because the process employed to extract it separated the butter entirely from it; besides, the cheesy matter was dried to the consistency of horn before being weighed. Common-milk cheese, however poor, as it is usually made, not only contains a little of the butter, but also a large proportion of water or whey matter. On the other hand, the quantity of butter given above is, no doubt, larger than could have been obtained by common churning. Still the table will serve to show correctly the comparative, as well as absolute, amount of pure butter and caseine contained in the milk of each cow.

"It will be seen, from these statements, that the money value of each cow would fluctuate according to the purpose for which she was kept; whether for milk, butter, or cheese. Calculating by the milk, at 6*d.* per gallon, the value of each cow, weekly, will stand thus:—

								<i>s.</i>	<i>d.</i>
No. 1.	17 gallons at 6 <i>d.</i>	...	...	...	...	...	...	8	6
No. 2.	22½ " "	...	...	...	...	...	...	11	1½
No. 3.	24 " "	...	...	...	...	...	...	12	0
No. 4.	18½ " "	...	...	...	...	...	...	9	4½
No. 5.	18 " "	...	...	...	...	...	...	9	0

"Again, supposing the milk all to be churned, and sold as butter and butter-milk, the result would be as follows:—

						<i>s.</i>	<i>d.</i>	<i>s.</i>	<i>d.</i>
No. 1.	{	7·47 lbs. of butter at 10 <i>d.</i>...	...	...	...	6	2½	10	2½
		16 gallons of butter-milk at 3 <i>d.</i>...	...	...	...	4	0		
No. 2.	{	9·54 lbs. of butter at 10 <i>d.</i>...	...	...	...	7	11½	11	3½
		21½ gallons of butter-milk at 3 <i>d.</i>...	...	...	...	3	3½		
No. 3.	{	7·09 lbs. of butter at 10 <i>d.</i>...	...	...	...	5	11	11	8½
		23½ gallons of butter-milk at 3 <i>d.</i>...	...	...	...	5	9½		
No. 4.	{	5·88 lbs. of butter at 10 <i>d.</i>...	...	...	...	4	11	9	5
		18 gallons of butter-milk at 3 <i>d.</i>...	...	...	...	4	6		
No. 5.	{	8·62 lbs. of butter at 10 <i>d.</i>...	...	...	...	7	2½	11	5½
		17 gallons of butter-milk at 3 <i>d.</i>...	...	...	...	4	3		

"The reader will see, from these tables, that the cow No. 3, although giving six gallons of milk more than No. 5, and seven gallons more than No. 1 per week, is under both of them in butter; and were it not that the quantity of butter-milk is great, she would fall below them in profit too. Her milk is poor in butter and cheese, and there is reason to suspect that the quality of both is inferior also. To the inland dairy farmer, it is of the greatest consequence to get cows that yield rich milk, even although the quantity should not be so very great; for this reason, that the refuse, either of cheese or butter making, can be turned to little account in such localities."

We disagree with the opinion that little can be done as regards skim-milk, because calves can be brought up profitably on it, when butter is made from cream alone, the method of doing which is explained in another place.

81. ADULTERATION.—Since the Adulteration of Food Act has come into operation a great many persons have been fined for mixing water with milk, and care should be taken by those who sell milk in large quantities to have the cans properly sealed, so that

they cannot be tampered with on the journey towards their destination, whether it be by cart or railway.

The pump—the cow with the iron tail—has often been described as the most profitable animal of the whole herd; but those days are now over for those who are dishonestly inclined. Clean water is not in itself so objectionable a form of adulteration as at one time was resorted to; when, in order to counteract the poorness of quality communicated to the milk by too great an allowance of *agua pura*, the intestines of animals were boiled up, and the liquor in which they had been cooked mixed with the milk.

82. **WHEY-BUTTER, WHEY, &c.**—The form in which the produce of the dairy is put varies considerably in different counties and different districts. Where whey-butter is made, it is usual to heat the whey in a set pan to 180°, and frequently stir it to prevent it from burning. A little sour butter-milk and white whey (thrustings, as the latter is called in some districts), in the proportion of 1 pint of the former and 2 quarts of the latter to 22 gallons of whey, are thrown in, upon which the cream immediately rises to the surface, and is skimmed off and put in a jar to sour or clot.

In a few hours after being placed in the jar, the thicker and more oily part of the cream rises to the top, and the thin wheyey matter is withdrawn by a spigot from below. In three or four days the cream is completely clotted, and ready for being churned, which is done in the usual manner. This is the method followed in Cheshire.

In Gloucestershire dairying, in autumn and winter, when the weather is cold, a small portion of the milk is heated and mixed with the other, so as to bring the whole up to the temperature of 85° before adding the rennet, and the milk allowed to remain for an hour without disturbance. During this time it is covered closely over with a woollen cloth, to exclude the cold air. By that time, if matters have proceeded properly, the curd will be completely formed, fit for being broken up, which is effected by passing a three-bladed knife or a coarse wire sieve gently downwards to the bottom of the tub.

When the curd has been cut through and divided as well as its suspension in the whey will allow, the whole is allowed to remain for ten minutes or so, undisturbed, to allow time for the broken curd to sink, so as to allow the whey to be baled off the top.

As soon as all the clear whey has been taken away, the curd, which is now more consolidated, is again broken, but more slowly than before, to avoid squeezing out any of the butter, which would not fail to ensue if the curd were cut too rapidly, or in a rough manner. The curd properly broken and reduced to an equal degree of firmness, it is allowed to settle for a short time, when more of the whey is removed and poured through a sieve, to retain any small particles of curd which may yet adhere to it; and when the greater part of the whey has been removed in this way, the curd is separated into lumps and laid aside one upon the other in the bottom of a tub placed in a somewhat tilted position to allow the whey to drain away and be removed, and as soon as it ceases to drain

the curd is ready for being placed in the vat, when the subsequent operations for making the cheese are commenced.

83. **CLOTTED OR CLOUTED CREAM.**—The method followed in Devonshire and other western counties for procuring "clotted cream" has been described as follows:—

The milk, while warm from the cow, is strained into either large shallow pans, well tinned, or earthen ones, holding from two to five gallons, in which should be a small quantity of cold water. This is thought to prevent the milk from burning, and to cause the cream to be more completely separated and thrown to the top.

The morning meal of milk stands till about the middle of the day; the evening meal until the next morning. The pans are now carried steadily to and placed over a clear slow fire; if of charcoal, or over a stove, the cream is not so apt to get an earthy or smoky taste, as when the milk is scalded over a turf or wood fire. The heat should be so managed as not to suffer the milk to boil, or, as they provincially term it, "to heave," as that would injure the cream. The criterion of its being sufficiently scalded is a very nice point; the earthen pan having its bottom much smaller than the top, allows this point to be more easily ascertained, because when the milk is sufficiently scalded the pan throws up the form of its bottom on the surface of the cream.

The brass pan, if almost as big at the bottom as at the top, gives no criterion to judge by but the appearance and texture of the surface of the cream, the wrinkles upon which become smaller and the texture somewhat leathery. In summer, it must be observed, the process of scalding ought to be quicker than in the winter, as in very hot weather, if the milk should be kept over too slow a fire, it would be apt to run, or curdle.

This process being finished, the pans are carefully returned to the dairy; and should it be the summer season, they are placed in the coolest situation, if on stone floors or slate benches the better; but should it be the winter season, the heat should rather be retained by putting a slight covering over the pans, as cooling too suddenly causes the cream to be thin, and consequently to yield less butter, the mode of making which is this: The cream should, in hot weather, be made into butter the next day, but in winter it is thought better to let the cream remain one day longer on the milk. The cream, being collected from the pans, is put into wooden bowls, which should be first rinsed with scalding, then with cold water. It is now briskly stirred round one way with a nicely-cleaned hand, which must also have been washed in hot, and then in cold water; for these alternate warm and cold ablutions of bowl and hand are not only for the sake of cleanliness, but to prevent the butter from sticking to either. The cream, being thus agitated, quickly assumes the consistence of butter; the milky part now readily separates, and, being poured off, the butter is washed and pressed in several cold waters; a little salt is added to season it, and then it is well beaten on a wooden trencher until the milky and watery parts are separated, when it is finally formed into prints for the markets.

The dairy-maids say that one-fourth more cream is obtained this way than by the ordinary method of skimming it off the milk.

84. **SKIMMED MILK.**—Skimmed milk, in a well-managed dairy, can be made a very important element of profit, though very often it is much overlooked and neglected. Both in the rearing of calves and in the feeding of pigs, skimmed milk can be made to play a very important part, of which we shall speak hereafter under the heading of each. Properly managed, it pays much better to con-

sume it in feeding stock than to sell it, though it is generally felt that the neighbouring poor cottagers ought to have the opportunity of purchasing enough at a low rate for their household requirements.

85. **MILK CONSIDERED AS AN ALIMENT.**—As an aliment, milk is considered a necessity for young children, and one of the most important articles of food, as it is easy of digestion, and yet contains within it those nourishing and sustaining principles which are so valuable in imparting health and strength to the growing frame in childhood; while, under certain conditions, it is equally useful to aged persons and invalids.

The demand for milk as an article of diet is daily increasing, more faith in its alimentary properties being generally entertained since the provisions of the Adulteration of Food Act are being strictly carried out in cases of adulteration.

86. **VARIETIES OF FOOD PREPARED FROM MILK.**—Besides butter and cheese, which are the two great staples prepared from milk, it enters very largely into the composition of various kinds of food consumed in the household, in the shape of custards, puddings, &c., so that it makes a very necessary adjunct to the daily food of the people. In every household, nearly, throughout the country, the milk-jug is in requisition at each morning and evening meal as an accompaniment to that "cup which cheers, yet not inebriates," and is both an important item of diet itself, as well as entering largely into the composition of others.

87. **MARKETS FOR MILK.**—There is literally a market for milk at one's very door where any amount of population exists, and there never is any difficulty in finding one, however isolated a dairy farm may be, either through means of the railway, or by horse and cart despatch, or by the two latter conjointly. Of course, where milk is sent to market at a distance, the cost of transport must be taken into account, and each item of expense connected with it carefully estimated.

A good market is a very important consideration, and nearness to one often means a very great accession of profit, and this factor in the general calculations ought to be carefully taken into account when renting a dairy farm.

88. **TRANSPORT OF MILK.**—The facilities which now exist for the disposal of milk at long distances through means of the railways are very great, which may be gathered from the statement made some time back by Mr. Brooks, of the London and North

Western Railway, to the Milk Committee of the Society of Arts, as to the methods of charging and delivering milk between London and Northampton.

"The milk is conveyed in cans, which are provided by the senders, in open carriage-trucks; the carriages being well constructed in respect to springs, so far as this can be done, in order to cause the milk to be as little shaken as possible in the course of the journey. The charge for a distance not exceeding 100 miles is 1½d. per imperial gallon, and when the distance exceeds 100 miles, 2d. per gallon. When the great increase in the traffic first commenced, milk was sent up from places as much as 180 or 200 miles distant, from districts near Huddersfield, Macclesfield, &c., the greatest distance at which milk was then sent being 95 miles. The cans in use in England are much too large and too heavy to be loaded and handled by one man, and it is a stipulation with the dealers that their men shall assist the railway porters in unloading the trucks, the weight of a can filled with milk being nearly 200 lbs. The French cans are about half the size of those used here. The shape of the English cans, too, is against their being closely packed, being broad at the bottom and tapering towards the top. The French tins, on the contrary, from their cylindrical shape, can be packed with greater economy of space. The French milk-trucks are very much like the narrow-gauge sheep-trucks used in this country, with two floors, one above the other, forming two tiers, in which a great number of cans can be packed, and there is a good circulation of air around them. On the other hand, the French cans are heavier per gallon of their contents than the English, and it is not likely that the former will be adopted here. The trade has got to be such an important one as to lead to the dispatch of special trains for this purpose, and the milk is brought to the stations at specified times to meet them. One train arrives in London at a quarter to twelve in the forenoon, for the afternoon supply of the metropolis; and the second train arrives about half-past eight in the evening, for the next morning's supply. During the time of the greatest scarcity of milk, an arrangement was made for bringing cream from a distance so remote as Carlisle, which was placed in small cans, much smaller in size than the French milk-can, and carried suspended in the railway truck; but when it arrived in London it was found that the cream was reduced almost to the consistency of milk, and the trade was therefore abandoned."

Mr. Brooks, upon the occasion referred to, stated that those who made complaints about the rates of carriage cannot have calculated the price per ton at which the Company carry the milk, or they would have found that the milk, including the weight of the cans, is carried a distance of 100 miles for 1s. per cwt. When the milk-train arrives the dealers assist in unloading the vans, and the milk is carried away in the dealers' own conveyances.

The consumption of milk being so great in London, a large trade has sprung up there for supplying it to the public, and a considerable number of cows are fed for this purpose both in the suburbs and London itself, to which we have previously copiously alluded.

89. **COST OF PRODUCTION AND PROFITS.**—Both the cost of production and profits being relative matters, which depend upon a certain number of contingent circumstances, no definite scale can be furnished of either with reliable accuracy; but we refer the reader to those instances that we have furnished, where certain prices are quoted for milk that is sold, and also the cost of keep of the cows. The latter is made to vary considerably by the amount

of artificial and stimulating food which is given, or otherwise; a fair conclusion from which may be drawn from the examples we have instanced.

The yield of the cow can be considerably increased by extra feeding, but, on the other hand, the enlarged expense must be taken into account; but, as we have previously shown, this can be done so as to ensure an extra rate of profit; this again depending upon the conveniences, or otherwise, for the supply of artificial food.

It is just possible that, in a purely pastoral district, where only grazing cattle are fed, and the difficulties of transit and cost of carriage are great, merely feeding the animals upon grass and hay, supplemented by light portable artificial food, would pay in the long run, as well as the more complicated systems of feeding which have been recommended; but of course judgment must be used in each varying condition, and the relative cost and profit will naturally be subservient to them.

90. **DAIRYING IN FLANDERS.**—In Flanders cows are chiefly kept for the sake of the milk and the manure, oxen seldom being used there for tilling the land, which is an important consideration in some countries. The cow-stalls are littered two or three times a day with rye or oat straw, at the rate of twelve to fourteen pounds per head.

There is a very large variety in Flemish cattle in the north of Flanders, where pasturage is more abundant, but coarser than in the south; they are much the heaviest, though dairy cows are not superior.

A good many cattle are imported from Brabant, those which come from the Kempen being larger than the Flemish oxen. Cows are generally brought on the pastures about May, and remain on them till October or November, many farmers keeping the cows always in the same pastures, as they graze closer than the oxen, which causes the grass to become softer.

The best pastures are to be met with in the north of West Flanders, and chiefly in the district of Dixmuiden.

The cows are milked three times a-day, in the best season of the year, into a brass or wooden pail. In the cow-stalls a brass can of about four gallons stands, and upon it is placed a sieve, into which the milk is thrown out of the pail. When full, the can is immediately brought to the cellar, and there the milk is again poured through a horsehair sieve into the milk-tubs, which stand on a platform built on the ground for the purpose.

It is customary to churn the milk in summer after twenty-four hours, but in winter three days are allowed to expire, when the milk is poured into the tub that stands in the cellar, and if it then does not become sour, they place a can with warm water in the tub to accelerate it.

Those who sell fresh milk skim it some hours after it has been placed in the cellar, and pour the cream into a tub till it is churned. The churning generally lasts one-and-a-half or two hours, all the vessels being scoured and scalded out as soon as they are empty, the utmost cleanliness being observed, while the cellar is kept cool.

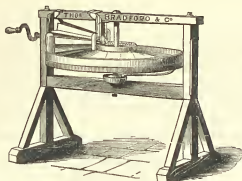
Two-and-a-half gallons of good sweet milk will produce a pound of butter

When the butter is taken out it is kneaded in a wooden dish with a wooden spoon, after which it is put in an earthen basin and covered with water. In an hour's time it is salted, two handfuls of salt being worked into every seven or eight pounds of butter; after which it is worked again with the wooden spoon, to free it from any remaining milk, and the butter is made up ready for market. As soon as the butter comes out of the churn it is cut through with a hair knife in opposite directions, the operation being known by the name of *combing*.

The months of May and September are considered to be the proper ones to make up butter for winter. It is then worked up a second time by kneading it in a wooden tub, after which more salt is added to it, when it is put in casks and vessels and kept under pickle.



NOSE RING.



BUTTER WORKER.

CHAPTER VIII.

BUTTER.

Utensils, &c.—Process of Making Butter—Precautions for ensuring Good Butter—Feeding for Butter-Making in Winter—Varieties of Butter—Butter made from whole Milk—Adulteration—Imitations of Butter—Butter as Food—Markets—Importations—American Factories for Butter Manufacture—Salting—Plan of Working the Butter—Advantages of Butter Factories—Skim Cheese—Results obtained at the Butter Factories—Labour, &c.—Cost of Production and Profits.

91. **UTENSILS, &c.**—The milk is skimmed by a shallow pierced tin ladle, which lifts off the cream from the surface of the milk-pan when it has risen; it is then stored in stone jars, or "cream-pots," until enough has been accumulated to place in the churn.

A great variety of forms exists with respect to the shape of the churn; the barrel-churn, perhaps, being that most commonly used, the barrel being turned by a handle, and the milk, lifted by dash-boards extending radically inwards from the sides, is shaken by them in the revolving motion. The price of these churns varies according to size, and they may be purchased from £2 upwards. One with a barrel eighteen inches long, and eighteen inches in its largest diameter, with two beaters projecting inside and attached to the staves, would churn the milk of six cows and cost about the sum named.

When a smaller quantity of milk is churned, where only a cow or two is kept, and the dairy operations are upon quite a small scale the plunge-churn is mostly used. It is also resorted to in some large dairies where milk, and not only cream, is churned, being then made large enough to hold sixty gallons or more, the plunger being worked by a crank movement lifting a lever, to the end of which the churn-staff is attached, and by this means worked up and down. Many other kinds of churns exist, but the two mentioned include the principle upon which nearly all the churns in common use in England act.

The common box-churn is a rectangular wooden box, about seventeen inches by twelve long, and sixteen inches deep, bevelled below, so as there to offer an octagonal section in the vertical plane in which the beaters revolve. A revolving

frame of flat wooden beaters is contained inside, and when large enough to make ten pounds of butter, the cost of this churn would also be about £2.

92. **PROCESS OF MAKING BUTTER.**—Numerous experiments have been made, to show that the quantity of cream has nothing to do with the time of churning, providing the proportion of agitating surface is made to suit the capacity of the churn. Thus in some churns it has taken sixty-one minutes to produce a quantity of butter that has been made in another in twenty-five minutes.



BUTTER ROLLER.

In the most effective churns there are two sets of beaters, which are made to revolve in different directions, thus bringing a large quantity of working surface into action.

After the churning has been completed, the butter is either made up and put into rolls, or forced into moulds, or made up into the most suitable form for market that is best liked in the district where it is made. In London, especially, a good deal of butter is made



BUTTER PRINTING CYLINDER.

up in small quantities that are denominated "pats," a great part of this being disposed of to hotel proprietors and coffee-house keepers, to suit the wants of their various customers.

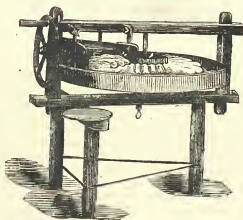
A great many persons make a practice of washing their butter as it comes from the churn, with the object of extracting all the milk which may remain in it, which they ascertain to have done when the water comes from it pure. The practice is not, however, a good one, and where a dairy is managed in a first-class manner is never followed, for experience shows that butter retains its sweetness considerably longer in those instances where water has not been used in making it up. If, when the butter is taken out of the churn, it is well worked with the hand in an effectual manner, the milk can be pressed out. Too much squeezing or working, however, must be avoided, as the butter is apt to become tough, and

by pressing a cloth repeatedly upon it, any particles of milk remaining on it will be absorbed. There is always a full supply of inferior butter upon the market, and a comparative scarcity of a first-rate article, and it is not at all an un-



BUTTER WORKER.

common circumstance for one farmer in a district to feel the effects of glutted markets and low prices, while his next neighbour can sell all the butter he makes very readily at comparatively high prices. The secret of this is, that the



BUTTER WORKER.

article in the case of one is turned out of first-rate quality, while in that of the other it is inferior, the latter result being often due to want of sufficient care in its manipulation,

93. **PRECAUTIONS FOR ENSURING GOOD BUTTER.**—There are one or two precautions for ensuring the making of good butter, which should be ever taken. First: Good ventilation in the dairy. Nothing taints milk so soon as damp and confined air. In summer coolness is necessary; for if the dairy is too warm the milk thickens at once, and the butter is so soft that it is a work of considerable difficulty to make it up and prepare it for market. In winter, if too cold, the cream does not rise well, and there will be, in consequence, a certain amount of loss. Second: Strict attention to cleanliness, and seeing that every article used in the manufacture of the butter is thoroughly clean, dry, and sweet. Third: Not allowing the milk to stand too long in the pans. Allowing it to stand too long is a very common source of mischief, the butter losing the fresh sweet taste it would otherwise have, and often acquiring a taint. Fourth:



AN ICE BUTTER-TUB.

Churning often; those who attach considerable importance to this making a point of churning three times a-week. Fifth: During the winter months retaining the natural heat of the milk by the best methods as long as possible. Some dairy managers, to ensure this, put the pan containing the milk in another holding warm water; but if the adequate warmth can be communicated to the dairy the better. Sixth: During very hot weather in summer—particularly on very rich pastures—butter which, under ordinary conditions, is of the best quality, gets spongy, and wants texture, so that it is next to impossible to impart firmness to the mass. This can be remedied by trimming a slate to fit the top of the butter-firkin without touching the firkin itself, a layer of salt being placed between the slate and the butter to prevent contact, on the top of which is placed a heavy weight—say half-a-hundredweight.

In forty-eight hours the water will be forced out of the butter, and the consistence of it will be all that is required.

94. FEEDING FOR BUTTER-MAKING IN WINTER.—In order to ensure good butter in winter, it would be the best course in this place to revert again to the question of feeding, upon which everything will depend, and the chief point of importance is to give the cows the best and most appropriate food that can be given to them under varying conditions.

The different plans in connection with "soiling," or house-feeding, that are followed by the London cowkeepers which we have instanced, country dairy-men can, without doubt, take some good hints from, even those who have plenty of pasture on which their cows are turned for, at all events, five months of the year out of twelve, during which period they have but comparatively little trouble, and good hutter may be relied on, unless the herbage is rank or rushy, or some noxious weed abounds. But during the winter and early spring months, however, the case is different, and the country dairyman is in much the same position as his brother in town; and now comes the test of management. As cows during the remaining seven months of the year are mostly fed upon roots—that is to say, the hulkier portion of the food consists of roots—they are apt more or less to communicate a disagreeable flavour to the hutter, which often not only lowers its commercial value, but at times renders it very difficult to be disposed of at all. Turnips may be freely given to cows whose milk is intended for hutter, if concentrated food is mixed with them, the method of doing which is described elsewhere, and the hutter be little inferior to that produced in summer.

The roots used must, however, be sound, and not have heated in the pits, turnips being considered productive of hutter. When hoiled food is given morning and evening, meal can be mixed with it very advantageously, so that they get the most benefit from it; and where hoiled food is not given, the concentrated food can be thrown into a large tub, and hot water poured over it, the steam being confined in it by a cloth or cover. By this means the food receives a certain amount of cooking, and the cows eat it with relish. Some do not take this trouble, but sprinkle the mixture, or whatever it may be, either crushed oats, a mixture of meals, bran and oil-cake, Indian or palm-nut meals, &c., &c., over each animal's allowance of roots. When this has been practised for some little time, the cows themselves will remind their attendants of any omission on this point occasionally, for some of them will not touch their turnips or mangolds till the meal has been sprinkled over them.

A difference of opinion exists as to the comparative merits of mangolds and turnips as food for cows by different dairymen. By some, mangolds are supposed to make a better quality of hutter than that got from turnips. Others, on the contrary, say that while the risk is run of hutter tasting of turnips, the somewhat peculiar and slightly bitter taste which is communicated to butter by mangolds is equally objectionable to many as "turnip hutter," and is more difficult to be got rid of. As mangolds keep so well, they will always be used as food for cows in winter; yet they are not so good for making hutter as turnips, the milk being poor and thin, and the cream not rich in hutter. Where mangolds are freely used, then it is imperative that richer food be given in addition, not only for the sake of improving the quality of the milk, but also for the purpose of keeping the animals in health; for the acrid juices which are found in mangolds even late in the season have, without a mixture of other food of a retentive character, a purgative effect upon them, which reduces their condition very much.

Turnips and hay alone are sometimes given, it is said, without injury to the taste of the hutter, the hay qualifying the effect of the turnips; yet the same with mangolds is not sufficient, and if the health of the cows and the yield of their milk is studied, to mangolds and hay must be added a portion of meal or other nutritious food. From four to eight pounds of meal a-day is a sufficient

allowance for each cow, and this ensures its health, enriches the milk, and increases its quantity.

95. **VARIETIES OF BUTTER.**—The varieties of butter are chiefly comprehended under the heading of two main divisions, salt and fresh—the latter being intended for immediate sale and consumption, and the former put away in tubs or barrels, with an addition of salt to preserve it sweet, for store use; but butter is also made from unskimmed milk, and not cream alone.

96. **BUTTER MADE FROM WHOLE MILK.**—The process of making butter from the whole milk, and not from cream alone, which is practised in some of the dairies of the West of Scotland, has been thus described:—"The milk, when drawn from the cow, is placed in the coolers on the floor of a clean, cool, and well-aired milk-house, from twelve to twenty-four hours, till it has cooled to the temperature of the milk-house itself, and the cream has risen to the surface. These coolers are next emptied, while the milk is yet free from acidity, into a clean, well-scalded vat, of size to contain the whole milking, or two milkings, if both are sufficiently cooled, where it remains till churned. If another milking, or meal of milk, be ready before that which has begun to become sour, that second meal may be put into the same vat; but if the first has soured, or is approaching to acidity, before the second quantity has completely cooled, any further admixture would lead to fermentation and injure the milk. It is necessary that the whole milk become sour before it is churned, but the whole of it must become so of its own accord, and be by no means forced into acidity by any mixture of sour milk with that which is sweet. The utmost care should, however, be taken not to allow the coagulum, or curd, of the milk in the stand-vat to be broken till the milk is about to be churned. If it be not agitated, or the 'lapper' (as it is termed in dairy parlance) broken, till it is turned into the churn, it may stand from a day to a week without injury. If these rules be attended to, the butter will be rich, sound, and well-flavoured, and the butter-milk will have a pleasant, palatable, acid taste; but wherever fermentation has been excited, or the lapper broken, and the milk run into curds and whey, the fermentation so begun will continue in the butter-milk after that operation, and will become acrid and unwholesome. When duly prepared and manufactured, the milk will be the better with a fifth or a fourth part of water mixed into it, than milk that has been fermented before being churned would be without a drop of water mixed with it."

97. **BUTTER-MILK.**—Butter-milk is an article of food largely consumed in Scotland, and the foregoing method of churning the milk results in a great quantity of butter-milk being produced. In England the skimmed milk is more or less appreciated, according to locality and circumstances, and is in that form consumed in those districts where the butter is made from cream only.

98. **ADULTERATION.**—Perhaps at one time there was no article of food so largely adulterated as butter. The adulteration chiefly consisted of melted fat, which was bought from the butchers in the form of suet and otherwise, and was mixed with the butter after undergoing a certain process. Large quantities of this fat used to be sent abroad, and came back to us in the form of tub butter, which, although not injurious to health, defrauded the purchaser by substituting an inferior article and a different one for that he thought he was buying. The "Adulteration of Food Act" has, however, been very efficacious in putting an end to this form of adulteration. Lard, again, was at one time very largely used as an ingredient of adulteration, the dishonest vendor obtaining the extra profit resulting from the difference in value between the lard and butter.

99. **IMITATIONS OF BUTTER.**—The adulteration of butter having been pretty effectually stopped, the ingenious manufacturers of the article made from refuse fat and suet now sell it, presenting all the appearance of genuine butter, under the name of "butterine." Large quantities of this imitation of butter are now sold, at prices varying from sixpence-halfpenny per pound to a shilling per pound, it being put up in the tub form and wearing the look of proper butter. The article was at one time comparatively unknown in England, but recently large factories have been established for its manufacture; the result being that the butchers throughout the kingdom have now no difficulty in disposing of their refuse fat and stale suet.

100. **BUTTER AS FOOD.**—Butter, like milk, is a universal article of food, its component parts assisting the human economy when used in proper moderation, and few morning or evening meals would be considered complete without it in the great majority of households throughout the United Kingdom.

There is always a current sale for butter; and, as an established article familiar to everyone, there is no danger of its not continuing to be held in public favour as one of the most necessary items of the daily food of the people.

101. **MARKETS.**—Every town and every village throughout the

kingdom of any size is a market for butter, where the price rules according to the quality of the article, and its position as respects nearness or distance from the seat of supply. The chief cities and large manufacturing towns all present a never-satiated market, London especially, and there is never any trouble in disposing of large quantities of really good butter.

102. **IMPORTATIONS.**—The demand for butter is so great and universal that large quantities are annually sent over to this country from France, Holland, and America. Dutch butter, as an article of medium quality, has long held a fair place in public estimation, the imports reaching to a very considerable amount. We do not get so much butter from America as cheese, yet their system of making butter in the States is very perfect and complete, and some valuable hints are to be obtained from it by the English butter-maker.

103. **AMERICAN FACTORIES FOR BUTTER MANUFACTURE.**—The American system of associated dairies has been described by Mr. X. A. Willard, A.M., of Herkimer, New York, in the pages of the *Journal of the Royal Agricultural Society*:—

The plan was first originated in 1851 by Jesse Williams, who planned the first cheese factory, and the system is found by American dairymen to produce as much extra profit as would suffice to pay for the entire cost of management under the individual system, the result being a constant improvement in dairy management. At first cheese-making only was designed by Mr. Williams, but his success induced the butter dairymen of Orange County, New York, so to modify his system, as to render it applicable to the production of butter. For nearly ninety years the whole farming population of Orange County have directed their chief attention to butter-making and the production of fresh milk for the New York market, and the associated system has caused the methods for obtaining the cream, and the produce itself, to attain the highest degree of excellence, and long prices are paid for it.

What is termed "fancy butter" will fetch a dollar a-pound, and can only be produced from very superior pastures. The old pastures in the district referred to embrace the June or blue grass (*Poa pratensis*), the fowl meadow grass (*Poa serotina*), meadow fescue (*Festuca pratensis*), red top (*Agrostis vulgaris*), the wire grass (*Poa compressa*), the sweet-scented vernal and vanilla grass (*Dactylis glomerata*), clover, and other forage plants.

The June grass (*Poa pratensis*) is regarded as very valuable: it throws out a dense mass of leaves, is highly relished by cattle, and produces milk from which a superior quality of butter is made. The wire grass (*Poa compressa*) is deemed one of the most nutritive of the grasses, is very hardy, eagerly sought after by cattle, and is one of the best grasses for fattening. Cows feeding upon it yield milk of the richest quality, from which the nicest butter is made. It flourishes well upon gravelly knolls and in shaded places, and its stem is green after the seed has ripened. It is found growing in all the States of the Union.

The meadow fescue is common in old grass lands where the sod is thick, and grasses of different varieties are mingled together. It starts up early in the spring, is relished by stock, and furnishes good early feed. The milk-farmers hold it in high estimation as a reliable grass, tenacious of life, and not running

out like timothy (*Phleum pratense*), or clover. The white clover (*Trifolium repens*) springs up spontaneously in the old pastures, and is highly esteemed, as giving quality and flavour to butter.

The sweet-scented vernal grass grows best upon the moist soil of the old meadows. It starts very early, and gives off an agreeable odour.

We have named the grasses quoted by Mr. Willard; but probably soil and climate may modify their character in other places.

No particular breed of cattle is in special favour in the United States, and amongst those on an American dairy-farm are found Jersey or Alderney cows, Short-horns, Ayrshires, Devons, as well as those having a dash of Holstein blood in them, obtained by crossing thoroughbreds upon the common cows of the country. The herds on a farm average about 25 cows; some carry 40 to 60, but in the majority of cases the herds are small, ranging from 15 to 30 cows.

The cost of erecting a good factory, and supplying it with machinery, is about 4,000 dollars (£800).

The milk, as soon as it comes from the cow, is strained and put into long tin pails, which are set in cold spring water, care being taken that no portion of the milk in the pails be higher than the flowing water which surrounds it, in pools constructed for the purpose. These pails are 8 inches in diameter, and from 17 to 20 inches long.

The milk is stirred occasionally, to prevent the cream from rising. It is important that the animal heat should be removed from the milk as soon as possible, at least in an hour's time after it has been drawn from the cow.

The old method was to cool the milk in the large carrying-cans, but it has been found that it keeps sweet longer by dividing it into small quantities and cooling it in pails as above described. The milk stands in pails surrounded by fresh spring water until ready to be carted to the trains; it is then put into carrying-cans holding from 40 to 50 gallons. The cans are completely filled, and the covers, which fit closely, are adjusted so that there shall be no space intervening between them and the milk.

One of the principal features of the American system are these pools of water, sunk below the level of the floor, into which the pails of milk are placed, which are filled to within four inches of the top. The best temperature of the water for the purpose is considered about 56° Fahr. The pools, it is considered, should not be kept at so low a temperature as 48°, nor much, if any, above 57°.

It is claimed that more cream, and that of better quality for butter-making, may be obtained by setting the milk on the above plan than it will yield in shallower pans, or when exposed to uneven temperatures. (Pails 20 to 22 inches in length and 8 inches in diameter.)

Another feature deemed of great importance is to expose as little of the surface of the milk to the air as possible, in order that the top of the cream may not get dry, which has a tendency to fleck the butter and injure the flavour. The milk of one day is left in the pools until next morning, which gives 24 hours for the morning's mess, and 12 hours for the evening's mess to cream. The pails are then taken out of the pools and the cream dipped off.

In the fall and spring of the year the cream, as it is dipped, goes immediately to the churn and is churned sweet; in summer the cream is dipped into the pails and returned to the pool, and kept there till it acquires a slightly acid taste, when it is ready for the churn.

The cream having been removed, the skimmed milk in the pails is now turned into the cheese-vat to be made into "skim-cheese."

In some factories where an extra fancy product of butter and skimmed cheese is desired, none of the milk is set longer than 24 hours, and at these factories it is not desired to take all the cream from the milk, but only the best part, and employ the remainder to give extra quality to the "skim-cheese."

The churning is done by horse-power, the churn most commonly used being simply a large circular platform, or wooden wheel, built about an upright shaft.

the lower end of which turns in a socket. The wheel sets upon an incline, so that the horse, by walking constantly on one side, keeps it in motion. At the upper end of the shaft gearing is arranged, so as to give motion to the churn. The old-fashioned barrel dash-churn is generally liked in America. Four dash-churns are sometimes placed side by side, so as all to be worked by power at the same time. From 60 to 70 quarts of cream are put into each churn, and each mess of cream then receives from 12 to 16 quarts of water, for the purpose of diluting it and bringing it to a temperature of about 60°. Cold spring water is used in warm weather, and warm water in cold weather.

Some prefer diluting the cream with water, and passing it through a sieve before putting it in the churns, in order that the particles of cream may be all of uniform size, since, if the butter does not come evenly, but is mixed with small particles of cream, it will soon deteriorate, and will not make a prime or fancy article, as it is termed. This point is considered of great importance by the best butter-makers, and it is claimed that the method of setting the milk in deep pails, by which all thin cream is obtained, rather than the thick, leathery masses skimmed from milk set in pans, renders it more evenly churned, and thus secures a better product.

In warm weather, ice is sometimes broken up and put in the churn to reduce the temperature of the cream; but it is deemed better to churn without ice, if the cream does not rise above 64° F. in the process of churning, as butter made with ice is more sensitive to heat. It is, however, a less evil to use ice than to have the butter come from the churn white and soft. In churning, the dashes are so arranged as to go downwards within a quarter of an inch of the bottom of the churn, and to rise above the cream in their upward stroke.

The temperature of the cream while being churned should be kept below 65°, for if, at the close of the churning, the butter-milk should be at that temperature, or above it, the flavour and colour of the butter will be injured. In cold weather, the temperature of the cream, when ready for churning, is a little higher than in warm weather, about 62° being considered the right point.

104. **SALTING.**—Salting butter is often confusedly managed in England without any distinct reference to the exact quantity of salt used. In America, when the butter has been removed from the churn, and care taken not to touch it more than is absolutely necessary with the hands, salt is added, and worked through the butter with the butter-worker at the rate of 18 oz. of salt to 22 lbs. of butter. Great care is taken that the salt be pure, and of those brands that are known to be good. For butter that is designed to be kept over for the winter markets, a little more salt is sometimes used, often as high as an ounce of salt to the pound of butter. Not unfrequently a teaspoonful of pulverised saltpetre and a table-spoonful of white sugar are added at the last working for 22 lbs. of butter.

In the matter of salt, however, the factories adapt the quantity to suit the taste of their customers, or for the different markets. Of late years light salted butter sells best in America, and the rate of salting varies from one-half to three-fourths of an ounce of salt to the pound of butter. The butter, after having been salted and worked, is allowed to stand until evening, and is then worked a

second time and packed. In hot weather, as soon as the butter is salted and worked over, it is taken to the pools and immersed in water, where it remains until evening, when it is taken out, worked over, and packed. For this purpose a separate pool is provided, which is used only for butter. It is called the "butter pool," and fresh spring water constantly flows in and out of it, as in the pools for setting the milk.

105. **PLAN OF WORKING THE BUTTER.**—In working the butter, considerable skill and experience are required, that its grain shall not be injured. The butter must have a peculiar firmness and fineness of texture, and a wax-like appearance when fractured, which an improper handling in expelling the butter-milk and working will destroy. Care is taken, therefore, not to overwork it, nor subject it to a grinding manipulation like tempering mortar, as this spoils the grain, and renders the butter of a greasy or salvelike texture.

The butter is worked with butter-workers. The one in most common use consists of an inclined slab standing upon legs, and with bevelled sides about 3 inches high. The slab is 4 feet long by 2 wide at the upper end, and tapering down 4 inches at the lower end, where there is a cross-piece, with a slot for the reception of the end of the lever. There is also an opening at this end for the escape of the butter-milk, with a pail below. The lever is made either with four or eight sides, and the end fits loosely in the slot, so as to be worked in any direction. It is quite simple, but does good execution, and is much liked in the butter factories.

106. **ADVANTAGES OF BUTTER FACTORIES.**—The advantages of butter-making on the associated-dairy system over that in private families is very great. In the first place, by the association system a uniform product of superior character is secured. Every appliance that science, or skill, or close attention is able to obtain, is brought to bear upon the manufacture, and prime quality necessarily follows as a result.

If you could assume that in a neighbourhood of a hundred families, each family had the skill and convenience of the factory, and that each would give the subject the same close attention, doubtless there would be no difference as to the quality of product; but such a state of things rarely exists.

Again, the factories are able to obtain a larger price, because it costs the dealer no more time to purchase the hundred dairies combined than it would to purchase an individual dairy, and the uniformity and reliability of the product does not entail the losses that are

constantly occurring in different small lots by reason of inferior quality. The factories, too, relieve the farmer and his family from a great deal of drudgery, and unless the work can be done by members of the family who cannot be employed profitably at other labours, it is a matter of economy to have the butter and cheese made at the factory, since what would take a hundred hands scattered over the country to do, is performed in the same time by three or four when the milk is worked up together in one place. The only serious complaint against the factory system is in hauling the milk. This has been obviated, in many instances, by establishing a route of milk-teams, where milk is delivered for the season by the payment of a small sum.

107. **SKIM-CHEESE.**—The manufacture of skim-cheese is a part of the American butter-factory system, the cream being dipped from the milk while it is sweet, and the latter then goes into the milk-vats for making "skim-cheese."

In making a "fancy" product it is found advisable that the delivery of milk be kept within moderate bounds, say from 300 to 400 cows. The factory milk-vats are all essentially alike in form and size. They hold from 500 to 600 gallons.

There is a great variety of heating apparatus, boilers, steamers, tanks for hot water, and what is termed "self-heaters," that is, with fire-box attached to and immediately below the milk-vat. This kind of heater is very popular at the butter factories, as it consumes very little fuel, is easily managed, and does as good work as the best.

The ordinary heater is constructed separately from the vat, and consists of wrought-iron pipes screwed together in such a manner as to form a fire-chamber, and present a large amount of heated surface.

Where a boiler and engine are used, power is afforded for driving the churns, and in this respect this system must prove most convenient. Still, as the expense is considerably more than for the self-heater, both in the first cost and for fuel, many prefer the latter.

108. **RESULTS OBTAINED AT THE BUTTER FACTORIES—LABOUR, &c.**—The average product from the milk during the season at the butter factories is a pound of butter and two pounds of skim-cheese from 14 quarts of milk. There is a variation in the quality of milk at different seasons of the year; and in the fall, when the cows are giving a smaller quantity, it is, of course, richer in cream, and better results are obtained from the same quantity than early

in the season. This will be seen from the following examples of a single day's work, taken at random from the book of one of the factories:—

On May 18th, from 3,512 quarts of milk, wine measure, there was produced 213 lbs. of butter and 560 lbs. of skim-cheese. On May 26th, from 3,300 quarts of milk, 210 lbs. of butter and 550 lbs. of cheese. On September 12th, from 3,180 quarts of milk, 200 lbs. of butter and 546 lbs. of cheese. On October 14th, from 2,027 quarts of milk, 120 lbs. of butter and 407 lbs. of cheese.

In the working of any system practical men always desire statistics of results. The following is a statement of receipts and expenditure at one of the small butter factories, where a portion of the milk was sold:—

The quantity of milk received from April 10th to December 1st was 627,174 quarts, of which 27,308 were sold at a little above 7 cents ($3\frac{1}{2}d.$) per quart, leaving 599,866 quarts to be made up into butter and cheese.

The product was as follows:—31,630 lbs. of butter, 81,778 lbs. of skim-cheese, 15,908 lbs. whole-milk cheese, 2,261 quarts of cream, sold at 19 $\frac{1}{2}$ cents ($9\frac{1}{2}d.$) per quart, and 1,561 quarts of skim-milk.

The net cash receipts, after deducting transportation and commissions, were as follows:—

	Dollars.
For pure milk sold	1,926.22
For skim milk sold	24.02
For butter sold	13,344.21
For skim cheese sold	11,659.08
For whole-milk cheese	1,065.44
For 2,261 quarts cream	443.33
Hogs fed on whey... ..	446.24
Butter-milk and sundries	207.49
Making total of	29,116.03
	(Equal to £5,823 4s. 1 $\frac{1}{2}d.$)

The expense account was as follows:—

	Dollars.
For labour	1,476.40
For fuel	79.96
For cheese boxes	653.17
For 20 sacks of salt	89.25
For rennets, bandages, &c.	483.55
For carting cheese and butter to station	273.10
Paid for hogs	179.90
Total	3,235.33
	(Equal to £647 18s. 4d.)

This gives an aggregate net receipt of 25,880.70 dollars.

From these statements it appears that the butter averaged 42½ cents (say 1s. 9d.) per lb., the skim-cheese 14½ cents (about 7d.), and the whole-milk cheese 18 cents per lb., while the average amount received on the whole quantity of milk was 4½ cents (2d.) per quart. The whole expenses of the factory were a little over ½ cent per quart.

For working this factory there were employed, besides the superintendent, three hands, viz., two men and one woman. The labour account for conducting this factory, it will be seen, is a little over two mills ⅓ per quart.

As will be seen from the foregoing, everything is conducted upon the closest calculation and most complete system, to ensure a definite result. Not only is great economy practised in the cost of producing the butter and cheese, but the prices realized are very high when a first-rate article is turned out. They are, indeed, fancy prices, but such as the best families in New York are, or were, at all events, accustomed to give.

It will also be seen in some essential particulars the American plan is different from the English; as, for example, in exposing so little of the surface of the milk to the atmosphere, when the custom here is generally to expose as much as possible, with a view to the more complete rising of the cream to the top.

In England the *quantity* of dairy produce that can be turned out is the chief point aimed at, in many instances too little attention generally being paid to the *quality*, though sometimes, where the farmer's wife herself superintends the operations of the dairy, a first-rate article is turned out, by reason of the care and attention that is bestowed upon it. And, although of late years American competition has been loudly complained of, it is not at all improbable that, if some of the finest dairy produce in the shape of Gloucester, Stilton, and other cheeses, &c., were sent over to New York, a market could be found for it even there at remunerative prices, though at first sight it might appear somewhat like "sending coals to Newcastle."

109. **COST OF PRODUCTION AND PROFIT.**—From what we have already written, it will be seen how much the cost of production varies under different conditions, and profits, of course, are affected in the same ratio, but the average proportion of milk, cream, and butter to each other, is 1 gallon of cream to 9 of milk, and 3 pounds of butter to 1 gallon of cream, or 1 pound of butter to 2½ or 3 gallons of milk as it comes from the cow. The result of the latter

will of course depend upon the richness of the milk, a much larger quantity of butter being obtainable from Alderney cows in proportion to the amount of milk yielded, than from cows which give a large quantity of milk, necessarily poorer, according to measurement, of cream, or the butter-making properties.

The following is an estimate of the cost and annual produce of a cow in a dairy district in Scotland, where the cows were highly fed. The price of the butter would seem low to many, but in agricultural districts, where it is sold off in large quantities to dealers who buy the whole produce of a dairy, often not more than 11½*d.* per lb. is obtained, though the same butter, perhaps, sold in small quantities to consumers, would readily fetch 16*d.*, or even more.

Expense, from May 1st to October 1st.

	£	s.	d.
2 acres of grass, at 45 <i>s.</i>	4	10	0
Clover and tares	1	0	0
Draft in summer	0	6	5½

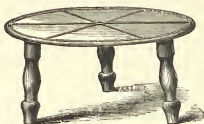
From October 1st to May 1st.

14 tons 4 cwt. of turnips, at 7 <i>s.</i> 6 <i>d.</i>	5	6	6
5 bushels of linseed, at 7 <i>s.</i>	1	15	0
Draft in winter	1	2	1
Interest on £14 at 5 per cent.	0	14	0
Carriage of milk, and tolls	0	15	0
Attendance, fuel, &c.	0	10	0
Total	£15	19	0½

Produce per cow=680 gallons of milk.

227 lbs. of butter, at 10½ <i>d.</i>	9	18	7½
600 gallons skimmed milk, at 4½ <i>d.</i>	11	5	0
50 gallons of butter-milk, at 2½ <i>d.</i>	0	9	4½
Calf at a week old	0	15	0
Total value of produce	£22	8	0
Deduct expense of food, &c.	15	19	0½
Net profit per cow	£6	8	11½

In addition to the above, the value of the manure must be taken into consideration, which is much greater in the case of highly-fed cows than in that of poor ones.



CHEESE-STOOL.

CHAPTER IX.

CHEESE.

Utensils used in making Cheese—Cheshire Cheese—Double Gloucester Cheese—Stilton Cheese—Dunlop Cheese—Cream Cheese and Skim-Milk Cheese—Colouring Cheese—Rennet—Salting, Drying, &c.—Mites and Flies—Mouldy Cheese—Importation of Foreign Cheese—Cost of Production and Profits.

110. **UTENSILS USED IN MAKING CHEESE.**—The utensils used in cheese-making vary but little throughout the different counties of the kingdom, though the processes of making cheese are very diversified, and are included in the milk-pail, cheese-tub, sieve, cheese-vat, and circular board, skimming-dish and bowl, and cheese-press. These last are of several forms; sometimes a block of stone, or a box full of stones, let up and down by rope and pulley, or by windlass, upon three or four cheeses, one above another, under it. As it is of importance to regulate the pressure, the lever cheese-press is considered best.

The Milk-Pail is generally supposed to hold six gallons, maple being thought the best wood for the purpose. The cheese-tub is of a capacity sufficient to hold the milk from which the cheese is intended to be made. Cheese-vats are of various sizes, being usually turned out of solid elm. In Gloucestershire, where five cheeses go to the cwt., in the formation of the familiar "Double Gloucester," the vats are $15\frac{1}{2}$ inches in diameter by $4\frac{1}{2}$ inches deep; "Single Gloucester," of which it takes eight cheeses to make a cwt., are of the same diameter, but only $2\frac{1}{2}$ inches deep; the only real difference

between the two being the size of the cheese, and the difference of quality arising from the longer period during which the thicker cheese must be kept in order to ripen.

111. THE METHODS OF MAKING CHEESE IN ENGLAND have not varied in any essential particulars for a great length of time, except in the more fanciful kinds, which, of late years, have been introduced into the market.

The method of making Cheshire cheese is thus described in *Holland's Survey*:— "Take about a pint of cream, when two-meal cheeses are made, from the night's milk of twenty cows. In order to make cheese of the best quality, and in the greatest abundance, it is, however, admitted that the cream should remain in the milk; for whether the cream that is once separated from it can by any means be again so intimately united with it as not to undergo a decomposition in the after process, admits of some doubt. The more common practice is, however, to set the evening's milk apart till the following morning, when the cream is skimmed off, and three or four gallons of the milk are poured into a brass pan, which is immediately placed in the furnace of hot water, and made scalding hot; then half of the milk thus heated is poured upon the night's milk, and the other half is mixed with the cream, which is thus liquefied, so as, when put into the cheese-tub, to form one uniform fluid. This is done by the dairywoman while the other servants are milking the cows, and the morning's milk being then immediately added to that of the evening, the whole mass is at once set together for cheese.

"The rennet and colouring being then put into the tub, the whole is well stirred together, a wooden cover is put over the tub, and over that is thrown a linen cloth. The usual time of 'coming,' or curdling, is one hour and a half, during which time it is frequently to be examined. If the cream rises to the surface before the coming takes place, as it often does, the whole must be stirred together so as to mix again the milk and the cream; and this as often as it rises, until the coagulation commences. If the dairywoman supposes the milk to have been accidentally put together cooler than she intended, or that its coolness is the cause of its not coming, hot water or hot milk may be poured into it, or hot water in a brass pan may be partially immersed in it. This must, however, be done before it is at all coagulated, for the forming of the curd must not be tampered with. If it has been set together too hot, the opposite means, under the same precautions, may be resorted to; but the more general practice is to suffer the process to proceed, hot as it is, until the first quantity of whey is taken off, a part of which, being set to cool, is then returned into the tub to cool the curd. If too little appears to have been used, it renders the curd exceedingly tender, and therefore an additional quantity may be put in; but this must be done before the coagulation takes place, for, if added afterwards, it will be of little effect, as it cannot be used without disturbing the curd, which can then only acquire a proper degree of toughness by having some heated whey poured over it.

"Within an hour and a half, as already mentioned, if all goes on well, the coagulation will be formed—a point which is determined by gently pressing the surface of the milk with the back of the hand; but in this test experience is the only guide, for the firmness of the curd, if the milk be set hot together, will be much greater than that from milk which has been set cold together. If the curd be firm, the usual practice is to take a common case-knife and make incisions across it to the full depth of the blade, at the distance of about one inch, and again crosswise in the same manner, the incisions intersecting each other at right angles. The cheese-maker and two assistants then proceed to break the curd, by repeatedly putting their hands down into the tub and breaking every

part of it as small as possible, this part of the business being continued until the whole is uniformly broken small; it generally takes up about forty minutes, and the curd is then left, covered over with a cloth, for half an hour, to subside.

"The bottom of the tub is now set rather a tilt, the curd is collected to the upper side of it, and a board is introduced of a semi-circular form to fit loosely one-half of the tub's bottom. This board is placed on the curd, and a holt weight upon it, to press out the whey, which, draining to the lower side of the tilted tub, is ladled out into brass pans. Such parts of the curd as are pressed from under the board are cut off with a knife, placed under the weighted board, and again pressed; the operation being repeated again and again, until the whey is entirely drawn from the curd. The whole mass of curd is then turned upside down, and put on the other side of the tub to be pressed as before. The board and weight being removed, the curd is afterwards cut into pieces of about eight or nine inches square, piled upon each other, and pressed both by the weight and hand; these several operations being repeatedly performed as long as any whey appears to remain in it.

"The next thing is to cut the curd into three nearly equal portions, one of which is put into a brass pan, and is there by two women broken extremely fine, a large handful of salt being added and well mixed with it. That portion of curd being sufficiently broken is put into a cheese-vat, which is placed to receive it on a cheese-ladder over the cheese-tub, the vat being furnished with a coarse cheese-cloth. The second and third portions of the curd are heated in the same manner, and emptied into the vat, except that into the middle portion eight, nine, or ten times the quantity of salt is usually put. By some dairy-women, however, each portion is salted alike, and with no more than three large handfuls to each. The breaking takes up more or less time, as the cheese was set together hotter or colder; half an hour is perhaps the longest time.

"The curd, when put into the cheese-vat in its broken state, is heaped above the vat in a conical form; to prevent it from crumbling down, the four corners of the cheese-cloth are turned up over it, and the women, placing their hands against the conical part, gently, but forcibly, press it together; constantly shifting their hands when any portion of the curd is starting from the mass, and folding down the cloth upon it. As soon as the curd adheres together so as to admit of it, a small square board, with a corner of the cloth under it, is put on the top with a 60-lb. weight, or a lever is pressed upon it. Several iron skewers are at the same time stuck in the cone, as well as through holes in the side of the vat, from which they are occasionally drawn out and fixed in other spots, until not a drop of whey is discharged. The weight and skewers are then removed, and the corners of the cloth are either held up by a woman or by a wooden hoop, while the curd is broken as small as possible, half-way to the bottom of the vat; and the same operation of pressing and skewering is repeated. The women then take up the four corners of the cloth while the vat is drawn away and rinsed in warm whey; a clean cloth is then put over the upper part of the curd, and it is returned inverted into the vat. It is then broken half-way through in the same manner as before, which several occupations occupy from three to four hours.

"When no more whey can be extracted by these means from the cheese, it is again turned in the vat, and rinsed as before in warm whey. The cloth now made use of is finer and larger than the former, and is so laid that on one side it shall be level with the edge of the vat, and on the other wrap over the whole surface of the cheese, the edges being put within the vat, thus perfectly enclosing the entire mass. In this stage of the business the cheese is still higher than the edge of the vat; and to preserve it in due form, recourse is had to a binder, about three inches broad, either as a hoop, or as a cheese-fillet, which is a strong, broad, coarse sort of tape, which is put round the cheese, on the outside of the cloth, and the lower edge of the binder pressed down within the vat, so low as that the upper edge of it may be level with the surface. The cheese is then carried to the press, and a smooth strong board being placed over it, the press is

gently let down upon it, the usual power of which is about 14 or 15 cwt. In most dairies, however, there are two presses, and in many three or four of different weights; the cheese being by some put first under the heaviest, and by others under the lightest.

"As soon as the cheese is put into the press, it is immediately well skewered; the skewers being of strong wire, 18 or 20 inches long, sharp at the points and broad at the other end; the vat and binder having holes, seldom more than an inch asunder, to receive them. As the press always stands near the wall, only one side of the cheese can be skewered at the same time, and it must therefore be turned half-way round, whenever that is necessary; but this occasions no inconvenience, as the skewers must be frequently shifted, and many more holes are made than skewers to fill them. In half an hour from the time the cheese is first put into the press, it is taken out again, and turned, in the vat, with another clean cloth, after which it is returned to the vat; but is by some persons previously put naked into warm whey, where it stands an hour or more for the purpose of hardening its coat. At 6 o'clock in the evening the cheese is again turned in the vat into another clean cloth, and some dairymen prick its upper surface all over an inch or two deep, with a view of preventing blisters. At 6 o'clock on the following morning it is again turned in the vat, with a clean cloth as before, and the skewers are laid aside; it is also turned two or three times more, both morning and evening, at the last of which finer cloths are used than those at first, in order that as little impression as possible may be made on its coat.

"After the cheese has remained about forty-eight hours under the press, it is taken out, a fine cloth being merely used as a lining to the vat, without covering the upper part of the cheese, which is then placed nearly mid-deep in a salting-tub, its upper surface being covered all over with salt. It stands there generally about three days, is turned daily, and at each turning well salted, the cloth being changed twice in the time. It is then taken out of the vat, in lieu of which a wooden girth or hoop is made use of, equal in breadth to the thickness nearly of the cheese, and in this it is placed on the salting-bench, where it stands about eight days, being well salted all over, and turned each day. The cheese is then washed in lukewarm water, and after being wiped, is placed on the drying-bench, where it remains about seven days; it is then again washed and dried as before, and, after it has stood about two hours, it is smeared all over with about two ounces of sweet whey-butter, and then placed in the warmest part of the cheese-room.

"While it remains there it is, during the first seven days, rubbed every day all over, and generally smeared with sweet butter; after which it should for some time be turned daily, and rubbed three times a week in summer, and twice in winter. The labour is performed almost universally by women, and that in large dairies, where the cheeses are sometimes, upon an average, of 140 lbs. each, and the whole of this process refers to cheeses of large size and to extensive dairy operations."

112. **DOUBLE GLOUCESTER CHEESE.**—Welsh rare-bits, or "Welsh rabbits" as they are more commonly called by the majority of persons who are not very particular as to the derivation of terms, were perhaps more generally in request a good many years back than they are at the present time, and toasted cheese was more commonly eaten, and was a more general dish than it now is; and the various qualities of different cheeses used to be studied with a view to their toasting properties.

Double Gloucester was for a long time celebrated for this purpose, the mild-

ness of its flavour, combined with its great richness and that adhesive nature which permits it to be cut in slices without crumbling, causing it to be peculiarly suitable, until "Single Gloucester," or "toasting cheese," was made, being of a size well adapted for slices for toasting, the weight of a cheese seldom exceeding 12 lbs., while that of Double Gloucester is generally about 22 lbs., and the mode of making it is just the same as that followed in making Double Gloucester. Occasionally, however, it is not made so rich, and there is less salt put in it, while it is pressed only four days instead of five. Substantially it is the same as Double Gloucester, the method of making which has been thus described by Mr. Hayward, who used to have an extensive dairy at Procester Court:—"When the curd is sufficiently firm for breaking, it is gently and slowly cut crosswise to the bottom of the tub, at about an inch apart, with a three-bladed knife of fourteen inches long. When it has stood five or ten minutes, to allow it to sink a little, and the whey to come out as clear as possible, some of the whey is dipped out of it with a bowl, and the curd is again cut. This must also be at first done slowly, and with strokes at a considerable distance from each other; for, if performed hurriedly, a great sediment of curd will be found in the whey-leads; it should, however, be gradually quickened, and the strokes taken nearer and nearer every time, one hand with skimming-dish keeping the whole in motion and turning up the lumps suspended in the whey, while the other cuts them as small as possible. This process may occupy a quarter of an hour.

"The curd is now allowed to settle during a quarter of an hour, when the whey is taken from it and poured through a very fine hair sieve placed over the whey-leads; the dairymaid then cutting the curd into lumps, from which most of the remaining whey escapes. The curd is then pressed down with the band into vats, which are covered with large cheese-cloths of fine canvas and placed in the press for half an hour, after which they are taken out and the curd put into a mill of Mr. Hayward's construction, which tears it into small crumbs, and saves the laborious part of squeezing and rubbing it with the bands, while it also retains that portion of the oily matter which would be otherwise lost to the cheese, and thus occasions a great improvement in the making.

"In this pulverised state it is customary with most dairymaids to scald the curd with hot whey; but Mrs. Hayward considers the cheese richer when not scalded, for this washes out a part of the fat; she therefore merely presses it closely together with the hand when filling the vat. The whey should, however, be completely extracted, and the curd filled into the vat as compactly as possible, being rounded up in the middle, but only just so much as that it can be pressed down to a level. A cheese-cloth is then spread over the vat, and a little hot water is thrown over the cloth, as tending to harden the outsides of the cheese and prevent it from cracking. The curd is now turned out of the vat into the cloth, and the inside of the vat being washed in whey, the inverted curd, with the cloth around it, is again returned to it; the cloth is then folded over, and the vat put into the press, where it remains about two hours, after which it is taken out and dry cloths applied, which should be repeated in the course of the day; it is then replaced in the press until the cheese is salted, which is generally done within twenty-four hours after it is made.

"The salting is performed by rubbing the entire of the cheese with finely powdered salt, for if the curd be salted before being put into the vat, its particles do not intimately unite, and although it may become a good cheese, it is loose and crumbly, and never becomes a smooth, close, solid mass like that which is salted after it has been made; but this is never done until the skin is closed, for if there be any crack in it at that time it will not afterwards close. The cheese is, after this, returned to the vat and put under the press, in which more cheeses than one are placed together, care being always taken to put the newest lowest in the press, and the oldest uppermost. The salting is repeated three times, the cloths being removed after the second in order to efface their marks, and twenty-four hours are allowed to intervene between each; thus the cheese is

within five days taken from the press to the cheese-room; though in damp weather it should remain somewhat longer. There it is turned every day for a month, when it is ready for cleaning, which is done by scraping with a common knife, the dairymaid sitting on the floor and taking the cheese in her lap to perform the operation. When it has been cleared from all scurf, it is rubbed all over with a woollen cloth dipped in paint made of Indian red, or Spanish brown, and small beer; and as soon as the state of the paint will permit, the edge of the cheese, and about an inch on each side, are rubbed hard with a cloth every week. The quantity of salt is generally about $3\frac{1}{2}$ lbs. per cwt., and one pound of annatto is sufficient for half a ton of cheese."

113. **STILTON CHEESE.**—Takes its name from the place where it was first made, near Melton, in Leicestershire, though they are now commonly made in several other counties besides Leicester, as those of Cambridge, Huntingdon, and Nottingham. They are of small size and richer in quality than most cheeses, having more cream put into them than most others have. As Stilton cheeses are often given as presents, a large trade is done in them, particularly at Christmas time, or rather before.

It is made by putting the night's cream to the milk of the following morning, or, if the cheese is desired to be very rich, a still greater proportion of cream. The rennet is then added, but no colouring matter is used; and when the curd has come, unlike the method pursued in making most other cheeses, it is taken out without being broken and put whole into a drainer, where it is squeezed down hard until the whey is entirely pressed out. When dry it is put, with a clean cloth, into a chessel, and placed beneath the press, the outside being first well salted. When sufficiently firm to be removed, it is put upon a dry board, and tightly bound round with a cloth, which must be changed daily, in order to avoid cracks in the skin, until it is found to have a coat formed, when there is no occasion for its further use, and nothing more need be done to the cheese than to brush it occasionally, and frequently turn it upside down upon the shelf or stand where it may be placed.

114. **DUNLOP CHEESE.**—Has acquired a good reputation in the market, and is now very generally made in the counties of Lanark, Renfrew, Ayr, and Galloway. They are put up in moderate sizes, varying from 28 to 56 lbs. The process of making has been described by Mr. Aiton.

"When so many cows are kept on one farm as that a cheese of any tolerable size may be made every time they are milked, the milk is passed, immediately as it comes from them, through a sieve into the vat, and, when the whole is collected, it is formed into a curd by the mixture of the rennet. Where, however, the cows are not so numerous as to yield milk sufficient to form a cheese at each meal, the milk of another meal is stored about six or eight inches deep in coolers, and placed in the milk-house. The cream is then skimmed from the milk in the coolers, and, without being heated, is put into the curd-vat along with the milk just drawn from the cows, and the cold milk, from which the cream has been taken, is heated, so as to raise the temperature to about blood-heat. This, indeed, is a matter of great importance; and though in summer 90° may be sufficient, yet, upon the average of winter weather, 95° will be generally found requisite. If coagulated much warmer, the curd becomes too adhesive, much of the butyraceous matter is lost in the whey, and the cheese will be found

dry, tough, and tasteless; but if too cold, the curd, which is then soft, does not part readily with the serum, and the cheese is so wanting in firmness that it is difficult to be kept together; indeed, even when the utmost pains are taken to extract the whey, and give solidity to the cheese, holes—which, in dairy language, are termed 'eyes,' 'whey-drops,' and 'springs'—frequently break out, and always render them either rancid or insipid.

"About a tablespoonful of the liquid rennet is generally thought sufficient for 100 quarts of milk, and the curd is usually formed by it within twelve or fifteen minutes; though in some dairies—of course in consequence of the difference in strength in the rennet—it does not come for from three-quarters of an hour to an hour, though double the quantity of rennet is used. The curd is then broken with the skimming-dish or with the hand, and the whey ought to be taken off as speedily as possible, though without pressing, as the least violence has been found to make it come off white, and thus weaken the quality of the cheese. (The best method of separating the whey from the curd, as recommended in the *Trans. of the Highland Society*, is, in the first instance, to lift the edge of the cheese-tub, and let the whey run off slowly from it into a vessel placed underneath. The tub is then let down to stand a little, after which it is turned one-fourth round, and another collection emptied off. Thus, by turning the tub a fourth round every time, it is found to part from the curd more pure and quickly.)

"When quite freed from the whey, and the curd has acquired a little consistence, it is then cut with the cheese-knife—gently at first, and more minutely as it hardens; after which it is put into the drainer (which is a square vessel with small holes in the bottom, and a cover to fit inside), on which the lid is placed, with a cloth thrown over it, and a slight pressure, say from three to four stones weight, according to the quantity of curd—being laid on, it is allowed to stand from fifteen to twenty minutes or half-an-hour. It is then cut into pieces of two inches square, the whey is again discharged, and the weight, being doubled, is replaced. This process of cutting is smaller every half-hour, and, increasing the weight until the pressure is upwards of 100 lbs., is continued for three or four hours. It is then cut very small, and minutely salted; half-an-ounce of salt, or, at the most, thirteen ounces to twenty-four pounds English, being sufficient.

"A clean cheese-cloth, rinsed in warm water and wrung out, being placed in the chessel, the curd is then put into it, and a half-hundredweight laid on it for an hour. It is then put under a press of two hundredweight, where it remains during an hour and a half; after which it is taken out, and, a fresh cloth being placed in the chessel, the cheese is turned upside down, and laid, with increased weight, under the press during the whole night. Next morning, and during the three or four days which it must remain in the press, it is daily turned repeatedly, dry cloths being each time used, and the weight is gradually increased until the pressure amounts to at least a ton.

"When ultimately taken from the press, the cheeses are generally kept during a week or ten days in the farmer's kitchen, where they are turned three or four times every day, and rubbed with a dry cloth. They are then removed to the store-room, which should be in a cool exposure, between damp and dry, without the sun being allowed to shine upon them, or yet a great current of air admitted—this gradual mode of ripening being found essential to prevent the fermentation and heaving of the cheese, as well as the cracking of the rind; but attention must be paid to rub them with a dry cloth and turn them daily for a month or two, and twice every week afterwards.

115. CREAM CHEESE AND SKIM-MILK CHEESE.—These two cheeses are the exact opposites to each other with respect to the relative component parts of which they consist, the one being all cream, and the other all skimmed milk.

Cream Cheeses are indeed little more than portions of thick, sweet cream which have been dried by being placed in a miniature cheese-vat of about an inch and a half in depth, with small holes at the bottom, through which any residue of milk can drain. It is covered with rushes, or the stalks of Indian corn, so placed as to allow of the cheese being turned without handling it, and it is never pressed at all, except very gently by the hand between cloths. It is then placed in a somewhat warm situation to ripen and sweat. If the frost touches it, it becomes spoiled, and loses its taste and flavour. On the other hand, if kept too hot it acquires a rank taste, and extreme heat must, on this account, be guarded against.

Skim-milk Cheese, as its name implies, is made from milk from which all the cream has been removed. There are various qualities of skim-milk cheese, the worst being very indigestible; and this depends chiefly upon the time the milk has been allowed to stand. If it has stood so long as to be deprived altogether of the butyraceous matter, it is very poor stuff.

It used to be made in very large quantities in Suffolk (being known by the name of "Suffolk bang"), where at one time it had such an unenviable reputation that it was asserted it used to be chopped up with a hatchet instead of being cut with a knife; or, if a man wanted a bit of stick to fasten up a gate with, and could not find a piece of wood handy, he would cut a wedge off his luncheon cheese for the purpose and make use of it. In old times, when the farm labourers lived partially or wholly in the house with the farmer, the quality of the cheese used often to become a bone of contention, being at times too hard to bite; so that it used humorously to be said the labourers in that part of the country, having to "bolt" their cheese in blocks, by a long course of practice had acquired *square throats*.

To make skim-milk cheese of fair quality, the milk, if possible, should not be allowed to become sour, and as soon as it has been skimmed it should not be made warmer than animal heat, or about 90°, for if put together too hot it will turn out very tough; and as the curd coagulates much quicker than that of whole milk from which the cream has not been removed, there is no necessity for causing it to have the same degree of heat. This is the principal item in the difference of management, except that it is more difficult to break the curd, and the cheese wants less pressing. It will be also much sooner ready for use than the whole-milk cheese, not requiring to stand so long.

116. **COLOURING CHEESE.**—Cheese is commonly coloured with Spanish annatto, which is generally used by rubbing a piece of it in a bowl with some warm milk, which is afterwards allowed to stand

for a short time in order to draw off the sediment. A piece of annatto weighing rather more than a quarter of an ounce is sufficient to colour a cheese of the weight of 60 lbs. Marigolds boiled in milk are used by some persons to colour cheese, and this is a favourite method with many; while others employ carrots, also boiled in milk, and strained, which imparts a rich-looking colour to the cheese, but gives it rather a definite taste, on which account their use is often avoided.

117. **RENNET.**—Rennet is prepared by different methods in different districts. In some districts the contents of the stomach of a calf are preserved with salt, and used, but this method is somewhat repugnant to many. In some of the midland counties the cleaned stomach of a calf is salted, pickled and dried, and when at least a year old it is well soaked in salt and water, half-a-pint of which is enough for fifty gallons of milk. In Cheshire, the skins are cleaned out and packed in salt till the following year. A month or so before they are wanted, three or four inches are steeped during the night in half-a-pint of salt and lukewarm water, for use in the morning, and put with fifty or sixty gallons of milk. Cheese can be made from the curd formed by the coagulation of the milk when it turns sour, but this is not so effective, and causes it to be hard and of indifferent flavour, and does not nearly answer so well as the gastric juice that is found in the "maws" or stomachs of calves that have been fed entirely on milk. The more usual method is to use the skins of the stomach-bag alone, which are rolled up with salt, and hung up in a warm place to dry, after which they are put aside for a long time before they are used. If the skin be good, a small piece not larger than a nut, soaked for twelve hours in a cupful of water, is enough for twenty gallons of milk. The quality of the cheese depends very much upon the proper application of the rennet. If the maws or "vells" are too new (twelve months being considered the earliest date at which they are fit for use, after first being selected for use) they cause the cheese to heave, or swell, which makes it full of "eyes" or holes. If too much, again, is used, or if it be unusually strong, it will also cause the cheese to heave by inducing fermentation. The vells of pigs and lambs have been found amongst those sent from Ireland, but these do not answer the purpose so well, the Irish calves' vells being considered the best by many for this purpose. The somewhat nauseous idea which attaches itself to

This necessary operation—i.e., the application of rennet—has been disguised

by the addition of spices and sweet herbs. Here is an old receipt from the West of England:—

"When the rennet-bag is fit for the purpose, let two quarts of soft water be mixed with salt, wherein should be put almost every sort of spice and aromatic herb that can be procured, and it must boil gently till the liquor is reduced to three pints; it should then be strained clear from the spices and poured in a tepid state upon the mass, and a lemon may be sliced into it, when it may remain a day or two, after which it should be strained again and put in a bottle, where, if well corked, it will keep good for twelve months or more, and give the cheese a pleasing flavour."

In Marshall's "*Southern Counties*," the method recommended is as follows:—
"Take the maw of a newly-killed calf and clean it of its contents: salt the bag, and put it into an earthen jar for three or four days, till it form a pickle; then take it from the jar and hang it up to dry, after which it is to be replaced in the jar, the covering of which should be pierced with a few small holes to admit the air, and let it remain there for about twelve months.

"When wanted for use, a handful each of the leaves of sweet-briar, dog-rose, and bramble, with three or four handfuls of salt, are to be boiled together in a gallon of water for a quarter of an hour, when the liquor is to be strained off and allowed to cool. The maw is then to be put into the liquid, together with a lemon stuck round with cloves, and the longer it remains in it the stronger and the better will be the rennet: half-a-pint, or less, of the liquor is sufficient to turn fifty gallons of milk."

The method of preparing rennet in Cheshire, described by Holland, is thus:—
"When the maw comes from the butcher, it is always found to contain a chyley, or curd-like matter, which is frequently salted for present use, but when this chyley matter is taken out, and the skin cleared from slime and every apparent impurity by wiping, or a gentle washing, the skin is then filled nearly full of salt, and, placing a layer of salt upon the bottom of a mug, the skin is placed flat upon it. The mug is large enough to hold three skins in a course, each of which should be covered with salt; and when a sufficient number of skins are thus placed in the mug, it should be filled up with salt and put, with a dish or slate over it, into a cool place till the approach of the cheese-making season in the following year. The skins are then all taken out, laid for the brine to drain from them; and, being spread upon a table, they are powdered on each side with fine salt, and are rolled smooth with a paste roller, which presses in the salt. After that, a thin splint of wood is stuck across each of them to keep them extended while they are hung up to dry.

"In making the rennet, a part of the dried maw skin is, in the evening previous to its being used, put into half-a-pint of lukewarm water, to which is added as much salt as will lie on a shilling. In the morning this infusion (the skin being first taken out) is put into the tub of milk; but so great is the difference in the quality of these skins, that it is difficult to ascertain what quantity will be necessary for the intended purpose. A piece the size of half-a-crown, cut from the bottom of a good skin, will commonly be sufficient for a cheese of 60 lbs. weight, though ten square inches of skin are often found too little. It is customary, however, to cut two pieces from each skin, one from the lower, the other from the upper part; but the bottom end is the strongest.

"An improved mode is:—To take all the maw-skins provided for the whole season, pickled and dried as before; put them into an open vessel, and for each skin pour in three pints of spring water; let them stand twenty-four hours, then take out the skins and put them into other vessels; add for each one pint of spring water, and let them stand twenty-four hours as before. On taking the skins out the second time, gently stroke them down with the hand into the infusion: they are then done with. Mix these two infusions together, pass the liquor through a fine linen sieve, and add to the whole a quantity of salt, rather more than is sufficient to saturate the water; that is, until a portion of salt remains undissolved at the

bottom of the vessel. The next day, and also the summer through, the scum, as it rises, is to be cleared off, and fresh salt should be added. Somewhat less than half-a-pint of this preparation will generally be sufficient for 60 lbs. of cheese; but, when for use, the whole should be well stirred up."

There are occasionally (though, fortunately, it is of rare occurrence), in the course of some preparations of our daily food, details which necessarily must be attended to, but which wear a somewhat repugnant aspect. The modern fine lady who perhaps enjoys a roast fowl for her dinner, would not relish her meal so much if she had to "draw" the bird before it was cooked; and these expedients of adding spices and sweet herbs to rennet, by which our kindly great-grandmothers invested a somewhat unsavoury piece of business with sweeter surroundings, we ought to be grateful for; but the result of these applications is quite unimportant as far as the making of cheese is concerned.

118. **SALTING.**—Some apply salt to cheese in twelve hours, but this is considered too soon, and it is thought best to do so after the cheese has been twenty-four hours in the press, when it is ready for receiving it, for as a general rule the salt should not be applied until the skin of the cheese is firm and free from openings, as these never close so completely after salting, whatever amount of pressure may be applied.

The salting is done by the hand, the salt being rubbed over the entire surface of the cheese for as long as it will absorb it, after which it is wrapped up again in a dry cloth and put under the press. Twenty-four hours afterwards it is salted again as before, this time being put into the vat without a cloth and pressed, in order to produce a smooth and even surface.

A final rubbing of salt is given once again after the same interval, and the cheese being pressed as before is ready for removal to the drying-room.

119. **DRYING, STORING, &c.**—It is important to have a special dry-room, or loft, set aside for cheese, into which the cheeses as they are removed from the press should be taken, and laid either upon shelves, racks, or on the floor, where they are easily accessible, so as to be well wiped with dry cloths and turned every twelve hours for three days. After the first three days they need only to be wiped and turned every twenty-four hours, and in a month after leaving the press they are ready for being scraped. When cheese is intended for the London market it is generally painted at this time, the paint used being Indian red or Spanish brown, or a

mixture of both with table beer, which is rubbed on with a woollen cloth.

120. **MITES AND FLIES.**—When the cheeses are being turned in the drying-room, they should be closely examined while being regularly turned, and cleared from mites. In warm weather the flies are apt to attack cracks or soft parts of the cheeses, and when this takes place the best plan is to scoop out very thoroughly the affected part so as to leave nothing suspicious behind, and fill it up again with the soft part of another cheese kept for the purpose, and cover carefully with cloths. Attention to these details will raise the standard and character of the produce.

121. **MOULDY CHEESE.**—Skimmed milk often becomes blue moulded, which is generally much relished and considered a great improvement to the taste. This is occasioned sometimes by cracks in the cheese, where the mould-plant vegetates and spreads through the whole mass.

Mouldiness is sometimes artificially produced by pouring port wine into holes bored in the cheese, and by exposing it to a damp, close atmosphere. Again, if by accident a little sour milk has been used in making the cheese, mouldiness invariably ensues. When the best quality of cheese has become mouldy, it is considered by many a great delicacy; it is highly stomachic, and a corrective after fruit has been eaten.

122. **IMPORTATION OF FOREIGN CHEESE.**—A good deal of cheese is sent to us from Holland, large quantities of the familiar Dutch cheese being especially sold in London, while Switzerland sends certain fancy kinds, as well as France, the latter importations consisting mostly of soft kinds, which are looked upon as delicacies, and consumed to a large extent in the best London dining-houses and hotels; but the great bulk of foreign cheese comes to us from America, and is very various in quality, it being manufactured in the States upon a large routine system, in a similar manner to that described as done with butter, which we regret our space will not allow us to give a description of, but of which a tolerable estimate may be gathered from that we have already referred to.

123. **COST OF PRODUCTION AND PROFITS.**—An account of the cost of production and profits upon cheese-making must necessarily be only approximate, as, with care and attention to details in feeding and management, the profit in one case will be double that in another. We give, however, what has been considered the money profit of a cow in Gloucestershire, upon which calculations

used to be based in large cheese-making dairy farms, prices being fixed upon a low scale, and the money value of the cow at £16:—

COST.		£	s.	d.
Grass and hay	... ..	9	0	0
Attendance, milking, and cheese-making	... ..	1	10	0
Deteriorated annual value (cow kept five years)	... ..	1	4	0
Insurance, 4d. per £ on £16	... ..	0	5	4
Interest on capital, £16 (5 per cent.)	... ..	0	16	0
		<u>£12 15 4</u>		

PRODUCE.		£	s.	d.
500 gallons of milk, made into cheese at 6d. per lb.	... ..	12	10	0
20 lbs. cream-butter, at 11d.	... ..	0	18	4
30 lbs. whey-butter, at 9d.	... ..	1	2	6
Whey for feeding pigs, say	... ..	1	5	0
Calf sold at a week old	... ..	0	10	0
		<u>16 5 10</u>		
Total produce	... ..	16	5	10
Deduct	... ..	12	15	4
		<u>£3 10 6</u>		

We give these figures merely as an approximate method of reckoning, and as it takes a gallon of milk to make a pound of cheese, and milk at the lowest will fetch 8d. per gallon, it would not be worth while to make it into cheese and sell it for 6d.! But as, on account of difficulties connected with situation or otherwise, it may be necessary to make the produce of a dairy into cheese, the items of expenditure and profit will very much depend upon the skilful management of the person interested. As we have shown before, cheese-making is the least profitable of all the systems of dairy-farming.



BUTTER-TUB



DUTCH COW-HOUSE.

CHAPTER X.

BREEDING.

Improvement of Breeds—Calves—Birth of the Calf—Hard Udder—Recipe for Sore Teats—Artificially Feeding the Calf—Hay Tea and Linseed Jelly—Skimmed Milk as Food for Calves—Importance of Regular and ample Feeding to Young Stock—Shed for Calves—One Cow will Suckle Five Calves—Method of Rearing Calves in Ireland—Weaning the Calf—A Good and Cheap Food—Castrating.

124. **IMPROVEMENT OF BREEDS.**—A judicious breeder has it in his own power very much to develop those points in his stock that he wishes to see them possessed of, if he takes the necessary pains to do so; and he must, of course, in the first place, make up his mind as to the points he intends to aim at in the breeding, to suit the ultimate purpose he has in view.

If he wishes only to rear cows for dairy purposes, he must sell off the bull calves dropped by those breeds of cows which make the best milkers, supposing they have been crossed by a bull of a similar breed, such as the Ayrshire and Alderney, whose characteristics we have before described, as they will not grow up into favourable stock for the grazier, or butcher, or answer his own purpose to fatten ultimately.

If, on the other hand, the improvement of stock is aimed at, the object first to be considered is to obtain animals which will yield the largest return in the shortest time from the consumption of the food they have given to them, and experience proves that in cattle-breeding the qualities of the calf are mostly influenced by the male parent, and thus a uniform quality of stock is to be obtained.

If flesh-forming animals are wanted, there is nothing to excel the shorthorn, but high-pedigreed shorthorn cows are not good milkers, and they are not usually desirable for breeding in the general way, except by those who make breeding a business, and want a fine race; a less refined-bred cow being better for ordinary purposes. Crossed by a shorthorn bull of the best breed, some good calves are thus to be procured, and in choosing the cows, in the first place, animals of large frame and vigorous constitution should always be selected.

125. **CALVES.**—If the calf is not intended to remain with its mother, as soon as it is dropped it should be removed to the calf-

house, and placed in a well-littered crib, and immediately rubbed all over with straw wisps to remove the mucus with which it is covered. The dam always performs this office herself in the most effectual manner in a state of nature, and it is best, we consider, to leave the calf a short time with its mother, as we shall afterwards describe; but the plan we are now referring to is carried out in those cases where several calves are to be reared simultaneously on the milk of one cow, for this reason—when the calf is removed at birth, without allowing the dam to see it or lick it, she frets less than when it is allowed to remain with her for a short time and then removed; and she gives her milk more freely when milked by the hand from the first.

At first it is necessary to feed the calf with its own dam's milk, which nature endows at the time with a peculiar quality that acts as a purge to the calf, and clears its bowels of the meconium they are charged with at birth; but this first milk, or "beestings" as it is commonly called, must on no account be given to older calves, to which it would be hurtful.

We will, however, describe from the beginning what we consider a better method of rearing calves economically and yet effectually.

126. **BIRTH OF THE CALF.**—When the cow's term of gestation is nearly complete, she should be kept in a quiet place near the house, and it will be of great assistance to her in calving if her bowels are opened by a dose of medicine, which will cause her to have an easier time.

As her time of parturition draws near, it will be evidenced by symptoms of uneasiness and moaning, accompanied by a dropping of the belly, the springing of her udder, and a discharge from the bearing. In the event of severe weather she should be housed, and a good bed made for her. Cold water should be kept out of her reach, and, in ordinary cases, Youatt recommends that a pint of sound warmed ale be given to her in an equal quantity of gruel; and warm gruel should be frequently administered, or, at all events, placed within the animal's reach; and in ordinary cases, where there is only some little delay, and nothing serious apprehended from a wrong position of the fœtus, to the first pint of ale should be added a quarter-of-an-ounce of the ergot of rye (spurred rye), finely powdered, and the same quantity of ergot with half-a-pint of ale should be repeated every hour until the pains are reproduced in their former and natural strength, or the labour terminated.

After calving, a warm mash should be put before her, and warm

water, or water from which the chill has been taken off, two or three hours after which it will be advisable to administer an aperient draught, consisting of a pound of Epsom salts and two drachms of powdered ginger. If the placenta, or after-birth, is not soon discharged from the body, the aperient draught should be given together with the ergot of rye and ale.

Cows eat the after-birth, or "cleansing," which, it is supposed, is designed by nature to act as a medicine; but it is very often taken away and put aside, as being too disgusting to be allowed to remain.

In cases of difficulty, unless a very experienced man is on the farm, it will be safest to send for a veterinary surgeon; but all going on well, the cow should be left quietly with her calf, the licking and cleaning of which will amuse her.

Whatever is done with the calf ultimately, it should at least be left with the cow for three or four days. As Youatt justly says: "It is a cruel thing to separate the mother from the young so soon; the cow will pine, and will be deprived of that medicine which nature designed for her, in that moisture which hangs about the calf, and even in the placenta itself, and the calf will lose that gentle friction and motion which helps to give it the immediate use of all its limbs." The calf also derives a benefit from the first milk of the cow, which possesses an aperient quality.

127. HARD UDDER; RECIPE FOR SORE TEATS.— In the case of young cows the udder is often hard, and the calf should then be allowed to suck for a fortnight, and if the first calf, left to suck until old enough to wean. After a short interval the cow should be milked by hand first, so that the calf gets the last milk, which is the richest, and the udder is softened in the attempts made by the calf to obtain it.

It sometimes happens that the teats of the cow become sore, and she manifests a disinclination for the calf to suck her, in which case they should be fomented three or four times a-day with warm water, after which she should be very carefully and gently milked. The teats should then be dressed with an ointment, which can be readily made, composed of an ounce of yellow wax, and three of lard, melted together. When these begin to get cool, well rub in a quarter-of-an-ounce of sugar of lead, and a drachm of alum finely powdered. Should the cow not readily commence to lick off the slimy matter with which the calf when first born is covered, if a handful of common salt is sprinkled over it she will generally perform this duty at once. Some farmers make a practice of giving the calf lukewarm gruel instead of the "beestings," or first milk of the cow, which is a wrong practice, as the calf loses the benefit of the

aperient quality we have before alluded to, which assists in removing the glutinous fæces which have accumulated in its intestines.

Youatt recommends that when the calf has been cleaned and has begun to suck, the navel-string should be examined, and if it continues to bleed a ligature should be passed round it closer, but, if it can be avoided, not quite close to the belly. Possibly the spot at which the division of the cord took place may be more than usually sore; a pledget of tow, well wetted with Friar's balsam, should then be placed over it, confined with a bandage, and changed every morning and night, but the caustic applications which are so frequently resorted to should be avoided.

128. **ARTIFICIALLY FEEDING THE CALF; HAY TEA AND LINSEED JELLY.**—A principal object of the present work being to show how these farm operations can be economically conducted, so as to create a larger margin of profit, we will mention that calves can be reared with but little expense as store-calves, if the necessary trouble is taken with them. It is sound policy to allow them to remain with the cow for a week, so as to give them a fair start, as it were, and during this first week with its dam, four quarts of milk per day, at two meals, is sufficient. After this it can feed very well upon skimmed milk, so that the farmer can get his usual quantity of butter and rear his calf into the bargain. Many substitutes for milk have been given, with more or less success; hay tea and linseed jelly being the most resorted to. Linseed jelly is made by putting one quart of seed to six of water, and allowing it to boil for ten minutes. Hay tea is made by pouring boiling water over fine sweet hay, and enclosing the vessel—generally a large earthen pan with a lid—and in a couple of hours a strong liquid is produced. It should be given of the warmth of the natural milk of the cow, and, if given without, linseed should be mixed with three-parts of skimmed milk, and be afterwards reduced to one-fourth.

129. **SKIMMED MILK AS FOOD FOR CALVES.**—No better way, however, can be found of disposing of the skimmed milk than feeding calves with it. It wants a careful man to feed them, the milk not being allowed to get the least sour, or the calf will scour, and be thrown back very much in its progress. It should be boiled, and given the natural heat of the milk as it comes from the cow, and either thickened with linseed or oatmeal. The calf can easily be taught to drink from the pail. At first it will not know what to make of it, but if the man wets his fingers with the milk and places them to the calf's mouth inside the pail, the little animal will soon get an inkling of the business in hand.

As with the cow, regularity of feeding is imperatively demanded if the calves are expected to thrive, and they should be fed at least three times a-day. If

Seldom fed, the calves will drink fast and become "paunchy" when their food is given only at morning and evening, which it is the practice of some farmers to do, allowing them upon these occasions to thoroughly satiate their appetites, which fills the stomach and impedes digestion, which is obviated by more frequent feeding. After the fourth week the calf will begin to eat a little sweet green hay, and, a couple of weeks later on, sliced roots, meal, or finely-crushed cake. Nothing, however, will beat the skimmed milk, thickened with meal or linseed. Some very successful calf rearers use a mixture of linseed and ground wheat to thicken with, in the proportion of two bushels of linseed to one of wheat.

130. IMPORTANCE OF REGULAR AND AMPLE FEEDING TO YOUNG STOCK.—There is one very important point which should always be steadily kept in mind by those who aim at rearing stock successfully, and that is, from the very first birth of the animals to push them steadily forward to condition by careful, regular, and sufficient feeding—not extravagant feeding, but a sufficiently liberal amount of food should be given to all young stock to ensure their steady progress. Any check given to this progress may retard it for months afterwards. Those who have half-starved their animals for a length of time cannot profitably atone for their neglect or bad management by sudden and lavish attempts to push them on to fatness. If the proper treatment and feeding of animals is neglected it is sure to result in loss and disappointment to the owner, and the only way to make them pay is to see their growth and improvement continued without cessation from the earliest period of their existence, till they are either killed or sold in the market. Expensive food in large quantities has often had to be given to neglected animals, which, although they ate it greedily, like Pharaoh's lean kine, for a long period seemed to do them little good, its cost being also very considerable.

It will be seen that if the method of rearing calves to the best advantage is followed, *i.e.*, feeding them upon skimmed milk, there will be lost to the pigs a very important item of their food, and it must be left to the farmer to say which he attaches the most importance to. One thing, the pigs can be fed without the skimmed milk, which the calves ought not to be deprived of; and if stock is wanted, the skimmed milk will put them in a fair way of being acquired at a trifling cost.

131. SHED FOR CALVES.—Calves reared in this manner should be placed in a warm shed. No matter if they come at the inclement season of Christmas or January; this season perhaps is rather better for them than not, as they will be growing into strength against the time when the spring comes round, and will so enjoy the benefit of every day of fine weather after they are turned out till the autumn, when they will have changed into large strong animals. Almost any shed or outhouse can soon be converted into a capital house for

calves, so that it is warm and dry, with the floor sloping in order that the urine may flow towards a cesspool. The outhouse should be separated by divisions, which can be made by hurdles, one end fastened to the wall and the other pegged down to the ground. The calves should be fastened with a halter-rope to a ring, through which it is allowed to play, these rings being driven into a piece of quartering nailed to the wall at a height of two and a half feet from the floor. One hay-rack of the common old-fashioned semi-circular kind will serve two calves, and should be placed at a height of three-and-a-half feet from the floor.

The young calf when about two months old will begin to nibble a little grass, and as soon as the weather is fit it should be let out for a couple of hours or so on sunny days, supposing it to be born about the commencement of the year, but should not be allowed to eat too much. In three months or so it will have acquired a taste for grass, when its feed of milk, &c., can be gradually discontinued. The calf by another month or two will be a strong healthy animal in most cases, and will give no further trouble.

One cow will suckle five calves.—When farmers wish to bring up calves by allowing them to suck the cow, it has been considered the best plan to let them suckle two pairs in succession and one afterwards, making five calves in all. This is managed in the following manner, described by Youatt:—

"A strange calf is purchased which is put along with her own to the same cow, both being put to suck, one at each side, exactly at the same time, and leaving them there for fifteen or twenty minutes, by which time the milk will be drawn away. The cow at first shows great dislike to the stranger, but in a few days receives it very quietly. They are thus kept in the house, and as they advance in age they eat porridge, hay, sliced potatoes, or any food that is usually given to them, and in about three months they are finally turned out to grass; after which a couple of strangers are purchased, and the same plan pursued with them during three months longer. At the expiration of that period—supposing the cow to have calved in the month of January or the early part of February—the first week in August will have arrived, and this set being then ready for weaning, a single calf is put into the feeding-pen, and fattened for the butcher, by which means the cow will have suckled five calves."

132. **METHOD OF REARING CALVES IN IRELAND.**—A very similar method to the one described of rearing calves economically has been related by Mr. Hooper as followed in Ireland.

The reader will perceive there are certain points of resemblance in the systems carried on at distances far apart from each other, though possibly some portions of them may appear a little whimsical, as, for example, beating up an egg in the calves' food.

The calf being dropped, it should be borne in mind that from that moment until its arrival at maturity it must be kept progressing,

improving, growing; in no other way will it pay. The question is, how is this best to be done?

133. **WEANING THE CALF.**—We now come to the weaning of the calf. I find my calves do best in a clover stubble, that is, on the stubble of a barley or oat field that is laid out with clover and grass seeds; and I do not find that such light stock do any harm to the young clovers, provided they are not kept on them longer than the first of January. On whatever kind of pasture they are weaned, however, the milk should not be taken from them too suddenly; they should get a meal of milk in the middle of the day for a week or ten days after being turned out to grass, and the quantity of this should be diminished by degrees. When the nights begin to get cold, generally some time in the month of October, they should be housed at night; but, in my opinion, should be allowed out by day the whole winter, and, therefore, should not be kept in too close or warm a house by night. I have kept them in close houses, and only let them out for a few hours on fine days; and I have kept them in altogether, day and night, the whole winter, some tied and some in loose boxes; but I find them thrive and grow best on the system I have adopted for the last three or four years, and that is, to tie them up at night in a shed open to the south, and let them out the whole day in all weather, excepting, of course, when the ground is covered with snow, and they could get nothing to eat. If they could be put into a yard at night, with sheds around it, perhaps it would be better still, as some have an objection to tying up young calves; but if it has its disadvantages, it has also advantages, one of which is that they are much quieter when tied up the next winter, at which age I fatten off my young stock; whereas I find those I buy take some time to get accustomed to the chain and trough, and lose time accordingly. As to the feeding of calves, the first winter I find they do better, with the outrun I have spoken of, on hay alone, than on hay and straw, and turnips. Some may think this unreasonable, but I can only say that I have wintered calves for eight years *with* turnips, and for four years *without* them, and I have no intention of altering my present system.

134. **A GOOD AND CHEAP FOOD.**—Mr. Burke, whom I quoted before, who rears calves with so little milk, winters them on pulped mangolds, mixed with straw, chaff, oil-cake, and crushed corn, and he says, reckoning 5 cwt. of straw chaff at 5s., 10 cwt. of pulped mangolds at 5s., 1 cwt. of oilcake at 10s., and 4 cwt. of mixed crushed corn at 30s., he has one ton of food for 50s. equal to the best **hay**.

But as our hay is seldom worth even as much as this in our own yards, I do not think we should gain much here by the adoption of his system, which, however, is certainly a great improvement on the ordinary one of whole or sliced turnips and hay or straw. I make no difference in the wintering of calves intended for beef and those intended for the dairy. No matter what a calf is intended for, it should be well fed the first winter; or it will receive a check from which it will never recover. To proceed with my own system. I give my yearlings the best grass I have all the summer, and fatten them off the following winter; selling them when 24, 25, and 26 months old. I give them oilcake to the amount of 30s. a head (beginning with 1 lb. a day, and increasing gradually to 3 lbs.), and hay or straw and turnips *ad libitum*; and the best fetch from £18 to £20 a head, and the smaller ones from £15 to £16, that is at the present and recent high price of beef. My cattle get three feeds of sliced turnips in the day; the first between 5 and 6, the next at 11 (immediately before which they get their oilcake), and the third and last at 5, or later as the days get longer. At each of the meals, if any animals have finished before the others, or show any desire for more, more is given till they are satisfied. The cleaning out of the stall, and currying of the cattle, keep them disturbed a good part of the time between the first two meals; but after the second meal they are left to rest till the third, and after that they are left undisturbed for the night. The racks placed above the turnips are filled with hay or straw as often as may be required. At whatever age cattle are put into the stall, they should have some turnips given them in the grass for a week or two before they are put in, to accustom them to a change of food. The heifers that appear best adapted for the dairy I sell as springers in October and November, when two and a half years old. In my opinion this is young enough for even the largest and best heifers to calve, and smaller and weaker ones should not calve till they are nearly or fully three years old, according to their size and strength."

135. **CASTRATING.**—The bull calves should be castrated when about three weeks old, as at this age it is done with less risk and, to all appearance, with less pain to the animals than when done when they are older. At one time it was the practice to spay female calves, but of late years it has been abandoned as hazardous and useless.



SCOTCH HIGHLAND BREED.

CHAPTER XI.

CATTLE.—PASTORAL FARMING.

Qualifications required for Pastoral Farming—Capital—Suitable Localities—Varieties of Cattle—The Short-horned Durham Ox—Fifeshire and Lowland Scotch—Herefords—The Galloway, Aberdeen, Angus, and small Scotch breeds—The Ayrshire—The Long-horns—The Alderney—Welsh Cattle—Advice on Buying—Accommodation for Cattle—Feeding—Straw as Food for Cattle—Summer Feeding—Winter Feeding.

136. **QUALIFICATIONS REQUIRED FOR PASTORAL FARMING.**—There are certain branches of the subject with which we are now dealing that necessarily become somewhat divided under different headings, where a numerous range of subjects have to be treated upon in a comparatively small space, in which the various breeds and different methods of feeding stock profitably have to be alluded to, and of course many of the remarks which will follow relative to the economical feeding of the ox, and that of the cow under the head of dairy management, will indifferently apply to either.

With respect to the different breeds of cattle from which choice has to be made, this should depend upon their adaptation to the soil on which it is designed to place them, and the food that is intended to be given, either in the form of grazing, soiling, or stall-feeding. Care should be taken in the selection of stock, if intended for grazing, that an animal is not placed on inferior pasture to the kind upon which he has been reared or accustomed. Where there are fertile meadows with rich bottom herbage, the large heavy breeds of cattle, or any other kind, are sure to do well; and whether it is sound meadow land, rough and indifferent pasture, or marsh, makes all the difference, and the beasts should be selected with the view of getting the most fitted and suitable kind for the land that is farmed. On poor land, where the herbage is scanty, some of the Highland breeds will answer very well, where the larger species, such as the Hereford and short-horned Yorkshire, would almost starve. Some of the smaller

kinds of Scotch cattle are contented with the scantiest herbage; and although these are often small in size, where a good cross is wanted to be obtained, the progeny raised from one of these small cows and a short-horned bull often turn out remarkably well, and of good size and handsome proportions. The Kyloes, or West Highland cattle, do very well upon the coarsest pasturage, and are a handsome breed to boot, and its choice quality of meat causes the breed to be a favourite one with butchers. The cows give but little milk, and soon become dry, but the milk is of first-class quality. It should ever be borne in mind that to fatten lean cattle ought never to be attempted, unless they are in good order as store cattle to start with, and for this purpose moderate-sized beasts, weighing from 40 to 60 stones of 14 pounds each, are the most saleable. The smaller kinds of Scotch and Welsh cattle are to be bought cheap at the different fairs which the drovers attend, and some very useful animals are often to be picked up which turn out remarkably well eventually.

137. **CAPITAL.**—The capital to be employed in pastoral farming will of course depend upon the scale upon which operations are conducted. Considerably less will be required than in arable culture, and its amount will have to be regulated by the number of beasts that the aim is to rear and fatten, and the cost of their attendance, which is comparatively small.

As we have shown, where cows are kept calves can be reared at a comparatively small expense, and useful stock for fattening is to be bought out of the droves of Irish, Welsh, and other cattle that are to be met with at the various fairs. The cost of calves and young stock thus purchased, according to age and varying conditions, may be put down as ranging from £5 to £10. The cost of any given number of stock may thus be roughly estimated, to which must be added a year's keeping of the animals, the cost of wages for their attendance, miscellaneous petty expenses, and a year's rent.

138. **SUITABLE LOCALITIES.**—Cattle rearing is now successfully carried out upon an immensely extended range of soils to what used formerly to be the case, many farms now yielding an annual lot of fat bullocks which many years back used to produce none, chiefly attributable to the great increase in turnip cultivation and the free use of auxiliary feeding substances; but it is very desirable to have on every farm where cattle are bred a sheltered paddock near the homestead, into which young calves can be turned with as little trouble and loss of time as possible.

Comfortable quarters and generous diet are the first essentials of rearing young stock, and where these are the best and easiest to be obtained is the chief consideration to be entertained in making choice of a locality.

139. **VARIETIES OF CATTLE.**—As we have previously pointed out, the nature of the pasture should be taken into account where grazing is largely carried on, for some of the hardier kinds of cattle do very well upon coarse or scanty herbage, that would be quite unsuitable for the larger and more highly-bred animals.

In breeding, one has the opportunity of rearing whatever kind of cattle may be desired, and where dairying operations are carried on, one great advantage there is, that although the cows, themselves good milkers, are not of the breed whose progeny make good oxen for the butcher where the bull is also the same, yet it is the case that these, when coupled with a shorthorn bull, even in cases of cows of diminutive size, will produce a cross which rivals in weight of carcase some of the largest kinds.

140. **SHORT-HORNED DURHAM OX.**—The breed commonly known as "shorthorn" is considered the best and most profitable we have in England, arriving early at maturity and supplying meat to the butcher of the best quality. Under the local name of "Teeswaters" this breed got a firm hold on public estimation in the county of Durham towards the close of the last century, and the stock has been steadily kept improving. Their origin is somewhat uncertain, some maintaining that they sprang from Dutch extraction and were imported into Hull, while others contend they can be traced to the Western Highlands, and have mixed, or Kylloe blood in them, but this has been denied.

Mr. Henry H. Dixon, in a Prize Essay upon the "Rise and Progress of Shorthorns," which appeared in the Journal of the Royal Agricultural Society, in which the fullest particulars are given relative to various celebrated animals and their pedigrees, after giving a long list of well-known names, says:—"The germ of this wonderful array must have been considered an 'improved' county breed as far back as 1787. Hutchinson, of Sockburn, had then a cow good enough to be modelled for the cathedral vane, and had also beaten Robert Colling in a bull class. . . . 'Hubback' (319) has always been considered the great regenerator of shorthorns, but he did not do Charles Colling so much good as 'Foljambe,' who was from a 'Hubback' cow, and he was parted with at the end of two seasons. The aim of the brothers Colling was to reduce the size and improve the general symmetry of their beasts," &c. &c.

To the bull in question ("Hubback") most breeders used to be desirous of tracing their stock. Mr. George Coates, an eminent breeder who first collected the pedigrees of short-horned cattle, gives the following particulars which he obtained respecting this celebrated beast from the person from whom he received them, which are embodied in the following letter:—

"I remember the cow, which my father bred, that was the dam of 'Hubback'; there was an idea that she had mixed, or Kylloe blood in her. Much has lately been said that she was descended from a Kylloe, but I have no reason to believe, nor do I believe, that she had any mixture of Kylloe blood in her.

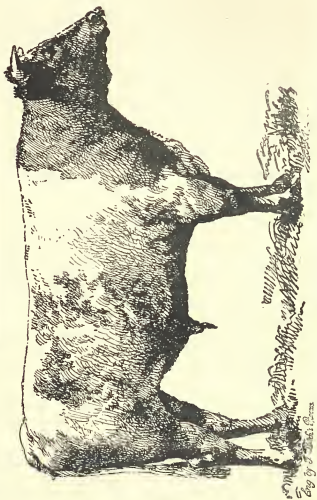
(Signed) JOHN HUNTER.

"Hurworth, near Darlington.

"July 6th, 1822."

And in Mr. Coates' Herd Book is registered the following:—"Hubback' (319), yellow, red, and white, calved in 1777, bred by Mr. John Hunter, of Hurworth; got by Mr. George Snowdon's bull (612), his dam (bred by Mr. Hunter) by a bull of Mr. Bankes, of Hurworth, g.d., bought of Mr. Stephenson, of Ketton."

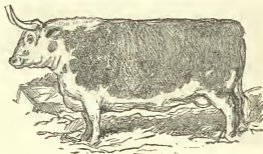
Mr. Dixon says that it is calculated by experienced Smithfield salesmen that rather more than two-thirds of the average number of beasts (331,164) which came to the London market so long ago as 1863-64 were either pure shorthorns, or shorthorn crosses. In reference to this increase, an old English breeder writes:—"When I began there was no pure-bred shorthorn bull within seventeen miles of me, whereas now there is one in every parish."



SHORTHORN BULL.

The merits, indeed, of the shorthorn breed are indisputable, for steers of from four to five years old, weighing 140 stone of 14 pounds, and sometimes as high as 150 stone, are to be met with. Butchers give for such animals as much as £60 to £70 per head, while young steers between two and three years old make as much as £40 a head. Many are killed at an earlier age than this, great numbers being now slaughtered at two years old and under, which speaks volumes as to the early maturity to which the shorthorn attains. Still, it is very commonly thought that, while beef-making has been quite elevated to a science in the case of pure-bred shorthorns, the production of milk has been a good deal overlooked; and it stands to reason, notwithstanding the assertions of many to the contrary that shorthorn cows are good milkers, that this very tendency to put on flesh is opposed to the development and yielding of large quantities of milk, and for this purpose a cross with some other good milking breed is desirable where this object is required to be attained.

141. **FIFESHIRE AND LOWLAND SCOTCH.**—Fifeshire and Lowland Scotch cattle thrive on rich pastures and on good turnip

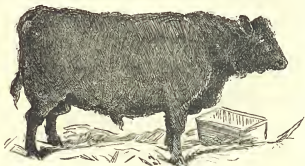


HEREFORD STEER.

soils, and will run with the Hereford and short-horned Yorkshire breeds and do very well.

142. **HEREFORDS.**—Herefords are supposed by many to be equal in value with the shorthorn as a breed, but they are not commonly met with far away from their native district the same as the more celebrated Durham breed are, and a distinction between the two has thus been drawn by Professor Low:—"The Herefords will frequently pay the graziers better than the Durhams; but the value of a breed is to be determined, not by the profit which it yields between buying and selling, but by that which it yields to the breeder and the feeder conjointly, from its birth to its maturity; and taking into account the early maturity of the shorthorns, and the weight to which they arrive, it may without error be asserted that they merit the preference which has been given to them."

143. **THE GALLOWAY.**—On poor land, affording but scanty herbage, the small Galloways and other Highland stock will be found to answer very well, as these do not lose their condition while there is only a short bite of grass in the summer; but these (not the very smallest kind), if kept on good pasture during the summer, and merely preserved from falling off in the winter, will attain a good size. It is stated in the "General Report of Scotland," upon the authority of well-known breeders, that these will weigh, at 2 to 2½ years of age, 30 stone; from 3 to 3½, 41 stone; and from 4 to 4½ years of age, 54 stone, the great addition to weight being acquired during the six months of the grass season. The average of our large-framed beasts in England of the best breeds, according to the testimony of carcase



SCOTCH POLLED BREED.

butchers and salesmen, is generally at 4 years old about 110 to 115 stone of 8 lbs. for the carcase, and 20 to 25 stone for the fat and hide, when they have been regularly grazed.

The quietness of the Galloway breed, and their readiness to fatten when their frame is in proper condition, causes them to be very favourably regarded, while, being without horns, a greater number can be kept together than is the case with horned cattle, which fight amongst themselves continually.

144. **ABERDEEN, ANGUS, AND SMALL SCOTCH BREEDS.**—There are various breeds of large cattle to be met with in the eastern districts of Scotland as well as Fifeshire, there being the Aberdeen and Angus breeds, some polled and some horned, being mostly black in colour; while in the extreme north, as in the Shetland Isles, an extremely small breed is to be met with, the cows of

which give a good deal of milk in proportion to their size; but the most noticeable feature in connection with this small breed is, that a cow crossed by a shorthorn bull will produce progeny which will attain an equal size with the larger breeds.

145. **THE AYRSHIRE.**—The Ayrshire bullocks are not found to answer well with the grazier. Their meat is coarse in quality, they are hard to fatten, and do not attain to great weights, but the cows, as before described, are capital milkers; and while, in England, great pains have been taken to improve the shorthorn for the sake of beef, in Scotland equal pains have been taken to develop the milking properties of the Ayrshire cows, which thrive and do well upon medium and even poor soils.

146. **THE LONGHORNS.**—The longhorns were a breed which at one time enjoyed considerable favour, especially in the Midland Counties of England, where they used universally to be met with; but they have given way to the shorthorn, which is more generally preferred, and they are now most commonly met with in some parts of Ireland, where they still retain their original reputation.

147. **THE ALDERNEY.**—The Alderney is the least valuable of any known breed for the grazier, though, as we have remarked before in another place, they weigh better in the scale than their appearance would warrant; but, as cows, they possess the merit of giving milk of superior excellence, while they do well on inferior pastures. Both Alderney and Ayrshire breeds are peculiarly butter and milk producing cows, the former being celebrated for the richness of the milk it yields, while the latter gives an unusually large quantity. It is often recommended that where Alderney cows are not regularly kept for milking purposes, one, at least, should be kept in a herd, as the admixture of her milk with the rest will sensibly improve the quality of the whole.

148. **WELSH CATTLE.**—Welsh cattle have generally a family likeness to the Highland breeds, but there are several distinct species. The Pembrokes thrive on poor soils, and the cows yield milk freely. They are alike useful animals to the cottager, whose opportunities for grazing them are but limited, and to gentlemen who may have grass of inferior quality to eat off in parks, or on mountain land. Anglesea are coarser and heavier than the Pembroke, while the Glamorgan, which are somewhat small, and inferior in those points looked for by the grazier, are yet good milkers, and the cows are appreciated on this score. They are seldom found out of the county from which they take their name, where the development

of the iron-works, and consequent increase of population, has created a large demand for milk.

149. **ADVICE ON BUYING.**—From what we have already written the intending buyer will be enabled to gather a good many practical hints as to the class of animal most likely to be the best suited for his own particular purpose and locality. It would be false economy to buy cattle of unsuitable breeds merely because they may happen to be cheap; for much more money would be wasted over injudicious purchases, in the shape of the keep of an unprofitable animal, than any likely to be gained in the form of a bargain secured in the price below its apparent value.

It will always be found in the long run to answer the farmer's or grazier's purpose best to secure the exact breed of animals he considers most fitted for his purpose—whatever that may be—and pay a fair price for them, rather than be tempted by low rates to purchase cattle of an unsuitable description.



SECTION OF A COWHOUSE.

For grazing or feeding purposes some capital cattle are to be picked up out of the droves of the West Highland cattle, or Kyles. The true West Highland ox has short muscular limbs, a wide and deep chest, finely-arched ribs, and straight back, thick but melicw skin closely covered with shaggy hair. His head is broad, with a short, fine muzzle, his eye full and bright, with long turned-up horns, and a bold erect carriage, exhibiting, when of mature size and in good condition, a symmetrical form and noble bearing which is difficult to be excelled by any other breed. His compact carcass and the choice quality of beef cause him to be a great favourite with butchers, while, contented with the coarsest pasturage, he will ultimately fatten where shorthorns and similar breeds could only manage with difficulty to keep life and body together.

150. **ACCOMMODATION FOR CATTLE.**—In arranging for the accommodation of cattle it will be found of great assistance to have a classified arrangement by which the cows of the dairy are kept apart from the feeding stock, and the houses and yards for each particular kind of stock kept as much as possible together, close to which should be the sheds for storing and preparing the food.

In the case of a dairy farm, the out-houses should not be too far from the farm-house, when domestic servants have a good deal of

labour to perform in them, such as milking, or carrying the milk to the dairy, and these should be the nearest, and the feeding cattle the farthest off.

The necessity for shelter, and the increased comfort to the animals and the improvement of their health from it, have been spoken of before. This should be supplied in accordance to the number of animals that are to be housed. If too great a space is allowed, it cannot be littered down properly, as too much will have to be traversed, which will prevent the litter from being properly converted into manure.

The house where food is consumed should be near to that where it is prepared, by which means a great deal of loss of time in unnecessary running about is saved.

Under the old system of shed and yard feeding the more valuable parts of the manure were exhaled into the atmosphere, or washed away by every shower, which ought to be caught and retained in a manure-tank.

The modern practice is to roof over the entire yard so as effectually to protect cattle, food, and manure from the vicissitudes of the weather, and to tie up the cattle for each meal and loosen them when they have eaten it, by which means they feed undisturbed, and yet get a certain amount of exercise.

The question has been much debated whether yards, stalls, or boxes are the best adapted for feeding cattle. Yards afford the greatest facilities for turning the straw into manure, but stalls require least litter, occupy the least space, and are more likely to be too warm than too cold, but deprive the animals of needful exercise, and they require more attendance.

Boxes combine, to a certain extent, the advantages of both these plans, as in them the animals are safe from cold and disturbance, get moderate exercise, require less attendance than those in stalls, and also less litter, while the manure made in them, being covered from the weather, retains the urine, and is superior on that account to manure made in open yards.

Warmth is one of the first essentials to fattening cattle. It is now well known that in the case of all warm-blooded animals a considerable portion of food is expended in maintaining the natural heat of their bodies, so that cattle exposed to a low temperature require an additional amount of food to keep up their necessary animal heat, which, if kept in by cover, will cause them to eat less, and yet lay on more fat.

151. **LABOUR REQUIRED FOR SUPERINTENDING CATTLE.**

—The farmer will find it answer his purpose to give a good deal of personal superintendence to his cattle, as much depends upon the cribs being kept clean and the food regularly supplied only in the quantities that will be eaten.

Stale portions of food, or dirt left in the cribs, taints the fresh food, which is less relished, and, in consequence, does not do the

animal so much good; and attention from some careful person, steadily persisted in, will amply repay the trouble that is taken.

Persons not accustomed to the management of cattle will find it of great advantage to spend a little time daily amongst them, and make their acquaintance by a little notice and occasional caress, as well as being thus able to identify each by their marks and general appearance.

A little familiarity of this kind accustoms them to the presence of persons, and they are not likely to be startled or give way to restless excitement when food and litter is supplied to them, or they are handled by strangers, possibly purchasers.

Sometimes the tying and untying has been objected to on the score of the extra labour involved; but it has been proved by repeated trials that two men can unloose a hundred cows in ten minutes and tie them up again in twenty minutes. The herd-boy who waits on the cows in the field stands at the door to prevent too many crushing in at one time.

The unloosing of stock is often found of advantage, and when there are not boxes and the buildings have to be made use of already established, where the cattle are placed in yards with sheds around them for shelter, the experience of graziers has shown that the beasts will often eat food thrown to them on the ground which they will reject when offered to them in the stalls. Although at first the operation of tying and untying may give a good deal of trouble, practice makes it very easy eventually, and the beasts are benefited by being loosened for a short time when the system of tying-up is followed; and they should be put up together as much as possible of the same age and strength; if not, the strong will prevent the weak from feeding until they themselves are satisfied.

Cattle that have been reared together can be packed closer than those which have been bought from dealers and collected promiscuously, six being the average number which should be fed together when the size and construction of the sheds permit it.

152. **FEEDING.**—The system of feeding cattle hitherto has been chiefly to allow them as many sliced turnips as they could consume, and the racks supplied with fresh oat straw daily. Straw, as an article of food, has been in the past very much wasted. The digestive organs of the ox are formed with a manifest adaptation to the consumption of very bulky and but moderately-nutritious food, such as grass or hay, and he must have his fill before he composes himself to rest and commences to ruminate.

By being allowed to eat a large quantity of richer food, not only is a greater expense incurred, but as the animal's powers of assimilation are not equal to its proper digestion, the wasted surplus produces irritation and disturbance, which is often made plainly apparent by continued diarrhœa, and sometimes by more serious disease.

It is necessary that his capacious paunch be constantly full, and straw can be made to play a very prominent part in this proceeding.

153. **STRAW AS FOOD FOR CATTLE.**—Mr. Joseph Darby has pointed out in a very useful pamphlet—a reprint from a paper which appeared in the *Journal of the Royal Agricultural Society*—the great advantages that accrue from using straw as food for stock, The nutritive qualities of straw are very various, and differ with its stages of ripeness, which will be referred to in the quotations which follow.

Mr. Darby says:—"As the results of chemical analysis, Dr. Voelcker has placed the nutritive values of different sorts of straw in the following order:—1. Pea-straw. 2. Oat-straw. 3. Bean-straw with the pods. 4. Barley-straw. 5. Wheat-straw. 6. Bean-straw without the pods. The testimony of practical farmers has pretty generally endorsed this qualification. Pea-straw has always been considered too valuable to be used as litter, and it generally falls to the lot of sheep, these animals being particularly fond of it. Nearly all my correspondents set a higher value on oat-straw than on any other white straw for feeding purposes. There is less unanimity with regard to the virtue of barley-straw, attributable, no doubt, to the fact that its feeding value is not unfrequently materially increased by the large quantities of young clover mown with it. When there is little of this it very often sinks below wheat-straw in the scale of value, owing to the usual and almost invariable practice of over-ripening the barley crop. The custom of doing this cannot, of course, be urged against, as the grain is improved thereby for malting purposes; but both corn and straw of wheat would no doubt be improved if farmers could only more generally be induced to take the crop from the ground somewhat earlier than they are accustomed to do at present. No kind of straw probably differs more materially in value than that of the bean crop; and some admits of being heightened in quality by the beans being either cut or pulled while the stalks are green, and before the leaves have all dropped off. When beans grow to the height of seven or eight feet, as I have sometimes seen them, the stalks, of course, are like sticks; and should the crop be allowed to get dead ripe, it would be very ill-adapted to yield food without being chaffed and steamed. But if the Russian, or winter bean, be cultivated, which is short in the haulm and ripens in July, and if the crop be taken from the soil early while yet green, an exceedingly valuable straw for foddering or chaffing purposes would naturally be the result. One of the best farmers in South Hants used to be very fond of having his winter beans pulled up in that condition and placed in rows of stooks after being sheaved. This allowed the land to be cropped with turnips, and I have often heard him declare that, while he obtained a fairer sample of grain, worth several shillings a quarter more than ordinary samples, the bean-straw was also rendered of great value in affording material for utilisation as food for stock.

"Who can doubt that when farmers find it to their interest to care more than

they now do about straw produce, so as to secure it in a condition better adapted to serve for fodder, similar tactics will be employed in harvesting all crops, with the exception, perhaps, of barley? Nothing more surely need be stated as to the advantages of cutting oats early; and yet there is another point materially bearing on the matter which has not yet been mentioned. Oat-corns adhere to the plant by so frail a thread, that if the crop be allowed thoroughly to ripen, large numbers of them are tolerably sure to be blown out by the first strong wind which blows. Every experienced man knows how hazardous it is to allow oats to remain uncut after the straw begins to turn off in colour. There is, consequently, every inducement to harvest that crop early. When also it is considered to what an extent both the grain and the straw of wheat are improved by the cutting being effected just at the period when the corns no longer emit a milky juice, common sense naturally points to the proper course of action. All these things vitally affect the issue, and we shall perhaps soon find even the occupiers of the Fens and our richest alluvial soils ready to admit that, by altering their course of action slightly, in taking their grain crops from the ground earlier than they have hitherto done, a great deal more may be made out of straw. The farmers of Lincolnshire, who, by growing green crops bulky and coarse in straw, fancy there is little feeding virtue in it, are still accustomed even now to utilize no small portion as food, by their stock being allowed to pick out of large quantities the tit-bits and stalk tops. By adopting earlier cutting they would, no doubt, find a means of economic management hitherto only partially explored.

"Nor must it be forgotten that, however much the coarseness of texture and the condition of the straw in different districts may affect their value for feeding purposes, the best of the best would not be worth much given singly, without the addition of rich substances, such as oil-cake or corn-meal, with root-pulp or roots, should the latter be plentiful. Only as an ingredient in a mixed dietary for stock can straw yield fully the advantages it is capable of rendering as a food substance. This does not imply that straw should be utilized in this way or that. Many farmers like to save expense; and it is natural, perhaps, that the material, when exceedingly abundant, and not of the finest texture or quality, should be given whole and in large quantity; but still, if the animals are at the same time fed with sufficient liberality on richer substances, so as to keep them laying on flesh actively, or yielding milk bountifully, or, if young, in active growth and thriving condition, the principal object will be attained.

"However strange to the ears of some it may sound to hear of beef, mutton, or butter being derived as the direct result of feeding on straw, this appears to be the most economical way of producing either of those high-priced articles in winter, provided that straw forms one item only in the dietary, of which the other items should be roots and oil-cake, or corn, as a rule, but varied with other rich and suitable ingredients if they be cheaper to purchase, or more adapted to the wants of the animals."

Mr. Mechi says:—"If we are to consume all our bean, barley, wheat, and oat-straw, we must keep our animals on sparrow flours, or on burnt clay, and we must invest more capital in animals. We shall then make much more meat per acre. If a ton of straw will make 40 lbs. of meat, and if two tons of straw are grown per acre of our cereal and pulse crops, it would be four-score pounds of meat per acre over the whole of the cereals and pulse."

Of course Mr. Mechi did not mean that it is possible to make so much meat out of the straw, unless it be given in conjunction with auxiliary feeding stuffs: for immediately afterwards, to quiet any apprehensions as to the manure-heap being lessened in value, he says, "Your animal, by this mode of feeding, consumes 560 lbs. of rape-cake with every ton of straw." Dr. Voelcker, and other scientific experts, have, I believe, sufficiently proved by chemical analysis that a ton of straw possesses sufficient nutritive properties to yield this amount of beef; but an animal could not eat enough straw to keep the machinery going

without the addition of richer feeding substances. The whole virtue would be taken up in supplying heat to the system, and repairing the waste of the tissues, &c. But when straw is used for bulk, and oil-cake and other substances to improve the quality of a mixed dietary, it is only reasonable to give the straw credit for what it supplies towards the beef-making; and this appears to be what Mr. Mechi has actually done. Mr. Horsfall, in the *Journal*, observed: "In wheat-straw, for which I pay 35s. per ton, I obtain for 1s. 2½d. 50 oil and 32 lbs. of starch, or (the starch reduced to oil) 18 lbs. available for the production of fat or for respiration. I know no other material from which I can derive by purchase an equal amount of this element of food at so low a price. The value of straw calculated as manure is 9s. 7d. per ton."

But Mr. Horsfall gave this as scientific evidence, fully accounting for his success in a particular system of feeding dairy cows on a mixed dietary, the chief items of which were rape-cake, malt-combs, bran, and straw-chaff of different kinds, all intermixed and steamed, or cooked before being employed. The results were so important, that his cows gave more bountiful yieldings of milk, and of far higher quality than they had done before, and put on flesh rapidly, even to getting quite fat, while in full profit. His cream was of so thick a consistency as to admit of laying a penny piece on it without sinking, and it yielded a far larger proportion of butter than ordinary cream. Casting about for reasons to account for all this, he found them in a comparison of the chemical analysis of the mixed nutritive substances supplied by him, with that of the food commonly supplied to dairy cows. His researches led him to see that even the best hay is not a food good enough for a milch-cow to enable her to do her best; and, he said, "You cannot induce a cow to consume the quantity of hay requisite for her maintenance, and for a full yield of milk."

Mr. Horsfall fully proved, both scientifically and practically, the greater economy of feeding milch-cows on straw-chaff, rape-cake, malt-combs, &c., rather than on hay; but the immense value of straw to him consisted in his system allowing the full amount of nutritive properties it contains to be appropriated. That this was his own view appears from the following:—"I am satisfied the most economical use of food rich in albuminous matter is together with straw and other materials which are deficient in this element."

154. **SUMMER FEEDING.**—In feeding cattle upon the summer soiling system of giving green stuff, care should be taken not to give too much in the first place, as the greediness of the animals after having long been kept upon dry food causes the accident we have previously described as "hoving," when the gases arising from tares, clover, lucerne, &c., cause swelling of the stomach, which obstructs rumination, and sometimes even causes death. This may be prevented by the use of straw, which also corrects the tendency to looseness of the bowels, which is apt to arise from too free use of green food; and it will be found by far the best plan not to make too sudden changes in this respect, but to accustom the animals gradually to the change of food which the annual recurrence of the seasons brings round. Thus, instead of giving them all green food at once, these grasses should be mixed with chopped straw, and by a like system of management, when the green stuff gets scarce the way for the drier food should be prepared in the same considerate manner.

155. **WINTER FEEDING.**—In winter feeding the lavish quantity of roots often used can be reduced with positive advantage. It has been proved that a medium-sized bullock will improve faster when only 80 or 100 lbs. of turnips are given to it daily, with straw, than when allowed to eat 2 cwt. of turnips, which he will do if he gets the chance. The difficulty in getting cattle to eat straw in sufficient quantity can be obviated by reducing it to chaff by means of a straw-cutter, and mixing with it small quantities of bruised linseed, bean, or other meal, and by infusion in boiling water, or steaming in a close vessel, so incorporating the ingredients that a grateful flavour is imparted to the straw, and a willing consumption of this bulky factor is induced.

Mr. Warnes, of Trimmingham, relates his plan of feeding with linseed as follows:—"I commenced winter-feeding this year upon white turnips grown after flax, the tops of which, being very luxuriant, are cut with pea-straw into chaff, compounded with linseed-meal, and given to my bullocks according to the following plan:—Upon every six pails of boiling water, one of finely-crushed linseed-meal is sprinkled by the hand of one person, while another rapidly stirs it round. (The advantage of this plan may be seen in the superior quality which results from making porridge in this way, with which children are fed, over that where merely the barley-meal is flung into the pot or saucepan at once, when a marked difference in quality is apparent.) In five minutes, the mucilage being formed, a half-hogshead is placed close to the boiler, and a bushel of the cut turnip tops and straw put in. Two or three hand-cupfuls of the mucilage are then poured upon it, and stirred in with a common muck-fork. Another bushel of the turnip-tops, chaff, &c., is next added, and two or three cups of the jelly as before; all of which is then expeditiously stirred and worked together with the fork and rammer. It is afterwards pressed down as firmly as the nature of the mixture will allow with the latter instrument, which completes the first layer. Another bushel of the pea-straw, chaff, &c., is thrown into the tub, the mucilage poured upon it as before, and so on till the boiler is emptied. The contents of the tub are lastly smoothed over with a trowel, covered down, and in two or three hours the straw, having absorbed the mucilage, will also with the turnip-tops have become partially cooked. The compound is then usually given to the cattle, but sometimes is allowed to remain till cold. The bullocks, however, prefer it warm; but whether hot or cold, devour it with avidity."

Mr. Ogden, Berry Hill, Northumberland, in a report read to the East of Berwick Farmers' Club, described his plan of feeding as follows:—"My cattle are fed with turnips, bean-meal, oil-cake, and cut straw. The first thing in the morning they get the mixture, then turnips, and at one o'clock the mixture again; afterwards turnips. On Sundays the mixture is withheld. I find that a three-year-old steer will consume (if fed on them alone) from 16 to 18 stones of turnips daily. The mixture I am in the habit of giving to my cattle consists of 2 lbs. of oil-cake, 2 lbs. of bean-meal, 4 lbs. of cut straw, and 1½ oz. of salt daily. This mixture can be purchased and prepared, at present prices, for 1d. per pound, or 2s. per head per week, six days in the week. I also find that cattle, when they have this mixture, consume at least 1 cwt. of turnips less per day than when fed upon turnips alone. This mixture is prepared in the forenoon by the byre-man, and keeps perfectly sweet for thirty-six hours. In preparing the mixture, to serve 24 cattle for 24 hours, 48 lbs. of oil-cake, 48 lbs. of bean-meal, 96 lbs. cut straw, and 30 oz. of salt are, in the first place, well mixed together in a trough; 36 gallons of boiling water are then added, after which the whole mass is well turned

and incorporated together and pressed down; and in an hour or two is quite ready for the cattle. The troughs in which this mixture is prepared are 6 feet long, 2 feet wide, and 2½ feet deep. A trough of this size will contain mixture for twenty-four cattle, and the time occupied by the byre-man in preparing one trough-full of the mixture is not more than half an hour, the cut straw, meal, &c., being all ready."

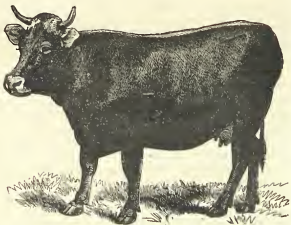
The advantage of giving steamed food to cattle is very great. Straw that has been threshed for some time loses its freshness, and even hay is often a little mouldy, so that it is no longer welcome to the cattle. All this, however, is disposed of in the course of steaming and mixing with meal and other rich substances, so that hay or straw which has been rejected is eaten readily when accompanied with other appetising ingredients.

A great many examples of different methods adapted for feeding stock profitably have been instanced under another heading, so we shall here only briefly remark that, when grasses and dry food are mixed, it will be found best to make the mixture overnight when the dry provender will be found to have acquired a sweet vegetable taste, to which we have previously referred, which the animals relish exceedingly.

Some farmers attempt to feed cattle upon straw by itself when they are hungry, before giving them the more inviting food, but in course of time they will come to reject it; but no ill-consequences from irregular feeding and eating can arise if the food is carefully and properly mixed beforehand. It is the want of the necessary pains and precautions which ought to be taken in feeding stock that causes it to be less profitable very often than it otherwise would be. The fattening cattle, when turnips are given, should have the bulbs, and the green tops and top roots should be given to the store stock.

Experiments have shown that different breeds of cattle will acquire various degrees of substance or flesh from the same quantity of food supplied to each; and these and similar points deserve careful attention and notice, for no rule can be drawn as to the exact quantity of food required by each beast.

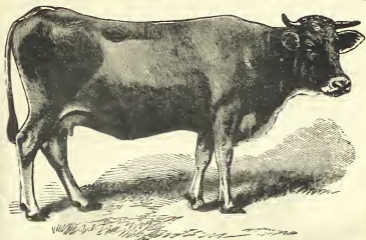
156. **CATTLE FARMING ABROAD.**—It is clearly apparent that, in economical feeding, a large portion of the profit is to be found where a number of animals are kept; and in Germany, especially, many economical contrivances are resorted to for eking out the food of stock that are not practised in England. We have touched upon this subject under a distinct heading. In the district of the Lower Moselle, as we pointed out, in the spring, the women and children range the fields, and cut the young thistles and nettles,



MONTAFUN COW.



EGERLAND COW.



MURZTHAL COW.



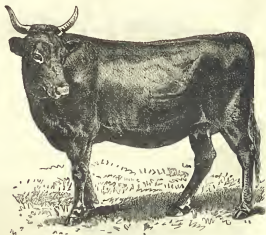
PINZGAU COW.

and dig up the roots of the couch-grass, collect weeds of all kinds, and strive to turn them to account.

What is thus scraped together is well washed, mixed with cut straw and chaff, and after boiling water has been poured over the whole, it is given to the cattle, which are stall fed.

On the other hand, in Moldavia and Bessarabia, the cattle are kept in the fields all the year round, exposed to all the inclemencies of the weather.

157. FOREIGN BREEDS.—Our business is mainly with the ordi-



PODOLIAN COW.

nary stock that is commonly found in the United Kingdom, but the following illustrations of Austrian cattle will doubtless be considered interesting to many.

The Podolian is an aboriginal race of cattle distinguished by its capability of enduring changes of weather, and contentedness with poor fare.

The Murzthal breed is appreciated on account of its milking properties, and as draught oxen.

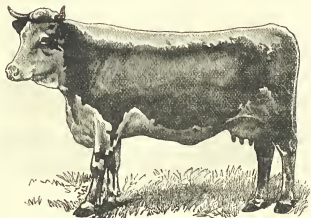
The Montafun are distinguished for good temper, and belong to the heavy average group of cattle.

The Egerland are noticeable on account of their general healthi-

ness, and contentedness with the quality and amount of food given to them.

The Pinzgau is a breed that is distributed throughout the whole of the Salzburg region.

The Kuhland cattle, though only of the middle height, must yet be classed with the heavier races of stock.

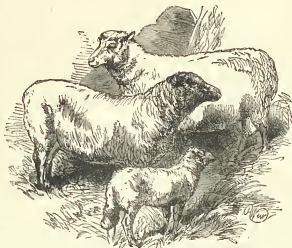


KUHLAND COW.



SHEEP, PIGS,
AND OTHER LIVE STOCK.





SHEEP, PIGS, GOATS, ASSES, AND MULES.

CHAPTER I.

BREEDS AND VARIETIES OF SHEEP.

Natural History—Colonial Wool—Breeds and Varieties—The Merino Sheep—English Sheep—Long-wool—Short-wool—Leicester Sheep—Five-year-old Mutton—Lincoln Sheep—Southdown Sheep—Weights per Quarter of Different Sheep.

1. **NATURAL HISTORY.**—Sheep have played a very important part in the annals of modern British husbandry, as well as in commerce, and the consumption of wool is now enormous. London of late years has also become a *dépôt* for colonial wools, the annual series of sales which are held at the Wool Exchange, in Coleman Street, attracting thither not only native consumers, but a large number of buyers from the Continent, who compete in the most spirited manner for the best lots with home purchasers especially the representatives of French and German houses. In the case of the latter, much of the wool is returned to us again in

the shape of yarns, some particular kinds of which—as that known as *vigonia*, for instance—they excel the British manufacturer in producing; while in the case of France, a large quantity of the wool so re-exported from England, that first came from the Australian and other colonies, is returned to England in the shape of all wool dress-goods that are turned out at Roubaix, which may be considered the Manchester of France.

In one month, that of September, 1879, the re-exports of wool were 36,000,000 lbs.; the money value of the same amounting to £2,101,000; which will give some idea of the magnitude of the trade.

The comparatively modern method of farming upon the principle known as the "turnip system of husbandry," by which large numbers of sheep are maintained on the land that is planted with turnips and other green crops for their support, has effected quite a revolution in the old plan upon which English agriculture used to be conducted. Formerly, after grain crops had been taken off the land, it was allowed to lie a bare fallow until it had recovered itself from the amount of exhaustion it had undergone, or until it came again into "heart," as it was termed; but by means of the proper rotation of crops—that is understood better than formerly, and which enables a large quantity of stock to be kept upon the land, whose manure enriches it—under the hands of a clever agriculturist, very little time is now lost in bare fallows; and the land gives forth its increase in a much more unstinted manner than under the old system of farming.

2. COLONIAL WOOL.—The growth of the Australian wool trade affords one of the most illustrative examples possible of the results that are to be derived from suitable pasturage adapted to the race of sheep that are placed thereon, or which are indigenous to it; and the history of the growth of the Australian wool trade is both interesting and remarkable.

Botany Bay was formed into a penal settlement, and our convicts were first sent there in 1788, in accordance with the legislative views then entertained as to the best disposal of them; and to supply the young colony with mutton and wool, some small hairy sheep were imported from Bengal; and these, although not by any means a thrifty race, improved to such a marked degree that it was soon seen that the soil and climate of the country was peculiarly well fitted for sheep-farming, and small numbers of some of the best breeds of sheep were procured from England; amongst others, Leicesters and Southdowns.

At first the business was managed by persons who did not follow it out with all the care and attention to details which breeders are in the habit of giving to what they undertake, and a good deal of it was necessarily performed in a slovenly, and careless manner; yet, notwithstanding, the success in this line was so great that, as the colony grew and increased, some individuals realising the fact that the country possessed unusual facilities for sheep-farming, imported some merino sheep from the mother country that were of Spanish origin; the result being that the wool obtained in Australia was found to be of actually finer quality than that grown upon the sheep fed upon the pastures of Spain!

From these humble beginnings has sprung up the enormous wool trade of Australia, the progress made by the first unthrifty race being so marked and satisfactory as to show to demonstration that the country was peculiarly well-fitted to carry sheep profitably, the first attempts at sheep-farming there turning out eminently successful, and having now reached, as may be seen, very large proportions indeed.

Sheep inhabit a wide geographical range, and wild species are to be found in various parts of the world, the various races being generally divided by naturalists into five classes.

1st. The *ovis aries*, or domesticated sheep, including all the different varieties that have come under the care of the shepherd at various periods, and under widely different circumstances.

2nd. *Ovis argali*, or Asiatic sheep, which are found in the elevated plains of that continent, and in the Himalayan range.

3rd. *Ovis tragelaphus*, or bearded argali, whose general figure bears some resemblance to a deer, and are principally found in the mountainous parts of Egypt, and the inland districts of the Barbary States. It is worthy of remark here that these and similar races have caused some naturalists to hesitate in classing sheep as being generically distinct from the goat, for though a wide distinction exists between the woolly skin of one of our highly-bred domesticated long-wooled sheep and the hairy skin of the goat, yet the difference is not so marked and wide between a hairy-wooled sheep and the former. Wilson says, "The form and structure of the sheep, in its natural and unsubdued condition, differ in few material points from those of the goat. Even the skeletons of these two animals, when compared together, possess no points of difference which pass beyond the range of merely specific distinctions, and their digestive and other organs are equally conformable. We also know that hybrids or mixed breeds have been produced between the goat and the ewe, and between the ram and the she-goat, and it has been asserted that the male animals themselves were not, as usually happens, entirely unproductive; a fact which, if ascertained, would prove a closer mutual relationship to exist between the two species in question than that between the horse and the ass."

4th. *Ovis montana*, or Rocky Mountain sheep, which are found in the altitudes of the ranges of mountains in North America.

5th. *Ovis musmon*, which may be seen in our newly-acquired dependency, Cyprus, and the island of Crete, as well as in the mountains of Greece.

There are other wild species that are met with in some parts of Africa, and in other countries, that have been noticed by travellers; and it remains to this day an unsettled question, from which original race our domesticated species is to be traced.

There have been various speculations set afloat as to the time when sheep-farming was first cultivated in Britain, and, as at the time of its invasion by the Romans, coarse woollen fabrics of native manufacture abounded, it is surmised that the wool of which they were made must have been derived from domesticated flocks.

After the Romans had settled down in Britain, and manufactures began to be established, some of a comparatively rude nature, while others were more advanced, woollen goods took up a very prominent position amongst the crude manufactures of the day, for British woollen goods were sent to Rome, where they were prized for their extreme fineness.

Circumstances—such as the possession of coal—have caused the principal seats of textile manufacture to become established in the more northern portion of this kingdom; but it was not so during the earliest periods of English history, the southern counties being in this respect much more important than the northern ones, Winchester continuing for many centuries to be the head of the woollen trade, the extreme fineness of its woollen textures earning for it a deserved celebrity.

It may incidentally be remarked here, in corroboration of this fact in connection with early English industry in the southern counties, that Sussex iron was formerly very celebrated, one of the last mementoes of this branch of production being exhibited in the iron railings which used to surround St. Paul's Cathedral in London, which were cleared away and sold a few years back, and which were of Sussex manufacture.

To the growth of the woollen industry in Britain, which may be fairly regarded as an indigenous one, and the consequent demand for wool, may be traced the first efforts made for the improvement of the breed of sheep, which have gradually increased during the course of centuries, culminating in the efforts of Bakewell and the improvement of the breed known as the *Dishley breed*; the altered circumstances of late years necessitating the rearing of sheep for the *butcher*, rather than the *manufacturer* in the shape of wool, the finer fibre from our Australian and other colonies, fetching much higher prices than the coarser wool now grown upon English sheep, the carcasses of which have been greatly improved by judicious

breeding, as well as weight of wool, though the quality must necessarily be coarser in accordance with the well-known result with highly-fed animals which live in an artificial state, in contradistinction to those which procure their sustenance from the spontaneous productions of the soil in the shape of natural grasses. The wool of the small, short-woolled breeds that are fed upon hilly pastures are superior in this respect to those animals of large size; but what has been lost in fineness of quality has been more than made up for in length, and in the weight of the fleece; so that now what are known as the *combing* wools predominate in England; but in the times of which we have spoken, and this country depended mainly upon its own supply of sheep for wool, the description known as *clothing* was principally aimed at by producers. At the beginning of the tenth, and during the three following centuries—although the value of a sheep and a pound of wool would seem extremely small at the prices then current, taking into account the great difference in the value of money, the worth of a wether was computed at about 20s., and a pound of wool at 3s. 6d. to 3s. 9d., at present values. In 1315, by a law that was enacted, no one was permitted to demand more than 20d., equivalent to 25s. now, for a fat sheep; but if it was shorn, the price was fixed at 14d., *i.e.*, 17s. 6d. The average value of a fleece at this period was estimated at sixpence, or about 7s. 6d. in our present money, very nearly amounting to half the value of the carcass. At the present time at which we are writing, the rates for Kent wool in the Canterbury market are extremely low, new fleeces being only 9d. to 10d. per lb.; lambs, 6d. to 7d.; old Kent fleeces, 8d. to 9d.; lambs, 6d. to 7d.

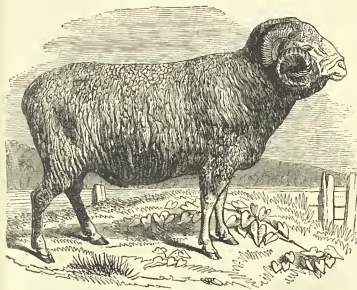
The characteristics of the sheep, more especially in a wild state, are—a head furnished with triangular, spiral horns, larger in the case of the male than that of the female, but altogether absent in some of the highly-bred domesticated varieties, with two rudimentary hooves on the fore legs situated on the inside, just above the real toes; two inguinal teats; and the tail, always short in the wild breeds, but varying in the domesticated species, some being very long. The fleece is of varying fineness and quality—depending upon climate, food, and other circumstances. In the case of the wild sheep, the external covering consists of long, coarse hair, beneath which is a coat of short, fine wool, while in the domesticated species it consists of a fleece which varies in the different breeds, to which we shall afterwards refer. The mouth of the sheep is furnished with eight incisor teeth in the lower jaw, but none in the

upper, and six molars on either sides of both jaws, which makes a total of thirty-two. The sheep is a gregarious animal, both in its wild and domesticated state, assembling in flocks of greater or lesser numbers according to the circumstances of their condition, which vary extremely; each breed being marked by some peculiarity or other; and differing in size, flavour of the meat, quantity and quality of the wool, as aforesaid, as well as in hardihood, according to the nature of the soil and climate where they are bred; which causes the carcasses of the small breeds which feed upon the thin-soiled uplands of the downs, and mountainous heathy pasture, to be covered with a thick coat of short, but fine wool; while those fed upon the marshes, and various rich low-lying bottoms, acquire larger frames, and longer and coarser wool; which circumstance has occasioned sheep in England to be classed under the two main divisions of *short-woolled* and *long-woolled sheep*. Some of these are polled, and some are horned, of which we shall proceed to give a detailed description.

3. **BREEDS AND VARIETIES.**—The only foreign sheep that have not been imported into Great Britain upon anything like an extended, and continuous scale for breeding purposes have been the Merino, which have been sent over at different times from Spain, where they are held in high estimation on account of the excellent quality of their wool; though in this country they have been proved, after many trials, to be unprofitable, and their cultivation as a regular breed has been almost entirely abandoned.

4. **THE MERINO SHEEP.**—Pure merinos are found both horned and polled, the weight of fleece in the yolk and unsmeared weighing 4 lbs. to 5 lbs., the dead weight of the flesh per quarter being from 15 to 18 lbs. The males have large spiral horns, of which the females are usually deficient, the face and legs being mostly white, though sometimes they are seen of a black or dun colour; a tuft of coarse wool is found on the forehead and cheeks; the nose and skin is commonly of a reddish flesh colour; the limbs long, the sides flat, and the chest narrow; to the eye of the experienced sheep-farmer presenting the appearance of an unprofitable breed, so far as the production of mutton is concerned, which is borne out by the facts; the race possessing only slow feeding powers. The looseness of skin under the throat, unsightly in the eyes of those accustomed to rest them upon more shapely forms, is said to be indicative of a fine fleece, which is indeed their only recommendation.

The changed conditions which now prevail, and to which we have before alluded in connection with the subject of colonial wool, have caused the keeping of sheep in England chiefly for the sake of their wool to be out of the question, for in the extensive plains of Australia, New Zealand and the Cape, immense flocks of fine-woolled sheep can be kept at a trifling expense, their wool being exported to England; so that all finer qualities of woollen



MERINO SHEEP.

fabrics are now made from Colonial wool; the sheep being more valuable in this island on account of his mutton than his fleece, the quality of the latter being consequently neglected for the former.

5. **ENGLISH SHEEP.**—The improvements of late years in the breeds of sheep have been very marked and conspicuous in the large breeds, especially the Leicesters, which have received an unusual degree of attention from various breeders, but more especially from Robert Bakewell; before referred to, of Dishley, near Lough-

borough, but there is little doubt that, if the like care and attention were taken to improve any particular breed, the same advantageous results might be obtained.

Sheep in Great Britain are classed under the following two main divisions of long-woolled and short-woolled varieties; some of which are horned, and some polled.

LONG-WOOL.

Leicester and Lincoln	polled.
Romney Marsh	"
Bampton Notts	"
South Ham	"
Cotswold	"
Dishley.....	"
Teeswater	"
Irish	"

SHORT-WOOL.

Pure merino-horned.....	polled.
Southdown	"
Wilts and Chiltern	horned.
Dorset	"
Portland	"
Exmoor and Dartmoor	"
Cornish	"
Ryeland	polled.
Dean Forest and Mendip	horned.
Norfolk	"
Cannock Heath.....	polled.
Shropshire Morf	horned.
Delamere Forest	"
Herdwick.....	polled.
Cheviot	"
Scotch Heath.....	horned.
Shetland.....	horned and polled.
Welsh Mountain	"
Irish.....	horned.

2. **LEICESTER SHEEP.**—The *new* Leicester sheep, as they were formerly termed, after the improvement made upon the *old* Leicester sheep by Bakewell, who first directed his attention to the matter about the year 1755, have become famous, and they are now sent all over the world for breeding purposes. The original stock was composed of large, awkward, large-boned animals, which did not arrive at maturity until they were three years old, being clothed with a long, coarse fleece, the weight of which would average about 10 lbs.

The weight of wool and size of the animals were great points in their favour; but as they made fat but slowly, and consumed more food in proportion to their yield of meat, and more than the smaller

breeds, these were very great drawbacks, and, to remedy them, Bakewell set to work.

His principal aim, as far as his system of procedure is known, appears to have been the improvement of the carcass, regarding the production of wool as of secondary importance; and in this respect they do not equal some of the breeds which they have displaced, being excelled in weight of fleece by the old Leicester, old Lincoln, and Romney Marsh sheep; the *average* weight of Leicester wool being 7 lbs. or 8 lbs., instead of 10 lbs., as formerly; though in exceptional instances shearling rams have been known to give a clip of 16 lbs. and 17 lbs.; and the Leicester sheep, as we now find



LEICESTER EWE.

it, may be said to belong more to the middle than long-woolled breeds; yet their general excellence have caused them to be adopted in most districts where the grass is rich and abundant, and they have pushed aside the old Lincolns, once a very favourite breed with flock-masters whose pasturage was of a suitable description to carry them; and Leicesters are now most commonly seen in the county of Lincoln and all the other neighbouring counties of Leicestershire.

The quality of the mutton of the Leicester sheep is considered to be superior to that of any other large breed, when not overfed, the fat and lean being more equally distributed, though the meat may not be relished so well by many, as the smaller breeds, as Welsh or Dartmoor mutton, and similar kinds, more suited to delicate palates; but in houses of business where a great number of hearty eaters are

employed, and in most manufacturing districts where large mutton sells best, the Leicester is generally well appreciated, notwithstanding that the Leicester breed has never been a favourite one with the butcher, on account of its containing a small amount of offal, which it is customary to sink; but to the grower or feeder, whose object is weight of carcase, this would naturally be rather a recommendation than not.

The good points in the Leicester consist, in the first place, of the comparatively early age at which they may be fattened, and the short time it takes to effect the process; and next, the small quantity of food that is consumed, when placed against the weight of carcase attained: these united with the "fine handling," and the important fact that perhaps they will bring the greatest amount of profit to the feeder, are good and tangible reasons for the high estimation in which the breed is universally held.

On this account, the Leicester is employed very extensively all over the country for cross-breeding purposes, and even in the extreme north—where nothing but Cheviots were at one time to be seen, being considered the most appropriate breed for the district—crosses with the Leicester, by which the size of the frame of the original animal is very much increased, are now commonly met with. The same also prevails in Wales, and other parts of the kingdom where the value of the breed has come to be appreciated.

The custom of letting out rams appears to have been unknown before the time of Bakewell, who, according to Youatt commenced the practice about the year 1760; but he was so slenderly rewarded at the first beginning that, it is said, his first ram was let for the insignificant sum of 17s. 6d. But this, however, was not for long, for when the quality of his breed became known, the price of letting out his rams gradually rose, until, in the years 1784 and 1785, he was receiving as high as 100 guineas for the use of a ram; and they at last became so much in request that it is recorded he made 1,200 guineas in the year 1789 by three rams; and 2,000 guineas by seven others; the Dishley Society giving him 3,000 guineas for the use of the rest of his flock.

The same author states that the most extraordinary letting in the case of Bakewell's rams occurred in the instance of a ram named the "Two Pounder," for the use of which, during one season, he obtained 400 guineas each from two breeders; still reserving one-third of the usual number of ewes for himself; the value of the ram for that season being thus rated at 1,200 guineas.

Since the time of Bakewell, however, the appearance of the Leicester sheep has somewhat changed, for succeeding breeders, while acknowledging and appreciating the general excellence of his sheep, have grafted other qualities in which the Dishleys were deficient; such as an increased quantity of wool, the improvement of the ewes so far as relates to better milking properties, and greater fecundity. These changes have depended often upon the taste, fancy, and opinions of various breeders in different counties, which has caused the breed to vary very much in its outward appearance in different districts; so that the wool of one set will be long and curly, while in another the fibre is closer and comparatively short; in one district the animals wear a hardy, sprightly appearance; in others an animal slower in its movements, and duller, being larger in size and bare-headed, is found; yet all retaining, in a great measure, those excellent qualities which in the first place earned the reputation of the original breed. These have been described as having a small head covered with short white hair; an open countenance and clear muzzle; a full, quiet eye; long, thin, but well-placed ear; a full, tapering neck, and deep, wide chest; uniformly broad and straight, firm back, terminating in a square rump, with full, deep shoulder, well-arched rib, and light offal; long, full quarter; well-turned hoist; uniformly fine bone, with thin, soft, elastic pelt.

Writers who have referred to Bakewell's sheep nearer to the time when he was making his improvements in stock, give certain particulars which it is interesting to note, on account of the changes that have taken place in the original breed.

The Complete Grazier; or, Farmer and Cattle Dealer's Assistant, published in 1805, written by "A Lincolnshire Grazier," contains at the commencement of the work a large folded sheet, in the shape of a map, which is styled "A Table of the breeds of Neat Cattle, Sheep, and Swine," the foot-note to which embodies the following:—"This table is selected, it is hoped, with some improvement from Mr. Culley's valuable 'Synopsis of Breeds,' annexed to his excellent work on Live Stock, such additions and variations being given from authentic sources, as the subject required."

The description given in this sheet of the Dishley, or New Leicester, is:—"Heads clean, straight, and broad; bodies round or barrel-shaped; eyes fine and lively; bones fine and small; pelts thin; wool long and fine, well calculated for combing, and weighing upon an average eight pounds per fleece, when killed at two years old. Fatten kindly and early, being admirably calculated for the

market, thriving on pastures that will scarcely keep other sheep, and requiring less food than others. Tolerably hardy and vigorous."

The short space of time the Leicesters take in arriving at early maturity constitutes a very important feature in their value. Many flock-masters have them ready for the butcher when fifteen or sixteen months old, just after being shorn; while, with the exception of ewes and rams, none are kept after they are two years old; but in order to do this, it is necessary to keep them well and abundantly fed from the day they are dropped till they get into the hands of the butcher.

At the time of Bakewell and his immediate successors the Leicester ewes were less prolific than many other kinds, seldom producing twins, which, besides, was not thought desirable, the ewes not giving so much milk as other breeds; and being but indifferent nurses, one lamb was found quite enough to be brought up satisfactorily; even one lamb, at times, being reared with some little difficulty on the part of the mother. In most districts, in the case of other breeds of sheep, a moderate average of lambs dropped is considered to be when half the number of ewes in a flock produce twins, this proportion being often exceeded. And of late years there has been a marked improvement in this respect with Leicester ewes; and though not giving so much milk, nor being so prolific as many other breeds, yet they do not now show such a marked deficiency as formerly used to be the case.

Youatt, in speaking of the new Leicesters, says, that "on good keep they will yield a greater quantity of meat, for the same quantity of food, than any other breed of sheep can do. The kind of meat which they yield is of a peculiar character. When the sheep are not over fattened, it is tender and juicy, but, in the opinion of many persons, somewhat insipid. When they are raised to their highest state of condition, the muscles seem to be partially absorbed; at least much fatty matter is introduced between their fibres; the line of distinction between the fat and the lean is in a manner lost, and with the exception of a few joints, and a small part of them, the carcase has the appearance and the taste of a mass of luscious fat."

7. FIVE-YEAR-OLD MUTTON.—Of course it is of great advantage to the breeder to have profitable stock that becomes marketable at an early age, but in point of fact, mutton is not at its best till it is five years old, when it has attained a dark colour, and possesses a fine flavour; while in the case of a sheep of only two years old, the flesh will be of a pale colour, and comparatively insipid. This is well known to good judges of mutton, though not to the multitude.

The writer once had an amusing case pass beneath his notice, of a farmer who had a five-year-old sheep stolen from him. He accompanied a police-officer to the cottage of a man whom he suspected of stealing it, and upon the door being opened, their olfactory nerves were saluted by an unmistakable smell of roasting mutton. The farmer at once got excited, and cried out, "That's my sheep, I'll swear to it, *by the smell.*"

The police-officer, whose notions of evidence required a much more matter-of-fact groundwork to work upon, such as the skin of a sheep duly marked with certain signs that might be deposed to, or something of a tangible nature, was scandalised by such a hasty assumption of a man's guilt being arrived at through the bare *smell* of a cooking joint. Yet the farmer's belief was, to a certain extent, justified, and not so unreasonable as many might suppose; for, added he, "I'll swear there's no such mutton as that about these parts, except mine." He was aware of the ordinary custom of disposing of stock at an early age, when the taste and smell of a mature sheep, the latter of which he recognised, could not be had.

8. LINCOLN SHEEP.—These, in their original state, are a large breed of sheep; but their size has of late years been considerably diminished by crosses with the *new* or improved Leicester, as they were formerly called. The original Leicester, Lincoln, and Teeswater breeds, which were all noted for their large size, have been lessened considerably from their original proportions; and it has been remarked that, before the period of which we are speaking, the mutton of these coarse sheep seldom amounted to more than half of their live weight. Judicious crossing has considerably decreased the quantity of offal, and added largely to the dead weight of marketable flesh, conferring smallness of bone and symmetry of form, whereas the common average, as recorded by experiment, will amount to more than two-thirds.

In the *Leicester Report*, two sheep bred from Dishley stock, without any unusual method of feeding, gave out the following results, the proportion of bone in a well-fattened animal being supposed to be an ounce, to one pound of flesh:—

Carcase.....	144 lbs. 0 oz.	144 lbs. 6 oz.
Fat.....	15 " 8 "	16 " 8 "
Wool and Pelt...	16 " 0 "	18 " 0 "
Pluck.....	4 " 8 "	8 " 8 "
Entrails	10 " 4 "	3 " 8 "
Blood.....	6 " 0 "	5 " 0 "

In the improvement of original breeds, the trade of ram-letting attained great prominence, and considerable sums were paid for their use, which Marshall also refers to in his *Rural Economy of the Midland Counties*, the cost of the hire of tups, according to his account, prior to 1780, being from one guinea to ten for the season, recording the same facts as those before-mentioned by Youatt, as to the rise in Bakewell's stock, the price increasing from 10 to 100

guineas; from 1780 to 1789 the prices rising so fast that 400 guineas were repeatedly given, several other breeders making from 500 to 1,000 guineas each.

An account is also given of the tup-masters of Leicestershire, in the *Leicester Report*, who formed themselves into a club, and bound themselves by certain rules and regulations which tended to keep up the value of the stock by which they profited so largely; breeders in various parts of the country imitating their example. And considering now the moderate rates that are paid for the hire of the best tups, it is often a matter of surprise how such large sums could ever have been realised; and this has been explained that it could only answer the purpose of speculators who counted upon the great profit to be obtained by letting their rams out, which was supported by the following calculation:—

If five persons have each twenty ewes good enough for ram-breeding, and pay 500 guineas for the hire of a tup, they have a good chance—reckoning twin lambs—of each rearing ten rams and ten ewes, or more, of a still higher blood. Now, supposing these ten ram-lambs, when shear-hogs, to be let out at twenty guineas each, upon the average, this would yield, upon the whole, 1,000 guineas, or cent. per cent. within two years; besides the future use of the rams, and the further improvement of the stock bred from the ewes. The preservation of the old breed of Lincoln sheep in its original form is now therefore seldom aimed at, and the bulk of the stock of what are now termed Lincolns, are merely the base or original of the old breed upon which has been grafted the new Leicester; for otherwise it would be manifestly a bad practice to overlook the improvement of stock that can be so easily effected by proper management.

9. **SOUTHDOWN SHEEP.**—This celebrated breed takes its name from the range of chalky hills in the county of Sussex, beginning at the east end and extending for sixty miles westward into Hampshire, which are termed the South Downs. This range is of an average breadth of about five miles, having a tract of arable land on either side, which is, cultivated by what are termed the Down farmers, the source of an abundant supply of artificial food for the sheep during the winter and spring months.

The natural pasturage of these hills is particularly well adapted for the feeding of sheep, being short and fine, while the elevation of the land and the dryness of the climate are peculiarly well-suited for keeping large numbers of sheep; and though there have not been, to our knowledge, any exact statistics of the numbers, Luccock, in his work *On Sheep*, estimated that not less than 864,000 were to be found on the Downs and the cultivated land of Sussex, and since that work was written the numbers have, doubtless, largely increased.

Of the early history, so to speak, of Southdown sheep, there does not appear to be any special or authentic records; but it has been surmised that the elder races, in common with most breeds of hill-sheep, had horns, a male lamb being occasionally seen with small horns; and it has been assumed that the original colour was mostly black, though few black Southdowns are now seen. In Young's *Annals of Agriculture*, Mr. Alfrey says that—

"He is convinced that were the Southdown breed to be left in a wild state, they would in a few years become entirely black; for there are, every year, notwithstanding all the care that can be taken to prevent it, great numbers of black and white lambs, some with large black spots, some half black, and some entirely black; having had twelve and fourteen of the latter in a year, though he never kept a black lamb or ewe."



SOUTHDOWN EWES.

By the painstaking care of one individual, Mr. John Ellman, of Glynde, near Lewes, in Sussex, the race of Southdowns was considerably improved. He describes the original breed as being formerly of small size, and far from possessing a good shape, being long and thin in the neck, high on the shoulders, low behind, high on the loins, down on the rump, the tail set on very low, almost perpendicularly from the hip-bones, sharp on the back, the ribs flat, not bowing, narrow in the fore-quarters, good in the leg, although having a large bone, the fleece being comparatively light, and not arriving at an age when they might be fattened advantageously till three years old.

Such was the original description of the Southdown stock, but under Ellman's care and attention they became so vastly improved as to be described by Arthur Young, in about the year 1794, as follows:—

"Mr. Ellman's flock of sheep, I must observe in this place, is unquestionably the first in the country; there is nothing that can be compared with it; the wool the finest, and the carcase the best proportioned; although I saw several of the noblest flocks afterwards, which I examined with a great degree of

attention; some few had very fine wool, which might be equal to his, but then the carcase was ill-shaped, and many had a good carcase with coarse wool; but this incomparable farmer has eminently united both these characteristics in his flock at Glynde. I affirm this with the greater degree of certainty since the eye of prejudice has been at work in this county to disparage and call in question the quality of his flock, merely because he has raised the merit of it by unremitting attention above the rest of the neighbouring farmers, and it now stands unrivalled."

The original efforts of Ellman were afterwards supplemented by the Duke of Richmond, Mr. Jonas Webb and others, and continued improvement of the herd carried on, the points in which they were deficient being supplied by careful crossing, so that they are now fully equal to any of the best breeds in the kingdom, attaining to maturity early, and having altered very much from their original description as described by Mr. Ellman, being smaller in the bone, possessing a greater aptitude to fatten, combined with a heavier carcase when fat, and yet being equally hardy.

Southdown sheep now come regularly round, fit for the butcher, at from fifteen months to two years old; the dead weight per quarter averaging 18 to 20 lbs., though in exceptional cases they weigh much heavier; from 12 to 14 lbs. being formerly usually considered a fair weight for a Down wether two years old.

This must be considered a great weight for a breed like the Southdown, which partakes of the nature of a race that feeds on mountainous districts with comparatively short herbage; while the weight of the fleece of the old Down has been nearly doubled, the meat always being held in the highest estimation, and often fetching from a halfpenny to a penny a pound more in the market than many other kinds.

When we speak of the Down sheep partaking somewhat of the nature of mountain sheep, it must be pointed out that there is a difference between what are termed the hill and the lowland grazing sheep. Originally the wool of the former weighed but 2 lbs. or so, latterly increased to $3\frac{1}{2}$ lbs.; and from 4 lbs. it has risen to 6 lbs. in the case of the latter.

In all the southern parts of the kingdom, the Southdown is found to answer remarkably well, and the race is pushing aside the sheep indigenous to other counties, the old Berkshire being now very rarely seen, while in Hampshire the old breed peculiar to that county is not often met with. Even Norfolk and Suffolk, which at one time boasted of breeds of special excellence when compared with some of the old, inferior breeds, have been crossed with Southdown and Leicester sheep; a cross between a Southdown and

almost every breed of middle-wool sheep being found to answer extremely well.

At one time the large, coarser black-faced sheep, often termed Southdowns, but technically known as West Country Downs, which were sent from Dorsetshire and Somersetshire, are being displaced by the pure Downs even in their native *habitat*.

Culley, in describing the Southdown sheep in 1807, remarks that: "These sheep stand higher behind than before, and the hind-quarters are generally heavier than the fore-quarters, which in Sussex (the district they are bred in) is esteemed a merit, as the butchers sell the former at fully one penny per lb. more than the latter—a singularity that we believe is peculiar to this district: for, in all the other markets we have seen, the hind-quarters, and particularly the legs, are sold for a halfpenny per lb. less than the fore-quarters. This breed of sheep being hardy and ready feeders, we hope the defect will be remedied in a few years, and other improvements made by the attention and exertion of enterprising breeders, particularly the ingenious Mr. Ellman, of Glynde, whose flock is already superior to most of his neighbours, both in carcase, quantity, and quality of wool."

It will be seen from this description that the fact of the hinder quarters being heavier than the fore-quarters is regarded as a defect, though legs of mutton fetch a penny *more*, instead of less, than shoulders in the London market. This, though doubtless in the eye of the breeder, in the general symmetry and *tout ensemble* of an animal, would be termed a *defect*, in the eye of the London butcher certainly would not stand for one.

10. WEIGHTS PER QUARTER OF DIFFERENT BREEDS.—

The following table will show at a glance about the average weight per quarter of the different breeds of sheep, which it must be understood are greatly exceeded at times in individual instances:—

	Dead weight of the flesh per quarter.		Dead weight of the flesh per quarter.
Pure Merino	18 to 20 lbs.	Shropshire Morf	9 to 13 lbs.
Leicester and Lincoln	24 to 32 "	Delamere Forest	8 to 10 "
Teeswater	26 to 36 "	Herdwick	9 to 12 "
South Down	18 to 22 "	Cheviot	12 to 18 "
Wilts	14 to 18 "	Scotch Heath	13 to 16 "
Dorset	16 to 20 "	Shetland	8 to 9 "
Portland	8 to 10 "	Welsh Mountain	9 to 11 "
Dartmoor	10 to 12 "	Irish (horned)	10 to 14 "
Cornish	12 to 15 "	Bampton Notts.....	22 to 28 "
Ryeland	13 to 16 "	South Ham	18 to 22 "
Dean Forest	12 to 14 "	Cotswold	26 to 34 "
Norfolk	14 to 18 "	Dishley	21 to 25 "
Cannock Heath	16 to 20 "	Irish (polled)	22 to 26 "



LEICESTER RAM,

CHAPTER II.

BREEDS AND VARIETIES OF SHEEP (*continued*).

The Dorset—House Lamb—The Ryeland—Cheviot Sheep—Black-faced or Heath breed of Sheep—The Romney Marsh Sheep—The Teeswater—The Herdwick—The Cotswold—The Bampton Long-wools—Irish Sheep—Welsh Sheep—Exmoor and Dartmoor Sheep—Orkney and Shetland Sheep.

11. **THE DORSET.**—The Dorset sheep are possessed of a peculiar distinction as respects their fecundity, being remarkable as good nurses, and for receiving the male much earlier in the season than any other race of English sheep, taking the ram in May and June, so that their lambs are dropped in October and November.

12. **HOUSE LAMB.**—This fact has caused them to be celebrated as "house lamb," which is sold as a delicacy in the London market about Christmas-time, and during the course of January, when it fetches a high price, some of the farmers who live in the counties abutting upon the metropolis purchasing ewes that are in lamb with the view of fattening the latter first, and the last afterwards; the earliest lambs, which are slaughtered just before Christmas, being most of them bred in the house with a good deal of attention and care, which all farmers are not willing to undertake.

The ewes selected by those who turn their attention to suckling lambs are chosen of large size, and preferred with white noses, anything like black on the nose being considered objectionable. The colour of the flesh of the lambs when butchered is another point of significant importance, as it considerably affects their value, and

therefore those that can be warranted to *die fair* always command the highest price. As this warranty could not be given when ewes are promiscuously bought at a fair, the breeders with whom the *sucklers*, as they are called, deal, are obliged to be careful in the selection of rams, so as to ensure white meat in the progeny; and this result, it is said, can be foretold by certain marks in the mouth.

This fact is remarked both in the *Middlesex* and *Hertfordshire Reports*, the former stating that "the sucklers, salesmen, and butchers of London are aware that such lambs as have sharp barbs on the inside of their lips, are certainly of a deep colour after being butchered, and all those whose *barbs are naturally blunt*, do as certainly produce fair meat; the issue of such rams can also be generally warranted fair." In the *Hertfordshire Report* the description is, *those with white barbs*.

The Dorset is generally considered one of the best of the short-woolled, horned breeds, and may be met with in their original purity in some parts of Dorsetshire; but it is customary to put the old ewes which are intended to be sold, to the Southdown ram, the lambs being found to thrive faster, and, being free from horns, and having dark faces, are on these accounts preferred.

Both ewes and rams have horns of small size, wearing a tuft of wool on the forehead, the face being long and broad, and, as well as the head, white. The hind-quarters are good, but the fore ones are somewhat deficient, the loin being broad and deep, which is generally regarded as being indicative of superior milking qualities. The bone is by no means large, though they stand high upon their limbs; but the wool is only of medium quality, and not over-abundant, weighing about 4 lbs. per fleece. They are excellent sheep for folding; contented upon a somewhat short allowance of food, being hardy and active, and capital travellers; amply evidenced by the fact that ewes in lamb are sometimes driven fifty, or even sixty miles to Weyhill fair, one of the largest sheep fairs in the kingdom, the journey occupying about a week, which they bear remarkably well.

13. **THE RYELAND.**—The Ryeland takes its name from a tract of sandy land in Herefordshire on the borders of Wales, which was once celebrated for its growth of rye—and hence the term "Ryeland"—where they have existed as a distinct breed for many centuries, being one of the most distinctive of the old upland races.

It is a small but compact animal, of symmetrical proportions, fattening readily; the fat itself accumulating internally more than

upon the external muscles; which is considered to make the best mutton. Both the rams and ewes are polled, the colour of the face, legs and fleece being white, and having a tuft of wool on the forehead. The limbs are short, the loin being very broad and full. At one time the wool of the Ryeland sheep fetched a high price, but, as before pointed out, the importation of colonial wool into England of late years has produced quite a revolution in the management of sheep, so far as their growth for the production of wool is concerned.

When this consideration was uppermost, it was thought that, by crossing them with the Spanish merino, the already fine quality of the fleece would become yet further improved; but experience proved these expectations to be ill-founded, and the Ryeland turned out to be less susceptible of improvement and amalgamation with different races than any other breed of English sheep.

The numbers of Ryeland sheep have been greatly diminished of late years; it having been estimated that Herefordshire alone contained half-a-million of short-woolled sheep in the year 1800, which produced 4,200 packs of wool, the weight of each fleece being but 2 lbs.

Although the Ryeland is a breed that is much liked by those who are used to them, many flockmasters have reluctantly given them up in favour of a more profitable race of animals.

14. **CHEVIOT SHEEP.**—The range of hills termed the Cheviots, which divide Northumberland from Scotland, are separated from one another by valleys, which, from time immemorial, have been celebrated for producing a breed of sheep comparatively large of carcase, and good yield of wool, combined with great hardiness, which causes them to be an extremely valuable breed for the district.

The face and legs are white, except in the case of a few examples, in which these are mottled grey, which denotes peculiar hardiness, the head being erect, long, and clean, with neck and throat covered with wool, but, in the pure breed, with no wool on the head. The hind-quarters are full and well-proportioned, with full rumps; but there is a tendency to lightness in the fore-quarters. The fleece generally weighs from three to four pounds, the pelt being thin, and uniformly covered with fine wool, and free from dead hairs.

From the proximity of this range of hills to the sea (though the term Cheviot, strictly speaking, only applies to the highest hill, which is over 2,600 feet high, and is surrounded by other hills of

lesser elevation) the loose snow in the winter season is often thawed to a considerable extent by the saline influence of the sea breezes. This thaw being frequently followed by frost, at times gives a surface of ice, which causes the sheep to obtain their food only with great difficulty, for patches of snow may be seen lying in the hollows up to midsummer. Owing, however, to the steep nature of the ground, the animals manage to scrape the obstacles away with their feet, and they are rarely fed with anything more than a little hay of a coarse kind, that is made in the district every year, the bulk of their food being derived from the pastures, which are steep, and hence dry; producing some excellent grasses, that are specially well suited for feeding sheep.

The character of Cheviot sheep has altered a good deal of late years, the attention of breeders having been effectually turned to its improvement; and many farmers of Northumberland have crossed them with Leicesters, fattening the breed so produced upon turnips and the richer pastures of their lowland farms.

In many cases the breed has been improved without the admixture of any foreign blood at all, by careful selection, and improvement of those qualities in which they were deficient—the Cheviot being naturally a good subject to work upon, the points, in all breeds, which constitute a good sheep being substantially the same. This course of procedure was found to answer better in the hilly districts than crossing with Leicester sheep, whose powers of assimilation, and adaptability to pastures situated in a high altitude, were at one time much over-rated—it being found that the coarse and scanty pasturage, in severe seasons, was inadequate to the support of such large-bodied sheep as the Leicesters and similar breeds. The lambs produced, as well, being unable to stand the effects of severe storms in elevated districts, the flocks suffered considerably in consequence.

Still, by a wise and judicious selection, in crossing a first-class Cheviot ewe with a ram that has a fair share of Leicester blood in him, originally descended from a cross between a Cheviot and a Leicester, a larger carcase has been obtained, with a quicker disposition to fatten, combined with the hardy properties of the pure Cheviot.

The geographical aspect of these mountain grazings has much to do with developing the physical, or bodily features of the race of animals placed upon them, which needs any alterations in their general characteristics to be made with skill and caution. And in

making changes, it is necessary not to have stock that will deteriorate when placed in its new quarters; there being many lofty grazings, which, though too high to support a Leicester sheep, would adequately maintain a larger animal than the pure Cheviot; and this has been obtained for suitable districts, as before stated, by crossing a Cheviot ewe with a Leicester ram. These, in some districts, have been found to answer so well, that some farmers keep what they call a pure half-bred stock—the produce of the first cross between the Leicester ram and Cheviot ewe; these unite the hardihood of one parent with the adaptability to fatten early of the other, and when at two years, are found to have attained great weights, comparatively.

The Cheviot sheep have been introduced into the Scottish Highlands, and have been found of great advantage to put upon the lower pastures, upon which the comparatively inferior heath-sheep were exclusively located at one time, which are contented, and thrive upon the barren heights of mountainous districts, where no other description of stock could be maintained, either successfully or profitably.

At times, however, sufficient judgment has not been used in thus making endeavours to secure a more profitable breed of animals, for some breeders, whose poor land is only calculated for the support of heath, or black-faced sheep, their pastures being stony and barren, have got in their place a breed of small unthrifty Cheviots, when the heath-sheep would have answered their purpose considerably better.

As the Cheviot breed very readily adapts itself to a great variety of climate, it has been a matter of surprise that in Ireland and Wales, where there are extensive mountainous districts, the Cheviot breed of sheep has not been more largely adopted than it has hitherto been.

15. BLACK-FACED, OR HEATH BREED OF SHEEP.—There have been many conjectures as to the origin of the Black-faced, or Heath breed of sheep, of the North of England and Highlands of Scotland. A dim tradition exists that they were brought from abroad by an early Scottish king; but it has been considered most likely that they originated in the mountainous districts of the northern counties of England, from whence they were introduced into Scotland at an early date, where they have gradually spread themselves, until they have become the prevailing breed in the Highlands, in many districts subsisting upon herbage of the poorest description, that would prove quite inadequate to the support of any other breed.

The wool of most descriptions of mountain sheep is short and fine, and thickly set, but the fleece of the black-faced sheep is long,

thin, and coarse, partaking of a hairy nature. A similar characteristic marks the alpaca, or bright-haired wool species, only the wool of the alpaca is of immeasurably superior quality. The wool of the heath breed is used in the manufacture of the most inferior and coarse fabrics, the poorer kinds of wool being sometimes sold at so low a rate as 4d. per lb.—the kind technically known as "laid"; white in the same ratio fetching 5½d. per lb.; but in all probability with greater care, and better housing and feeding, the quality of the wool of the black-faced sheep might be greatly improved; but, because the breed is a hardy one, they are left without those mitigating contrivances and appliances that might be furnished,



HEATH EWES.

being often left unprotected from the effects of the bitter weather, and prevailing snow-storms—the snow-drifts of winter, and the cold rains of spring and autumn.

Sheep-houses have certainly been tried, in some parts, and have been found not to answer, on account of the animals preferring to remain in them, and getting half-starved, rather than face the bitter blasts that sweep over some of these mountainous regions. Clumps of plantations might with advantage be adopted in many bare and exposed situations, that would break the force of the wind, and afford shelter; while it has been pointed out that stone stalls, of proper construction, might be placed in convenient situations, that would mitigate the evils referred to, though they would be inferior to plantations of Scotch firs, which would also bring in a profit to the planters.

Notwithstanding the comparative neglect with which they are often treated after the severest winters, when the lambing season comes round they are invariably found to be in better condition than any other breed of sheep that have to support life under similar circumstances; though, doubtless, if they were furnished with plenty of food at all times, and not allowed to shift so much for themselves, they would attain to greater weights on their native pastures.

In the pure breed, the carcass is long, round, and firm; the chest wide, with full ribs and shoulders, and robust limbs; the face and legs of the ram being black, or mottled; with a round tuft of softer wool between the horns, the muzzle and lips being of the same light shade of colour. The eye is lively and fiery, the ears moderately long, with horns springing easily from the head, and inclining downward and forward.

In the instance of the ewe, the horns are smaller, and not spirally twisted, as is the case with the ram. The lambs are dropped two or three days sooner than most breeds, and when born have horns from one to two inches long, covered thinly with hair; and, when intended to be kept as wedders, they are not castrated till they are eight or ten weeks old, in order that the horns may not turn in too suddenly, and injure their eyes. In districts that are not too much exposed, the ewes generally have their first lambs when two years old, but upon highly-situated farms, exposed to stormy weather, they are not allowed to have lambs till they are three years old. They are excellent nurses, and have, on this account, been made use of for rearing fat lambs upon arable farms, when, having fed their lambs, they are sold off.

16. **THE ROMNEY MARSH SHEEP.**—The Romney Marsh and its neighbouring low-lying districts abutting the southern shores of Kent and Sussex, have long been famous for a long-woolled breed of sheep, the fleece finding a ready sale in Canterbury market, the race being exceedingly well suited to the marsh land which lies exposed to the rough gales of the Channel. Crosses of the Leicester breed have also been largely used, which has improved their bodily shape, without to any known extent impairing their hardihood, the original breed being characterised by thickness, and length of head; long and thick neck and carcass; wide loin, large belly; narrow fore-quarter; large bone; long and coarse wool.

The ewes are not supplied with hay during the winter, and have in snowy weather to scrape the snow away with their feet; and,

during severe seasons, often become in very poor condition by lambing time, the number of lambs reared being generally estimated to be about the same as the number of ewes that are put to ram; for although a higher average than usual of twins is born, a good many lambs are lost every year.

The lambs are weaned the first and second week in August; and are then often put out to be kept on upland farms, till about the first week in April; when they are getting in readiness for the spring grass in the Weald and greater portion of the county of Kent. As Romney Marsh and adjoining marshes contain something like 80,000 acres, great numbers of sheep are reared and fattened annually, the general system of management that is pursued by graziers being



ROMNEY MARSH EWE.

to keep a portion of the land for breeding, and a portion for fattening stock. The breeding land is stocked with ewes in the autumn for the winter, at the rate of two and a half to three and a half, and sometimes as much as four sheep per acre; the rams being usually put to the ewes from the 12th to the 16th of November.

17. **THE TEESWATER.**—The old Teeswater was a large coarse-boned clumsy animal, with a wide back, and round barrel; a slow feeder and taking a long time to attain maturity, the wool being long and coarse, and thinly set; their *habitat* being the lowland districts on the borders of Durham and Yorkshire, their origin being, in all probability, the same as the old Lincoln, both of which breeds may now be said to have been improved away, the old-fashioned Lincoln sheep being now seldom met with, except occa-

sionally in the rich marshes near the sea; which, according to Parkinson, was capable of carrying four fatting sheep per acre in summer, and two in winter.

One great recommendation possessed by the Teeswater is its prolific nature, twins not only being usual, but cases happening of as many as four, and even five lambs being produced at a birth by one ewe.

The old Teeswater have, however, been merged to a great extent in the Leicester, the cross having quickened their feeding properties, but reduced their size, and improved their wool.

18. **THE HERDWICK.**—An interesting account is given of the origin of the breed known as the Herdwick, which are the most valuable kind of mountain sheep to be found in the county of Cumberland. They are said to have descended from a few Scottish sheep that were saved from a vessel that was wrecked off the coast of Cumberland, and are reputed to shelter themselves instinctively from an approaching storm, and are remarkable for their activity in scraping away the snow that covers their pasturage in winter, as well as being celebrated for their great hardiness.

19. **THE COTSWOLD.**—The Cotswold are found in a large part of Gloucestershire, Oxfordshire, Herefordshire, Worcestershire, and the lowland districts of South Wales; and are supposed to take their name from the cots, or sheds, in which they were fed in the winter; and from the wolds, or open hilly grounds on which they fed in summer; being a heavier sheep than the Leicesters, but more active, with greater powers of endurance in supporting both hunger and cold.

It is considered one of the oldest breeds in the kingdom, the price of the wool per lb. of the Cotswold sheep, being distinctly mentioned in the year 1341, when it was reckoned to be worth four shillings of our present money. A present of Cotswold rams was made by Henry IV. to Henry of Castile, in 1469, and with the view of improving the Spanish long-woolled breed, John of Aragon received a similar present in 1468.

They are a fine race of animals, with large frames, ribs well springing out from back and chine, full hind-quarters and good thighs, with full and prominent chests, but at times found somewhat defective in depth from chine to chest. Their wool does not rank so high in value as many others, which excel it in length and weight; but they are a fine class of animals, held by many highly in favour, under the common appellation of "Gloucester" sheep, being pe-

culiarly well fitted as stock for pastures that are exposed to cold and wet, and the damp mists that often overspread the Cotswold Hills. This breed has also received a considerable addition of Leicester blood, that is to say, the *new* Leicester blood; for, according to the description given by Marshall of the *old* Leicester, the portrait he draws is not at all an attractive one: describing them as having "a frame large and remarkably loose; his bone heavy, his legs long and thick, terminating in great splaw feet; his chine, as well as his rump, sharp as a hatchet; his skin rattling on his ribs, and his handle resembling that of a skeleton wrapped in parchment."

Such is the description of the old Leicester sheep, given by an accurate writer of the day, so far as agricultural knowledge then extended; the shortcomings of which, however, had nothing to do with mere description of an animal as it then existed. With these unpromising materials to work with, an opinion may be justly formed of the value of Bakewell's labours, which, supplemented by the further exertions of others, has placed the Leicester breed of sheep upon the eminent position it now occupies.

20. **THE BAMPTON LONG-WOOLS.**—This breed of sheep takes its name from a village called Bampton, situated between Somersetshire and Devonshire; standing on the borders of the two counties, where they were supposed to have been first bred. They are, however, now found on nearly all the lower and best pasture-lands of North Devon, extending to the Vale of Taunton, and far into Somersetshire. But these have also been very extensively crossed by the Leicestershire breed; and they now bear a very close affinity to it, furnishing another proof of how widely the influence of one man's exertions—or it may be described as the intelligent management of one man, who first began a series of improvements, which other men followed up—may be made to spread over a whole kingdom.

Unfortunately the memory of Bakewell is tainted by the systematic selfishness he practised; for it is well known he had upon his estate some water-meadows, which being flooded early in the season, so as to bring a fresh growth of grass in the autumn, he put his superfluous stock upon them. Their improvement at first was very rapid, but they soon became tainted by rot—his practised eye at once detecting its early symptoms. They were then sold off without delay, being thus made unfit for breeding purposes—the chief end he had in view. But these and similar tactics were not adopted by Ellman, the great improver of the Southdowns, who

was always happy to communicate his knowledge to others for their benefit.

21. **IRISH SHEEP.**—In Ireland there may be said to be two distinct breeds of sheep: a favourite breed of short-woolled sheep, that is commonly found in the county of Wicklow, and the original large Irish sheep, which, however, has become vastly improved of late years, and takes rank with some of the best English breeds.

The sheep of the Kerry and Wicklow hills possess distinctive features as a mountain breed, the Wicklow breed resembling Welsh sheep very much, with white faces and legs polled, and wild in their nature.

On the farms situated at the top of the mountains, or rather, perhaps, to which the top grazing grounds belong, on which the sheep are kept, they are of small size, increasing in bulk as they approach the base of the mountains. At their summits, the pasturage being scanty, and the ground generally very boggy, the sheep are often small, and the wool partakes of that hairy nature which has been described in the case of the black-faced sheep of the North of England, and Scotland—the fleece being less fine, and the hair showing itself in ridges about the spine and neck. This is a wise provision of Nature to counteract the evils of their position, which is also strikingly exemplified in the case of the lambs, which have a hairy covering on those parts of the frame which come in contact with the damp ground.

In Ireland, the Wicklow sheep, from the proximity of the district to Dublin, stands in much the same relationship as does the Dorset breed in England; the country farmers near the Irish metropolis buying up the ewes for the purpose of rearing house-lamb, contriving to have the lambs dropped in December, when they are allowed to remain with their mothers for about a fortnight, and are afterwards forced on by cow's milk, being crammed as much as possible, so as to be ready for the butcher at about six weeks old. The small size, however, of the Wicklow sheep is causing its numbers to be gradually lessened in favour of animals with larger frames, despite the good qualities it possesses.

The Kerry sheep are larger than the Wicklow breed, and may be regarded as the type of the natural mountain breeds of the West of Ireland, being larger also than the Welsh mountain sheep. They are wild and unthrifty, and take a long time to arrive at maturity; and are somewhat hard to fatten, which is generally the case with animals of a more than ordinarily lively nature; but when this has

been done, they are liked very much, the mutton being considered of superior quality, though they cannot be regarded as a profitable race of sheep.

They are liked by the butcher, as they cut up better than their outward appearance would appear to indicate, and they contain a large proportion of loose fat.

22. **WELSH SHEEP.**—Welsh sheep indigenous to the mountains of the Principality are of small size, both ewes and rams



WELSH SHEEP.

being horned, with black noses, long necks, and fore-quarter low in proportion to the hind-quarters, having flat ribs and narrow chests; the wool on the sides being short and fine, and a ridge of coarse hair, the same as described in the case of the Wicklow sheep, extending from the neck to the tail, the throat as well being hairy. The fleece is proportionately small in volume, weighing only from one to two pounds; while the colours vary in all the different degrees of shade from white to black.

The mutton is highly esteemed for its delicate flavour, which suits a fastidious appetite much better than the larger breeds of

sheep which abound in luscious fat; and considering the rarity of really good mutton being procurable—that is, mature mutton—which has before been described as not being at its best till five years old, Welsh mutton certainly forms a good substitute for first-class English mutton, which very few people taste now-a-days. As a rule, however, they are much neglected by London butchers, and are mostly sold by provision-dealers as an article of speciality in London, where the meat is procurable at very moderate rates, a venture generally being made in it when the season comes round for “hanging”—these remarks applying to the wilder race.

Another breed is the white-nosed, or soft-woolled; terms used to distinguish it from the former, which, although resembling the wilder race in restlessness of disposition, are different in other particulars, the females being rarely horned, though the males are so, the universal colour of the face and fleece being white; though there is a natural tendency to produce black rams, as if an old strain was continually asserting its presence. The largest sheep in the Principality are found in Anglesea, where there is better keep than on the Welsh hills, and the wool of the sheep in Wales is largely employed in making flannels, Newtown being the principal manufacturing centre. Welsh flannel is celebrated for its quality, which doubtless owes its excellence to the yolk, or grease, which the fleece of the Welsh sheep naturally possesses, which is found so efficacious in all cases of rheumatism.

As a rule, Welsh farming is much below the average, and there has not been that attention bestowed upon the matter which its importance deserves, with regard to the breeding of sheep.

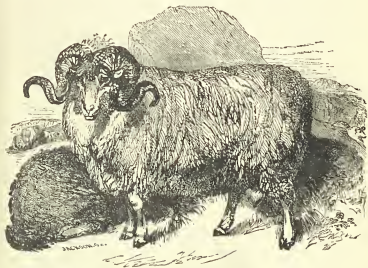
23. **EXMOOR AND DARTMOOR SHEEP.**—Exmoor and Dartmoor sheep, generally, are considered to be the representatives of the old forest breeds of English sheep.

At one time they were divided into distinct classes, but they are gradually disappearing, and making way for the more profitable races. Originally the denizens of forests, subsisting in the open glades, the true forest sheep were small in size, and defective in bodily form, as sheep now are looked upon with the breeder's eye; though admirably adapted by the Wise Creator to pick up their living where it was to be found, being naturally wild, restless, and difficult to fatten, partaking more in their nature of the wild beasts of the forest, perhaps, than of the usually regarded tame and domesticated sheep, accustomed to the voice of the shepherd.

The faces and legs of the old forest sheep were of a russet brown,

dun, or grey colour, though sometimes white, both ewes and rams being horned, and the fleece small in weight, often not exceeding two pounds.

24. **ORKNEY AND SHETLAND SHEEP.**—The sheep of the Orkney and Shetland islands are extremely hardy, and somewhat peculiar in their general characteristics, the fleece varying very much in colour, some being white or black, while others are pied or grey, the latter being much esteemed for making Shetland shawls,



EXMOOR RAM.

veils, and hosiery. An outer coat of hair, called by the natives of the islands "scudda," grows through the wool, which is not shorn, as is the case with other sheep, but is pulled off by the hand at the proper time; for if left to itself it becomes detached at the beginning of summer, and falls off, leaving the hair before described as a covering.

This hair throws off the wet, and is a good defence against cold, the wool yielded by each sheep weighing about a pound and a half to two pounds, when thus obtained, but is found to be deficient of the felting properties which mark other kinds of wool.

They are hardy animals, capable of enduring severe weather, and of sustaining hunger ; and it is said of them that, during the winter months, they subsist to a very great extent upon *sea-weed*, possessing the remarkable instinct of distinguishing between the ebbing and flowing of the tide ; upon its first ebbing, being seen to run down from the hills to the sea-shore in order to obtain it.

They are of small size, and vary considerably in weight, being generally polled, though many have small horns which are not spiral, but resemble those of the goat, more than the ordinary sheep. The tail is short and unusually broad, which is a distinguishing trait of the Scandinavian races, and they are altogether a hardy breed, capable of enduring the furious storms which rage at times in these northern islands.

The breeds of sheep we have named, embrace all the varieties that it is necessary to refer to, for any practical purpose, including as it does a list of all the best ones that are suitable for every possible situation and soil, from the barren heights of mountainous districts, to the rich grazings of lowland pastures, and marsh land. In each particular district there will be found breeds more in favour than others, which thus become, as it were, peculiar to every county, though, as will have been seen, the original breeds have often been displaced by more profitable stock, in many instances obtained by judicious crossing.





SOUTHDOWN RAM.

CHAPTER III.

PRELIMINARY MANAGEMENT.

How to Judge of Sheep—Uses of the Sheep—As Food—Wool—Preliminary Management of Sheep—Descriptive Names of Sheep at Different Ages—For ascertaining the Age of Sheep—Clay-land Farmers, and Turnip Husbandry.

25. **HOW TO JUDGE OF SHEEP.**—The reader will perceive, from what has been pointed out before, that the breeder, or grazier, should carefully acquaint himself with the nature of his land, and the resources at his command for feeding his animals, and then adopt the most likely breed of sheep that he considers best suited to his own particular circumstances and condition; but one salient point should always be held in remembrance—that no stock will succeed that is brought from a rich soil to an inferior one, for if so, they will inevitably decrease in value and condition; but the reverse will be the case if they come from off poorer land, when they will soon get in thriving order.

This principle is very apparent in the case of the small Scotch beasts and Highland cattle that are frequently bought to eat up the grass in gentlemen's parks. This, often somewhat poor in quality, though plentiful, sufficiently sustains the hardy race of animals that are put upon it, and they will get fat, when some of the large heavy breeds of cattle would be half-starved, and sensibly go back in condition; the feed, such as it is, being better than the coarse and scanty herbage to which the first are naturally accustomed; and the same applies equally to sheep.

Upon the quality of the food depends a good deal the forward or backward condition of the flock with respect to breeding, ewes

generally breeding at the age of fifteen or eighteen months, though many graziers will not admit the ram until they have attained two years of age. In judging of sheep, there are various points which recommend themselves to the breeders', or stock-keepers' attention; the choice of a ram having been aptly described by Culley as follows, a description that has often been quoted:—

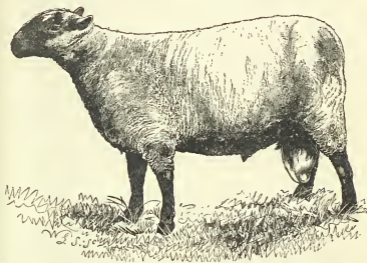
"His head should be fine and small; his nostrils wide and expanded; his eyes prominent, and rather bold and daring; ears thin; his collar fuller from his breast and shoulders, but tapering gradually all the way to where the neck and head join, which should be very fine and graceful, being perfectly free from any coarse leather hanging down; the shoulders broad and full, which must at the same time join so easy to the collar forward and chine backward, as to leave not the least hollow in either place; the mutton upon his arm, or fore-thigh, must come quite to the knee; his legs upright, with a clean, fine bone, being equally clear from superfluous skin and coarse, hairy wool, from the knee and hough downwards; the breast broad and well forward, which will keep his fore-legs at a proper wideness; his girth, or chest, full and deep, and instead of a hollow behind the shoulders, that part, by some called the fore-flank, should be quite full; the back and loins broad, flat, and straight, from which the ribs must rise with a fine circular arch; his belly straight; the quarters long and full, with the mutton quite down to the hough, which should neither stand in nor out; his *twist* (i.e., the junction of the inside of the thighs), deep, wide, and full; which, with the broad breast, will keep his four legs open and upright; the whole body covered with a thin pelt, and that with fine, bright, soft wool."

This description by Mr. Culley fully describes excellence of form in the ram; and the ewe requires also to be chosen with due discrimination when bought or selected for breeding purposes; a main point being that she is perfectly sound, as a matter of course, and this is indicated by the teeth being white, the gums red, the breath sweet and not fetid, the eyes lively, the feet cool, and the wool firm. These qualities, or the absence of them, will pretty clearly indicate health or incipient disease. In crossing sheep of different breeds, the general result that is aimed at must often of necessity differ a good deal, but there is a saying recorded of Sir John Sinclair, that a sheep would be brought to perfection were it possible to unite in the same animal the fleece of the Spanish merino, the carcase of the Bakewell, and the constitution of the Southdown. Experience has, however, shown that it is quite possible to breed for any particular quality that may be considered most desirable, and by proper care and attention in this way the owner of stock may supplement points in which his flock may be naturally deficient to a very material extent.

26. **USES OF THE SHEEP.**—As before remarked, the two main points to be considered in relation to the profit to be obtained from keeping sheep are the wool and mutton.

27. **AS FOOD.**—As food, the peculiarities of each leading breed as concerns the production of mutton, has been described; but this of late years has become of infinitely more importance than the growth of wool in England. Though the latter forms no inconsiderable portion of a farmer's profits, yet it has become a secondary consideration from the state or condition of affairs that now prevails, though it was not always so.

28. **WOOL.**—The wonderful impetus given to sheep-farming in



SHEARLING HAMPSHIRE DOWN RAM.

Australia, New Zealand, the Cape, and our other colonial possessions, has produced a thorough revolution in the comparative value of English wool for manufacturing purposes, which has caused the finest woolled sheep of the United Kingdom to be of far less account than formerly, in the production of wool.

Before this time, wool used to form one of the most profitable items in the returns from the flock, but now British wool is no longer sought for in the production of fine woollen fabrics, for which colonial wool is now employed, and its relative value has sunk greatly.

To make amends for this, however, an increasing meat-eating population at home has considerably enhanced the value of the carcase, and a ready disposition to fatten, and attain early maturity, is a more important consideration now-a-days than the production of wool.

At one time, next to the wool obtained from Spain, the British short-woolled sheep supplied the best quality in Europe; the chief breeds from which it was obtained being the Wiltshire, Southdown, Ryeland, Dean-Forest, Mendip, Shropshire-Morf, and Shetland fleeces; some of these breeds having been crossed by the Spanish merino sheep, in the hope that it would turn out advantageously. But these expectations were not realised, the carcase of the merino sheep proving unprofitable, while they turned out bad nurses, and had fewer lambs than the old breeds of English sheep, but even then the influence of the growth of the German wool trades began to be felt, and according to the evidence brought before the Lords' Committee of Inquiry upon the subject in 1828, it went to prove that the wool of Saxony and Bohemia had entirely superseded the English short wool in our manufacture of fine cloth. The grower was however recompensed by an increased quantity of coarser wool under the new tactics pursued; and a larger carcase obtained, which could be sold profitably.

Although the introduction of the Spanish merino sheep into England must be looked upon as a failure upon the whole, it was not so in Germany, the Elector Augustus Frederick in 1765 having procured 300 rams and ewes from Spain, and in 1778 imported 400 more of the best breeds he could get from the same country.

His example was also followed by other European sovereigns, and amongst others George III., who has been styled the "farmer king," application having been made to the Crown of Spain, and at the beginning of the present century, and conclusion of the last, large numbers of the most celebrated Spanish breeds were brought to England, which were distributed over various parts of the country, and put into the hands of the most enlightened agriculturists.

The attempt, although it succeeded in Germany, failed in England, owing to the superior value obtainable for a good carcase, which made this point of prominent importance; while on the Continent, its value did not rank so highly, the wool being the chief consideration; and with the advent of colonial wool in the market, the day was over for English wool to take the highest rank, and the improvement of the fleeces had to be abandoned in favour of that of the carcase.

The narration of these attempts at improvement through crossing the native breed of sheep with Spanish merinos have caused many facts to be recorded, which, though plainly evident in themselves, are often overlooked; such as the account given by Dr. Parry, of Bath, of the progressive amelioration of wool by the Spanish cross, but which relates to every quality alike, who says: "The first cross of a new breed gives to the lamb half of the ram's blood, or 50 per cent.; the second 75 per cent.; the third 87 per cent., and the fourth 93½ per cent.; at which period it is said, that if the ewes have been judiciously selected,

the difference of wool between the original stock and the mixed breed is scarcely to be discerned by the most able practitioners."

Fink also points to similar conclusions in his *Treatise on the Rearing of Sheep in Germany, and the Improvement of Coarse Wool*, the following rules being promulgated:—

"To select at the commencement of the undertaking, the finest woolled rams and ewes that can be obtained for the first generation; for if those for the second race be finer than those used for the first, time will have been lost in effecting the proposed improvement.

"In like manner, to employ rams for the subsequent breeds quite equal to those for the first, or otherwise the intended improvement will be retarded.

"If an unimproved ewe be tupped by a ram of a mixed breed, and which has only one-fourth pure blood in him, the offspring will only have one-eighth of that race; and, by continuing to propagate in that manner, a complete separation of the two breeds will be at length effected."

29. PRELIMINARY MANAGEMENT OF SHEEP.—The preliminary step in stocking a farm with sheep is to obtain a breed which will thrive well upon the pasturage and soil whereon they are to be placed; the best results being obtained by producing sheep really good of their kind whatever that may be.

By careful selection in breeding, the sheep-farmer can develop the qualities he wishes to see in his flock, by choosing those animals conspicuous for robustness of constitution, rapid and large growth of fleece and carcase, symmetry of form, fecundity, and aptitude to fatten.

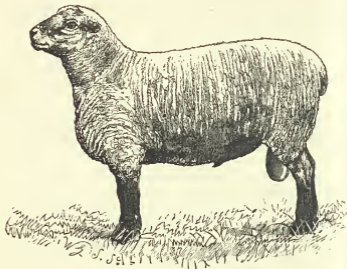
In every flock there will be found individual specimens which possess these desirable traits above the others; and in these the skilful breeder must find his materials for the gradual improvement of his entire stock; but unfortunately from the slovenly practice that very often prevails, matters are frequently left to chance which should have been directed by skilful observation and with a definite purpose in view.

When an alteration in the characteristics of a flock of sheep is sought to be brought about in making a change of blood, it is very necessary to make a right selection, and a few preparatory trials ought not to be begrudged upon an affair of such importance.

As a general rule, the most vigorous offspring is obtained by using shearling rams, and not allowing them to serve more than thirty ewes, the age and condition of the latter having much to do with the number of lambs dropped, and their vigorous condition.

Ewes generally produce their first lambs at two years old—though, as stated before, sometimes earlier—it not being thought expedient to allow them to breed before this time, nor after their fifth year, the frame of a yearling ewe being too immature to allow of her being a good mother, and of bringing up her progeny properly

without permanent injury to her constitution. But even the stamina of ewes is much influenced by their method of living, and those of the hardier races that have been exclusively fed upon grass and hay, retain their teeth, and continue vigorous for two or three years longer than the heavier breeds that have been fostered upon a more artificial system of living, and have been partly fed upon turnips; and these may, in the ordinary current of affairs, be kept longer than the others for breeding purposes.



SHEARLING OXFORD DOWN.

30. DESCRIPTIVE NAMES OF SHEEP AT DIFFERENT AGES.—Sheep bear different names at different periods of their lives, which it may be as well to mention here. From the time of weaning to the first shearing, the males are called hogs, hoggets, or hoggerels; after which they are termed shearing, shearling, shear-hog, or diamond-tups, or rams. After this they are termed two, three, or four-shear, according to the number of times they have undergone the shearing operation.

The castrated males, from the time of weaning to that of shearing, are termed wether, or wedder-hogs, then shearlings or shearings;

and after they have been shorn a second time, they are either called young wethers, or two-shear wethers; then three, four, or five-shear wethers, according to the number of shearings they have had.

The females are described as follows, at the different stages of their existence. From the time of weaning to the first shearing, they are termed ewe, or gimmer hogs; after then they take the name of gimmers or theaves, which designation is applicable to them only one year; after which time they are styled two, three, or four-shear ewes, and when they become aged are termed *crones*.

31. **FOR ASCERTAINING THE AGE OF SHEEP.**—In buying sheep when there may be some doubt as to their ages, it should be remarked that sheep generally renew their first two teeth when they are from fourteen to sixteen months old, and afterwards every year about the same time until they have passed their third year, or have become what is technically known as three-shear, and full-mouthed. Still there is some doubt upon this point, for though they have eight teeth in the under jaw, it has been surmised by some that they only cast, or renew six inside ones, while others maintain that the whole eight fore-teeth are renewed.

The successful breeding of sheep must a good deal depend upon the quality of the pasture intended for their reception, and in old times this was considered the principal feature in connection with sheep-farming. The larger breeds are best calculated, as a matter of course, for the richest and most luxurious grass, which is to be found in the lowland grazing grounds; the smaller breeds being adapted for the less fertile or mountainous districts, where only the natural food for sheep, in the shape of grass, was to be depended upon. But through skilful modern routine, the ordinary condition of affairs can be very much modified in practice through means of giving artificial food, which indeed can be carried to much greater lengths than is commonly done, though adopted, and taken full advantage of by some enlightened farmers.

Of late years a great outcry has been raised as to the unremunerative character of farming, but it becomes a very pertinent question whether farmers fully understand all the best methods of taking advantage of the opportunities of keeping an increased amount of live-stock upon their farms.

32. **CLAY-LAND FARMERS AND TURNIP HUSBANDRY.**—Of late years it has been shown that clay-land farmers often labour under a great disadvantage, because they cannot, as it is generally supposed, avail themselves of the enormous advantages to be

derived from keeping a number of sheep on the land, because it will not grow turnips; and they cannot possess themselves of those improvements which result from the system known as the method of "turnip-husbandry."

But if stiff clay-land will not grow turnips, it will produce in abundance mangolds, cabbages, tares, and clover, and those crops eaten by sheep in yards, can be made to give a most satisfactory return both in mutton and manure.

The sheep by this method should go into yards about October, having sheds, the floors of which may be covered with burnt soil, which a few cwts. of coal will do as often as necessary when wanted to be renewed. A large amount of valuable manure will thus be accumulated, especially adapted for a cold clay-land, by the time spring comes round; and when straw is used, enough should be thrown down each day only in sufficient quantities to keep them clean, and the sheep will compress it by treading upon it, and fermentation thus be prevented; while if their feet be pared every six weeks they will not become lame.





ROMNEY MARSH RAM.

CHAPTER IV.

GENERAL MANAGEMENT.

General Management—Feeding—Summer Feeding—Folding—Winter Feeding—Turning Sheep into Pastures and Water Meadows—Pasturing Horses with Sheep—Liability to Rot—Uplands—Lowlands—Sheepcotes—Stells—Movable Folds—The Shepherd—The Shepherd's Dog—Statistics Relating to Sheep in the United Kingdom.

33. **GENERAL MANAGEMENT.**—The main thing in the profitable management of sheep is to keep them in such a manner as their rapid, uninterrupted progress may be ensured. Time is lost and food wasted when, from some cause or another, the progress of a flock is arrested; and this may be brought about, and often is, by unsuitable food and needless disturbance, as well as by the effects of unpropitious weather, as continued rainfall or severe snowstorms. Unremitting care and attention is always required for changing the green crops of a farm into so much good mutton and wool, but when this is well done, sheep-farming is a very profitable and an agreeable branch of husbandry.

In very inclement seasons, and especially upon clay soils, there is a great advantage to be obtained by feeding them in sheds that are well ventilated, but it has been observed that they make greater progress, in proportion, during the first six or eight weeks of their being brought under cover, than when they are thus kept for longer periods; and this circumstance indicates that this course is best to resort to in the case of sheep that are nearly ready for the market.

Cleanliness is very essential, if sheep are expected to thrive,

and upon the system of *cotting*, the floors of the sheds should be covered with chalk well beaten in, if it is handy and easily procurable—laid upon a slight declivity, so that the urine may run off, and be saved by proper contrivances, made for the purpose, or burnt clay as before suggested.

34. **FEEDING.**—The system of feeding sheep upon turnips which now so largely prevails, is followed after several methods; one plan being to divide the land by hurdles, which will enclose as many sheep as they can clear in one day, advancing progressively until the whole field is cleared off.

Sometimes sheep are promiscuously turned into a turnip-field, and allowed to help themselves at will; but this plan will be seen to be wasteful, as a good many of the bulbs must inevitably be trodden underfoot, and spoiled a good deal by the excrement that is dropped.

Another method, which is generally considered the best, is to pull up as many turnips as the sheep can consume in one day, when they are admitted into the different enclosures; by which means the land becomes manured without the expense of having the manure carted thither.

Bakewell was averse to the system of folding sheep, considering that one part of a farm was enriched by this method, at the expense of the other. But it need not be pointed out that other kinds of manure can be resorted to for the portions upon which the sheep are not placed. His idea was, that where a large number of sheep are kept together, the strongest will always consume the best food, which ought to be appropriated by the least hardy.

35. **SUMMER FEEDING.**—On fallow land, in the spring months, after corn crops before turnips, sheep are sometimes folded; and when fed in summer upon artificial grasses, it has been found a good plan to take the sheep off their feed to lodge for the night elsewhere, to prevent the waste and injury to the food that would otherwise take place when they are left entirely upon it, and better still, to drive them off immediately after feeding, and so prevent them from lying down and spoiling a good deal of it.

As the digestive organs of the sheep are adapted for the consumption of comparatively dry and innutritious herbage, artificial grasses may be largely and profitably supplemented by the use of chaffed straw, which is often too much overlooked by farmers, whose profits might be largely increased by a more careful study of many economical contrivances that could be adopted in feeding stock.

Dry food is of the greatest possible service to sheep, both in winter and summer, and is frequently the means of preventing attacks of looseness of the bowels, occasioning the food to remain a longer time in the stomach, by which a larger amount of nourishment is obtained, and the risk of "hoving" is prevented, which is likely to be of common occurrence when the food is very succulent.

Intelligent farmers have found that, by using a large quantity of chaff for sheep, and folding all the roots on the land, that one-and-a-half sheep per acre can be kept against one sheep when chaff was not resorted to.

Of course little need be said when there is abundance of good natural pasture for the feed of sheep during the summer-time, but it is when the inclement season of winter sets in, and there are no natural grasses, that the art of the feeder is most called into account.

36. **FOLDING.**—The advantages and disadvantages of folding have often been canvassed, the practice being contended by some to be prejudicial to the animal at certain times, although advantageous to the land; while it is shown by others they could not profitably carry on the cultivation of their arable land without folding; the fact being that the circumstances of individual flock-masters vary very much.

In the *Survey of Somersetshire* the question is fairly put in the words of Mr. Billingshy, as follows: "In a rich fertile county where the quantity of arable land is small, and in mere subserviency to the grazing system, where dung is plenty, and can be put in the corn-land at a small expense, and where each sheep is highly fed, it is not to be wondered that the folding system should be held in derision and contempt; but I will be hold enough to repeat, that in a poor, exposed, and extensive corn-farm, the soil of which is light and stony, it is the *sine quâ non* of good husbandry. Let me ask its opponents whether the downs of Wilts and Dorset would wave with luxuriant corn if folding were abolished? No. The farmer would plough and sow to little purpose were his fallows to remain untrod with the feet, and unmanured by the dung and perspiration of these useful animals. Besides, in the hot summer months nothing is so grateful to the flock itself as fresh ploughed ground; and sheep will, of their own accord, retire to it when their hunger is satisfied."

In Norfolk the oily matter contained in the fleece of sheep, which is communicated by their bodies to the land, and which is styled the "teathe," is much valued; and the general custom which now prevails in this respect, pretty well speaks as to the advantages realised by folding, more sheep being now supported upon arable than upon grass land.

When the land is wet, and turnips must necessarily be carted off, or on small farms where the flocks are too small to employ the

services of a shepherd, it is a good plan to establish a standing fold in some dry, convenient spot, which would be found handiest when immediately adjoining the farm-buildings, which would thus afford a considerable amount of shelter in inclement seasons, and a large quantity of valuable food would be made, that could be transported to any part of the farm where it was most needed.



SHEARLING SHROPSHIRE.

37. WINTER FEEDING.—When sheep are fed upon turnips, it will be found desirable to use straw chaff, or some other dry food, as pea-haulm, of which they are uncommonly fond, to prevent looseness, or hoving. This latter sometimes occurs when the tops are very succulent, by which sheep are occasionally lost, and the straw-chaff counteracts the watery nature of the turnips. Straw-chaff also enables mangold-wurzel to be used at all seasons of the year, it not being considered desirable to use mangold alone during the winter months.

It has been found of great advantage to sheep to supplement

the bulk of their ordinary green food, or roots, with a small portion of bran, linseed-cake, or grain, which is found to promote the health of the flock, and to gradually bring them into a condition that will facilitate and further the fattening process.

Protection from the extremes of either heat or cold is also very desirable in the management of sheep. Trees certainly form an agreeable shade in summer, while they break the force of, and temper the winds in winter; but if the sheep seek shelter from the hot sun beneath them in summer-time, so do the flies also, from whose attacks the sheep suffer dreadfully at times; and a close thorn hedge, or a stone wall, in stony districts, affords as much protection as is necessary for a breeding flock. Where neither of these are to be had, recourse can always be made to hurdles thatched with straw; and an open fold, affording a rough shelter, can always be extemporised by erecting a double row of hurdles, and stuffing straw in between the interstices. Hurdles cleverly handled in this way may be made very subservient to the comfort of sheep during winter-time, as they can be lifted, and moved away when not wanted—a protection against cold winds and drifting rain being chiefly needed, which these are well capable of affording; the thick, woolly covering with which nature endows the sheep being a tolerably efficient protection against merely a cold atmosphere.

38. **TURNING SHEEP INTO PASTURES AND WATER MEADOWS.**—The month of May is considered the best time for turning sheep into summer pastures; the number of animals to be placed therein to be regulated according to the richness or poor-ness of the grass, for if too many are put upon pastures of insufficient quality to support the animals in a thriving and progressive condition, and they go back, it is difficult to pull them up again; and it is advisable rather to understock, on this account, than overstock.

At the same time, it must not be overlooked that the system of close-feeding is an advantageous one, for the plants being prevented from running up to seed, are preserved longer in the leaf; and will thus give a greater supply of food; while the coarse and unprofitable grasses are kept cropped down, and become more sweet and useful, chiming in with the rest of the feed.

The fine grasses that are produced on down-land are the best that can be furnished to sheep; but as these are not always to be had, and low-lying meadows have to be dealt with, sheep should be kept

away from all grass that is subject to inundations, or otherwise they may become subject to rot.

39. **PASTURING HORSES WITH SHEEP.**—In damp situations, where coarse herbage springs up readily, it has been found a bad practice to pasture horses in the same field with sheep, on account of the tufts of long rank grass that spring up after the droppings of horses; unless the grass is allowed to be exposed first to a few nights' frost, after which the sheep may be admitted into the field. It is also, for the same reason, not advisable to allow sheep to eat the shoots which spring up from the shed grain amongst the stubble after harvest. They frequently, in fallow-land, draw up the plants by the roots, which they eat with the dirt adhering to them; and when there is an insufficient supply of food of a proper description, they consume the lesser spearwort and the marsh pennywort, which spring up in moist situations.

40. **LIABILITY TO ROT.**—When sheep are turned into water meadows, or any other place where there may be a danger of their being subject to rot, they should be first fed with some dry food, as straw-chaff, or hay; and then, when the heavy dews have been evaporated by the rays of the sun, gently drive them round the field for some time before suffering them to feed.

When dry food is given, pure water also should be supplied, especially in the height of summer, when the heat is intense, and the grass very dry and destitute of succulence.

We could considerably enlarge upon this subject, but our space will not allow us to give more than the general outlines of the salient points to be observed in feeding sheep—a practice which admits of so many variations, each of which must in a measure depend upon the class of land at the disposal of the sheep-farmer; but in stocking a farm with sheep, care should be taken to know precisely what its exact capabilities are, the pasturage and soils being so highly diversified in various parts of the country.

41. **UPLANDS.**—Naturally the short-woolled races of sheep are best adapted for upland and hilly pastures, but it has been found extremely desirable to couple short-woolled ewes with Leicester, or long-woolled rams; by which a double advantage is secured. The sheep raised from these crosses, when equally well fed, attain to nearly the size of the pure lowland breeds; while the ewes being more hardy and prolific, and also better nurses than lowland ewes, a union of good points is thus effected; and the hill sheep-farmer is enabled to bring to market a higher class of animal than he

otherwise would have been enabled to do, and such sheep when sold to be placed upon pastures of a lower altitude invariably do well. Southdown ewes, crossed by a long-woolled ram, form a very favourite blending of characteristics with most English flockmasters. In the mountainous districts of the north of England and Scotland, Cheviot ewes, or Black-faced ewes of the Heath breed, crossed by a Leicester ram, are generally found very suitable in those situations where an improved breed may safely be reared, and there is something else to depend upon than merely scanty and coarse herbage, fit only for Heath sheep.

42. **LOWLANDS.**—In the lower and good pastures of some counties, the Romney Marsh, the Bampton, and other long-woolled breeds will be found to answer well, as the amount of natural feed to be found in such situations is more abundant; and this can be supplemented to an almost unlimited extent by the artificial grasses, pulped roots and straw-chaff, cabbages, &c. A Bampton crossed by a Leicester is a good breed for rich lands on a low level, being found suitable and profitable, the animals being ready for the butcher at twenty months old, and weighing 20 lbs., or more, per quarter.

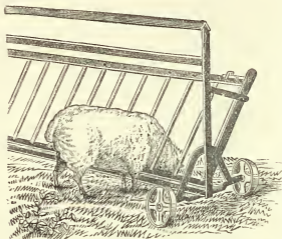
43. **SHEEPCOTES.**—Sheepcotes, to afford warmth and protection to sheep, may be easily and cheaply constructed by those who like them (many considering them objectionable), by planting rough posts in the ground, and filling up the spaces with furze, and putting on a rough roof, and thatching it with the same material, or straw; and rough racks to hold the fodder may be easily constructed, and the whole managed for a comparatively trifling outlay. The floor should be laid with gravel, burnt clay, or rubble, rammed down hard, so as to cause it to always remain dry.

At lambing time these cotes are unquestionably of service; but, as before remarked in another place, they sometimes cause sheep to be attracted to them, and cause them to remain under cover, instead of being abroad, seeking their living.

44. **STELLS.**—In mountainous and bleak districts, flockmasters erect open folds, which are termed "stells," as a protection against the inclemency of the weather. The shape of the stells is a very material point—being either of the form of the letter T, H, or S; the object being to guard against the wind, from whatever quarter it might blow, the circular shape being found very useful in situations where the snow is apt to drift. The wind whirls constantly round it during a violent storm, and so prevents the snow

from lodging within the fence; the snow-drifts in some exposed districts overpowering the animals, which are often buried beneath them.

45. **MOVABLE FOLDS.**—The advantage in using movable folds consists in the fact, that land can be regularly manured without any expense beyond shifting the hurdles. Being, however, mostly pitched upon arable land, the dirt and wet are sometimes



SHEEP FOLDING HURDLE.

This Illustration, and that on page 69, are kindly lent us by Messrs. Bayliss, Jones, and Bayliss, of Wolverhampton.

injurious to the wool of the sheep; and if placed at too great a distance from the pastures, sometimes the labour of travelling backwards and forwards prevents the sheep from fattening.

The standing-fold is an excellent plan where the land is wet, as before described, though the land is deprived of the supposed advantages resulting from the teathe, and there is the expense of removing the manure, while the stells are only applicable and necessary in those districts exposed to the ravages of mountain snow-storms.

46. **THE SHEPHERD.**—The shepherd should be an experienced man, competent to administer any of the surgical remedies for the

mitigation of diseases that are usually attendant upon a flock; and the best shepherds are those who have commenced their duties early in life, who, from long experience and observation, have acquired the necessary knowledge demanded in the care of sheep, and are at the same time active, careful, and good-tempered in herding them, and in working amongst their charges. A good-tempered man, aided by a close-mouthed dog, will do his work in half the time that it takes a passionate man to effect it; the property under his care demanding constant and unswerving attention.

A good man solely employed in shepherding, it has been considered, can manage and keep in good order during the summer months, and under common grazing in grass pastures or clover, a flock of 800 sheep.

In the winter, however, he could only manage 500 with difficulty, 400 being enough if they were fed upon turnip-keeping, a good deal of labour being incurred in moving the hurdles, and dragging up the turnip-hulls from the ground.

47. **THE SHEPHERD'S DOG.**—The intelligent animals that are trained to assist the shepherd, perform a very important part in the care of the flock, and spare the shepherd's legs, in keeping the sheep together, and preventing them from straying. There are ordinarily two recognised species of animals employed as sheep-dogs, though cross-bred dogs are common enough—the kind usually met with in England, and the shag-haired "collie." These are, however, excelled by the Spanish sheep-dogs, which never bite the sheep, as English and Scotch dogs do, but are so gentle with them that, when danger threatens, instead of shunning them, the sheep will gather round them for protection.

In Spain, and on many parts of the Continent, it is noticeable how little *driving* is necessary—the sheep *following* the shepherd, and not being driven with the violence that unfortunately may often be seen displayed in this country, and the barking and yelling resorted to by man and dog conjointly.

48. **STATISTICS RELATING TO SHEEP IN THE UNITED KINGDOM.**—The agricultural returns which are issued every year by the English Government, furnish a statistical account of the number of sheep in Great Britain, and the relative position of this important branch of agricultural enterprise.

The number of sheep recorded by these returns for the year 1879, shows a small increase over 1878, but not enough to counterbalance the falling-off in lambs, amounting to 366,000 in Great Britain.

With few exceptions, the report of the lambing season of 1878 was very unfavourable; and in Scotland, the severity of the weather during the winter and spring, caused a diminution of sheep as well.

The number of sheep and lambs in Great Britain during the year 1879, is set down as being much the same as in that of 1877—namely, 28,157,000, as against 28,161,000; and the numbers have been less only in two years since 1867—namely, in 1871 and 1872. In Ireland, the returns of cattle show a small increase, and of sheep a small decrease; cattle numbering 4,067,000, and sheep 4,017,000, which strikingly illustrates the relatively greater number of cattle over sheep that are kept in Ireland.

Accounts have also been furnished from Australia, including New Zealand, of the numbers of live stock; by which it appears that there are more than a million horses in Australia, which is a very large number in comparison with the population. The number of horned cattle was more than seven millions and a quarter, and of sheep about 61,000,000. The numbers of both cattle and sheep were much diminished through the drought of 1877-78; but in most of the colonies, at the time this report was issued, the losses had been repaired, though in Victoria and in Queensland the number of sheep showed a still further falling-off, owing, it is stated as regards the latter, to the drought of the past season. The decrease in the sheep in Queensland has, however, been continuous since 1868, up to the time the report above spoken of refers to, numbering nearly nine millions in 1868, compared with five-and-a-half millions in 1879.



FAT TAILED SHEEP.



HEATH RAM.

CHAPTER V.

BREEDING, ETC.

Breeding—Time of Coupling—Number of Ewes to a Ram—Period of Gestation—
Yeaning—Management of Lambs—Weaning—Selection of Lambs—Marking
—Washing—Shearing—Dipping Lambs.

49. **BREEDING.**—Where breeding is aimed at and made a leading feature, there are, in every flock, individual specimens of animals which possess finer points and qualities than others; these being robustness of constitution; rapid and large growth of fleece; aptitude to fatten; and fecundity. These should be carefully selected, and by using them only for breeding, the standard of quality of a flock must be inevitably raised; and where this has been established, to avoid breeding too much "in-and-in," which is unfavourable to the health and vigour of a flock, fresh blood should be introduced, so as not to breed continuously from animals of too near consanguinity, though this must necessarily be done in the first instance. Before coupling the sheep, each should be examined in the minutest manner, and those animals in which there is any shortcoming, or defect, should be unhesitatingly rejected. This applies equally to both ram and ewe, but especially the male; and where points may be deficient in the female, choice should be made of a ram which is unusually good in those where the ewe is deficient.

A good ram may always be procured with comparative ease, but no ewes should be made use of that are tainted with any hereditary disease, which often appears in the form of gumminess of wool,

which attracts the fly; boils about the face and neck; or yellowness of the skin.

Even what are regarded very often as casual circumstances, that are objectionable, should be taken into account, for it has been observed that sheep struck with the fly one year, are invariably so the next, and will often continue to be thus affected for successive years; and by choosing both ewes and rams judiciously in this way, the flockmaster will find himself amply repaid for the trouble he has taken.

50. **TIME OF COUPLING.**—The time at which the ram is admitted to the ewe depends to a certain extent upon the nature of the climate, and the prospect of spring food, ewes being generally fit to breed at about fifteen to eighteen months; much too depends upon the forward state of the flock, or otherwise, the usual time being about the commencement of October; in East Sussex, during the last fortnight in October or the first week in November; and in West Sussex, at the beginning of September. In the county of Dorset, where the ewes bring lambs twice in the year, and in some of the south and south-western districts, where house-lamb is raised, the system is varied, and the ram is admitted so that the lambs are dropped a month or six weeks earlier; in exposed situations the beginning of November is considered early enough. The majority of British sheep, excepting the Dorsets aforesaid, cannot be induced to take the ram before September.

51. **NUMBER OF EWES TO A RAM.**—The number of ewes to be put to a ram depends in some degree upon the nature of the farm, as well as being regulated by the ram's age and vigour. In mountainous districts three rams are put to a hundred ewes; while in the lowlands, in enclosed pastures, two are considered quite sufficient—sixty ewes being generally considered about the proper average; fifty or sixty being quite enough when the rams are young, but as they grow older the number of ewes may be increased. When a young ram is put to too great a number of ewes, the lambs are not only likely to be deficient in number, but inferior in strength to those where proper precautions have been taken.

No ram should be used that is not sound and vigorous, nor till after he has become a shearing; and he will continue in his prime till he is five years old, but should not be used after he has attained his sixth year, and before being thus used, in the first instance, he should be previously well fed, so as to be got in high condition.

52. **PERIOD OF GESTATION.**—The period of gestation is roundly estimated to last twenty-one weeks. M. Tessier, who made an exhaustive series of experiments upon the period of gestation of most domestic animals, has recorded the result of upwards of nine hundred ewes, of which the date they were served by the ram was severally noted:—

140	lambled between the	146th and 150th day:
676	" "	150th and 154th "
90	" "	154th and 161st "

Which gives an extreme of fifteen days, the average showing a duration of about 152 days, as nearly as possible, or nearly twenty-two weeks.

53. **YEANING.**—The usual time of yeaning is about the end of March or beginning of April, and during the period of gestation they should receive a considerable amount of attention, and, if possible, be placed in tolerably good, sheltered pastures, where they are not likely to be exposed to be frightened or hurt; and as the time of yeaning approaches, the care and attention of the shepherd should be redoubled, lest any accident should befall them which would cause them to slip their lambs.

The ewes when put to the ram should be in fair, but not high, condition, and during the time of gestation they should not be allowed to get absolutely fat, as there would be a difficulty in lambing; while, on the other hand, they should not be too poor, as it is essential they should have the necessary strength to go through it, as well as having an adequate supply of milk for the support of their lambs.

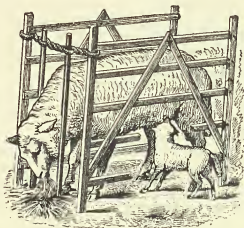
When sheep are kept upon downs and upon mountainous grazings, the ewes are commonly left to lamb in the open field without any protection; the watchful care of the shepherd being exercised to render assistance when necessary. Some flockmasters take the precaution of providing enclosures which are mounted on wheels, and can be drawn wherever they are needed. Others put up some movable covered pens—which may easily be constructed out of hurdles—which are littered with straw or fern, and made perfectly dry, open to the ewes so that they can range the pastures and return to the pens whenever they are disposed; but wherever the sheep are placed, choice should always be made of a level piece of pasture free from all ruts, holes, or ditches, which often cause difficulties.

As a rule, it is safe practice not to allow too plentiful a supply of

food to the ewes for three or four weeks previous to lambing, as if in too thriving a state, gangrene sometimes follows after parturition, on account of the blood being in an inflamed condition.

This high feeding is sometimes practised with a view of ensuring a plentiful supply of milk, which although, as stated before, is necessary in a certain measure or degree, may with greater safety be urged on five or six days after the event.

As a rule, Nature does not require to be assisted, but sometimes labour will be difficult, when the services of an experienced shep-



EWE PEN.

herd will need to be called into requisition; and when yeaning has been long in its duration, and the ewe has become exhausted, warm gruel should be given to it, and it should be kept separate in quiet quarters away from the rest of the flock, until it has recovered.

54. **MANAGEMENT OF LAMBS.**—Sometimes the lambs when dropped will appear to be in an almost lifeless condition, and a good deal of attention is necessary to restore them to animation, and a hut with a chimney in it, with a fire, and convenience for warming milk, is found to be very handy at yeaning-time for the shepherd to make use of; lambs that to all appearance were dead having been brought round by being laid for a few hours in a warm

basket, placed near a fire; and a little warm milk poured occasionally down their throats.

Although it is very rarely the case, the ewe sometimes deserts her lamb, or dies in giving birth to it; when it becomes necessary to put it to a ewe that has lost her own, or bring it up by hand on cow's milk.

When the tup lambs have acquired sufficient strength, which will be generally when about eight or ten days old, those not intended to be kept as rams should be castrated. The weather should be dry and mild for this operation, and towards evening is considered the best time for it to be done.

When it is customary to cut the tails of lambs, they should be docked about this time, but some flockmasters whose sheep are placed in exposed situations refrain from docking the ewes, considering that a long, bushy tail affords a considerable protection to the udder, though some again contend that this is counterbalanced by the long tail being found in the way at weaning-time.

The lambs are allowed to run in the pastures with the ewes, weather permitting; for which purpose the best are selected, if it is the intention of getting rid of the ewes, and selling them to the butcher, and are fed upon turnips and rape, with hay and bruised oil-cake, if the pastures are not sufficiently rich.

55. **WEANING.**—If lambs are dropped early in the season and the weather remains cold, they are allowed to remain a longer time with the ewe, but lambs are usually weaned in the early part of July, and should not be postponed till later than the end of the month, unless they were dropped late in the spring. Nothing more is required to be done than separating the lambs from the ewes, driving them so far apart that their different bleatings may not be heard by each other.

56. **SELECTION OF LAMBS.**—Particular care should be exercised in the selection of the ewe lambs, and any that are at all ill-formed, or possess any defect, should on no account be kept, but got rid of; even the weaker lambs should be separated from the stronger, and dealt with in a suitable manner, and any that appear constitutionally defective should be sent to the butcher.

After they have been separated from the ewes, each lamb should be carefully examined, in order to see whether it may have received any injury, and be put aside for curative treatment.

57. **MARKING.**—Lambs are marked in various ways, according to the fancy of their owners, as well as sheep, by a brand upon the

cheek, or notches in the ears, or with ruddle or tar upon the fleece, distinguishing the two sexes by marking them respectively on the *near* or *off* sides; and, when removed, are put upon the best pastures, or the aftermath of crops of clover, lucerne, or sainfoin, spring tares, or any crop of a similar nature that is nourishing and calculated to stimulate their growth, the aim being always for improvement to be progressive; and they should be shifted whenever a fresh bite becomes necessary. Upon the approach of winter, when the herbage begins to fail, they should then be put upon turnips, rape, and other food best adapted to the object in view; but great care should be taken not to suffer them to touch either turnips or clover when the frost is upon them.

58. **WASHING.**—Preparatory to being shorn, sheep are washed, with the object of removing from the fleece the dirt and grit with which the wool is encumbered, which heightens its value, and puts it into better condition for manufacturing purposes. For the convenience of washing, it is generally usual to form wash-dikes in small streams, or rivulets, two or three feet in depth, pointing against the current, in order that the water, as it is soiled in the washing, may flow away from the sheep. Or a dam is placed against the current in a convenient place, with a flood-gate in the middle, by which the water is retained or let off at pleasure; on the one side a pen is formed for the washing, and on the other a path is hurdled in for the sheep to pass away when the washing is done.

The pen, or artificial pool, is railed round with one rail the height of the water, beneath which the sheep is thrust under with a long pole called a *poxy*, with which the operator either pulls the sheep to him, or pushes it away, as required.

59. **SHEARING.**—Sheep are usually shorn, in a fine season, in the early part of June, and though the operation is sometimes deferred until later with the idea of gaining a heavier fleece, yet it is not wise to defer it, as the earlier it is done the better, as the growth of the wool prevents the attack of flies, which are often very troublesome and destructive, especially in enclosed and woody counties, at an advanced season. The proper period for clipping, or shearing, must a good deal depend upon the season, the effects of the advance of which should be watched, which will be indicated as soon as the young wool has sufficiently raised the old fleece from the skin, when it should be shorn.

The old-fashioned method of shearing was to do it longitudinally; but this method was both attended with some little difficulty, and was

seldom neatly executed, there generally being an ounce or two of wool left on each sheep, which was calculated to impair the growth of the next year's wool. By clipping the wool circularly—shearing round the body of the sheep—the work is more uniformly executed.

When using the shears great care is necessary, so as not to wound or prick the animal with the edge or point of the shears, as the flies will attack the wounded part. The effects of such accidents are guarded against by smearing the cut with turpentine or some healing salve, as tallow and tar.

After shearing, the flock should be carefully looked over repeatedly, in order to examine if the flies have deposited any of their larvæ; and if it is found they have deposited any of their eggs, the tumours should be opened, and mercurial ointment rubbed in, which will destroy the insect.

The following unguent has been very commonly used in order to kill the lice and ticks, which is rubbed over every part of the body with a currying-brush:—

Train oil	4 gallons.
Oil of tar	$\frac{1}{2}$ "
Oil of turpentine	1 pint.

60. **DIPPING LAMBS.**—As it is very desirable to get rid of the annoyance of ticks and lice from the flock—and when the sheep have been shorn there is no shelter for these vermin, so that if they can be cleared from the lambs, the flock will have got rid of the plague during the whole succeeding year—to effect this object the lambs are dipped in a solution made of the following ingredients:—One pound of arsenic is dissolved in boiling soapsuds, and then poured into a large tub with a considerable quantity of warm water.

In this mixture, which is about sufficient for twenty lambs, each is immersed singly, and then dried as well as possible, by squeezing the water out of the wool by the hand. One immersion will destroy the lice, and will keep them free during the following summer from fly and maggots, but precautions must be taken that their heads are not pushed under water during the operation, in case they should swallow some of the poisoned water.



SHEPHERD'S DOG.

CHAPTER VI.

THE DISEASES OF SHEEP.

Diseases of Sheep, and their Remedies—Flies—The Bot—The Fluke—The Rot—The Tick—Foot-rot—The Epidemic—Consumption—Hoove, Blasting, or Hoven—Obstructions in the Gullet—Distension of the Rumen—Concretions in the Stomach—Diarrhœa—Diarrhœa in Lambs—Dysentery, or Braxy—Catarrh—Bronchitis—Pleurisy—Pneumonia—Red-water—Small-pox—Black-muzzle—The Scab—Turn-sick—Giddiness—Inflammation of the Brain—Palsy—Apoplexy—Inflammation of the Bladder—Ailments of the Udder—Sore Teats—Diseases peculiar to Ewes.

61. **DISEASES OF SHEEP, AND THEIR REMEDIES.**—We have already made allusion to flies, maggots, and ticks in sheep; and we shall commence a brief notice of the various diseases to which they are subject, by referring to these pests.

62. **FLIES, &c.**—Flesh-flies lay their eggs upon the skin of the sheep, where in time they hatch and produce maggots, and unless they are properly attended to during the course of the spring and summer, a fatal termination will result.

The fattest sheep are generally the first that are singled out for attack by the flies, especially when the skin is broken or scratched; but the mischief likely to ensue may be prevented by constantly clipping, cleaning, and anointing the maggoty parts. There are several species of the large flesh-flies, some being black, others white and greenish; the root of the tail, and immediately round the anus, or those parts where excrement may have been hanging,

being the most likely places to be infected, though the back is often visited as well.

These parts should be clipped about a month previously to shearing-time, as a safeguard against their visitation, and about a couple of months afterwards as well, and the rump and buttocks washed with the following liquid, which will in all probability prevent the breeding of maggots :—

One pound of arsenic finely powdered, 12 ozs. of potash, 6 ozs. common yellow soap, 30 gallons of soft water. These should be boiled together for a quarter of an hour, and care should be taken not to inhale the steam.

63. **THE BOT** (*Cestrus ovis*), is often a dreadful scourge amongst a flock, the large maggots, or hydatids residing in the frontal sinus for a considerable period, producing vertigo, staggers, and death, on account of finding their way to the brain.

Trepanning has been recommended, and a wire has been thrust up the nostril to destroy the bladder in which the bot is; but it is the best course to kill the animals when seized by the disease.

64. **THE FLUKE** (*Fasciola hepatica*) causes the rot, which consists of those parasites which are sometimes called *plaice*, from the resemblance they bear to the flat fish of that name, which are found floating about the biliary ducts, apparently feeding on the bile (varying in size from an eighth to a quarter-of-an-inch in diameter), which prevents the bile from performing its allotted functions in the animal economy; their minute eggs being deposited on the grass, from whence they are taken into the system.

65. **THE ROT**, which is the result of the presence of the parasites above referred to, does not at once show its unfavourable symptoms, for sheep have been known actually to improve for a short time, after which the evil effects of the visitation are made manifest. When the disease is established, it is usual to hurry on the fattening process, by giving the most nutritious food, as oil-cake and linseed, accompanied with salt given daily, which has a remedial effect, as is proved by sheep which are fed upon salt marshes, that are overflowed by spring-tides, doing well in rotting seasons; superabundant moisture either in food, soil, or situation, being supposed to be the real cause of this malady.

66. **THE TICK** (*Melophagus ovinus*).—This troublesome pest is best got rid of in the way suggested under the heading of "Dipping Lambs," the insect supporting its own life by sucking the sheep, and especially lambs; the females depositing their larvæ amongst

the wool. The somewhat singular, but by no means unusual, sight of a starling being perched upon a sheep's back, and busily engaged amongst the wool thereof, is due to the friendly office that is being performed of picking out the ticks.

67. **FOOT-ROT.**—The parts which connect the hoof with the bones of the foot is the seat of this disease, which mostly arises from the foot being exposed to too great an amount of moisture,



SPECKLED FACED MOUNTAIN SHEEP.

when the horn not being worn away by attrition, becomes soft, and is easily penetrated by gravel and stones; sometimes the upper part where it is thinnest being detached from its connections. Inflammation and ulceration often follow, and run under the foot, and the hoof is at times entirely lost, so that the foot—still being exposed to wet—forms fungous granulations, and in its worst state a shocking condition of disease is produced.

The feet should be protected from moisture, and the ragged parts of the foot pared away, and a caustic applied to promote healthy action in the diseased part.

After paring, the following mixture will be found to promote the healthy growth of the horn, while at the same time protecting the foot from moisture:—

Tar 8 ozs.

Lard..... 4 "

melted together, and when these are incorporated thoroughly, add

Oil of turpentine $\frac{1}{2}$ oz.

Sulphuric acid $\frac{1}{2}$ "

mixed carefully with the above.

68. **THE EPIDEMIC.**—Though arising from different causes, the Epidemic, as it is called, bears a very close resemblance to the foot-rot in sheep, but arises from fever in the system. The feet feel hard previous to the formation of matter, which is the result of inflammation, the symptoms being a great soreness between the claws, a separation between the hoof at its upper part and the parts beneath taking place.

The best course of treatment is to give cooling medicines, such as Epsom salts; and treat the feet in the same way as that prescribed for foot-rot.

69. **CONSUMPTION.**—Excess of moisture, or too much watery food, as turnips alone, often lay the seeds of consumption, although not immediately traced; another reason why dry food, such as chaffed straw, should be given with roots.

It mostly appears in ewes after lambing, for although the yearning may have been got over easily and without any difficulty, they have afterwards gradually pined and lost appetite, dying about a month after lambing. As may be seen, an insidious disease of this nature may affect the health and stamina of the succeeding flock. No cure can be suggested for a disease where the vital organs are already sapped before its presence is suspected, and preventive measures can only be used. Excessive wet, which may be guarded against in a measure, by occasional housing, or keeping the sheep in as dry a situation as possible, are the best courses to adopt. Not giving too many turnips, and avoiding giving them when the surfaces of the roots and the shaws are unduly wet.

To guard against the effects of wet, and keep the system vigorous and strong by supplying internal warmth, a little concentrated food will be found of great advantage and productive of animal heat.

70. **HOOVE, BLASTING, OR HOVEN.**—This is occasioned by sheep being put too suddenly upon green, succulent food; which causes the rumen to be distended with gas, caused by its fermentation. Or it may take place through accident, when sheep have obtained access to a field of broad clover; the danger being

greatest at night, or early in the morning, when the hoar frost is on the ground.

The sudden change from common turnips to swedes will sometimes produce it, and a prompt remedy must be applied, and the hollow probang passed into the rumen in order to allow the gases to escape through it.

If this is not to hand upon an emergency, a dessert-spoon of salt should be dissolved and poured down the throat, salt being almost always at hand; but a drachm, or more, of chloride of lime is better still. When there is no time to administer medicine of any kind, such as doses of two drachms of sulphuric ether, the trochar should be plunged into the rumen through the flank, or a penknife in the absence of the former; if the latter is used, a stick of elder with the pith pushed out, or a quill, should be kept in the wound so as to allow of the escape of gas.

Even after relief has been obtained by puncturing, it is advisable to give the medicine recommended, as an accumulation of gas often takes place again, and indigestion follows, as well as sub-acute hoven; and under these circumstances the following will be found a useful medicine:—

Ginger.....	2 drachms.
Chloride of lime	1 scruple.
Gentian	1 drachm.
Magnesia	2 ozs.

As the digestive organs will be thrown considerably out of order, great care should be used in feeding, and salt sprinkled over green food will be found of advantage.

71. OBSTRUCTIONS IN THE GULLET.—Sheep are occasionally subject to obstructions in the gullet, arising from a piece of turnip or other food, which pressing upon the wind-pipe, impedes the passage of air to and from the lungs; though these occasions of distress are less frequent than with cows or oxen. The probang must be passed over the roof of the tongue into the gullet, having been first previously oiled, and pressed gently along, when the obstructing particle can be generally pushed on into the rumen.

To do this with the greatest amount of convenience, the head of the sheep should be held between a man's knees, in the proper position, so that the probang does not lacerate the sides of the œsophagus. If this fails, there is nothing else but a dangerous operation—which must be performed by a veterinary surgeon—of cutting into the œsophagus, and taking away the obstruction.

72. DISTENSION OF THE RUMEN.—Distension of the rumen is of much rarer occurrence with sheep than with oxen, but when the digestive organs are inclined to be out of order, too hastily eating roots will sometimes produce it, and the abdomen, though not distended to so great an extent as in the case of blasting, will be hard and firm.

According to circumstances, the probang and stomach-pump are sometimes respectively made use of, and bleeding is resorted to, after which liquids are administered with the object of softening the contents of the rumen, an accumulation being often impacted in it which has got hard.

73. **CONCRETIONS IN THE STOMACH.**—As sheep feed largely upon plants which more or less have earth attached to their roots, they must necessarily at times swallow a good deal, which does not, as a rule, have any injurious effect; but on the contrary, is thought most likely to have a useful effect in neutralising the acidity of the stomach, but sometimes when too much has been swallowed, inflammation of the intestines or coats of the stomachs is produced.

Saline purgatives are the best to administer, as sulphate of magnesia; as well as vegetable tonics. In the stomachs of lambs towards autumn, balls are sometimes found which are felted together, consisting of fibres of wool and the hard food commingled with mucus.

74. **DIARRHŒA.**—Diarrhœa, sometimes called *flux* or *scouring*, is mostly confined to hoggets and young sheep, and is often brought about by their being taken from somewhat poor pastures and put upon rich ones. It is not considered very injurious, but may prove so if it is long continued, or if it arises from wet, when they should be removed to a dry pasture and be supplied with good hay.

Young lambs, when only a fortnight or three weeks old, are attacked by it, under the name of *gall*, caused by eating the grass which springs up after fertilising showers.

A good diarrhœa mixture is made of the following:—

Catechu powdered.....	4 drachms.
Prepared chalk powdered	1 oz.
Ginger powdered	2 drachms.
Opium powdered	$\frac{1}{2}$ "

This, mixed in peppermint water (about half a pint), should be given twice a day, in doses of two or three tablespoonfuls for a sheep, and half that quantity for a lamb.

75. **DIARRHŒA IN LAMBS.**—There is, however, in lambs diarrhœa arising from different causes, the *white shit*, so called from the pale colour of the fæces, not really arising from looseness, but constipation, and is caused by the coagulation of the milk in the fourth stomach, where it will accumulate until it amounts to several pounds, the whey passing off by the bowels, which causes the appearance to which it owes its name.

Alkalies should be given to dissolve this hardened mass, the internal membrane of the stomach abounding in muriatic acid. Half

an ounce of magnesia dissolved in water, or a quarter of an ounce of hartshorn mixed with water, should be repeatedly given, and Epsom salts afterwards. A rather large quantity of water should be used with the medicines.

The *green skit*, so named to mark its distinction from the *white skit*, is occasioned by the lambs being turned with their mothers, into rich pastures, and arises from the greater stimulus given to their digestive organs, and will often pass off; at times it being prudent to give two drachms of Epsom salts, followed by the cordial medicine first named under the heading of diarrhœa.

76. **DYSENTERY, OR BRAXY.**—This is much more dangerous than diarrhœa, arising from inflammation of the coats of the stomach, a sudden change of pasturage from a moist succulent one to a high and dry one sometimes producing it, or coming on after being exposed to wet and cold after travelling.

The dung is hard and smaller in quantity than usual, though frequently evacuated, smells offensively, and is covered with mucus and blood.

Linseed gruel should be administered several times a-day, and medicine composed of the following ingredients should be given:—

Linseed oil.....	2 ozs.
Powdered opium	2 grains.

given in linseed tea.

The following day the opium should be given alone, with a scruple of powdered ginger, and two scruples of gentian, and the oil again given if required.

77. **CATARRH.**—Sheep are very subject to catarrh towards autumn, particularly in wet seasons, or when the flock has been driven from one part to another, and has been exposed to changes of the weather very much.

Catarrh will sometimes last several weeks, and then get well of itself, shelter and good nursing helping this onwards; the improvement of the animal naturally being retarded while it lasts.

In mild cases, a little gruel will be found useful, combined with the shelter as mentioned; but if the symptoms are severe, half an ounce of Epsom salts, a drachm each of nitre and ginger, and half a drachm of tartarised antimony dissolved in gruel, should be given. Bleeding from the neck is practised in severe cases.

78. **BRONCHITIS.**—Sheep are not often troubled with bronchitis, but similar effects are sometimes due to the presence of worms in the windpipe. The treatment should consist in giving half a pint of lime-water to a sheep, and a gill to a lamb, every

morning and evening, and for a week; or give two teaspoonfuls of salt dissolved in water.

79. **PLEURISY.**—This disorder is characterised by symptoms of inflammation, pain, and fever, and mostly arises from a chill given to the system the disorder sometimes exhibiting itself after sheep-washing. Leicester sheep are said to be more liable to pleurisy than any other breed.

80. **PNEUMONIA.**—Narrow-chested sheep, when kept upon water-meadows, are said to be most liable to this disease, as the Dorset breed—as well as the Leicesters, which are, on the contrary, *wide-chested*; but of this there is no positive proof, as the opposite characteristics of the two breeds would tend to show, although some breeds may be possibly more tender than others in the lungs, the disorder being in reality inflammation of the lungs.

Bleeding from the neck is generally prescribed, and purgatives given, succeeded by sedative medicine, which may be composed of the following:—

Nitrate of potash.....	1 drachm.
Tartarised antimony	10 grains.
Ipecacuanha.....	5 "

81. **REDWATER.**—Redwater in sheep is a different disorder to that of the same name in cattle, consisting, in the case of the former, of an effusion of red serum or water in the abdomen.

Young lambs are somewhat subject to it before weaning, as well as afterwards; and it often occurs after the ground has been covered with hoar frosts, and the sheep have been feeding upon turnips; and is supposed to arise either from cold, watery food, or lying upon the cold ground.

It is a dangerous disease, the symptoms being loss of appetite and rumination, dullness of habit, costiveness, and occasional giddiness; the progress of the disorder being so rapid that lambs apparently well over night have been found dead in the morning.

If an affected animal is in anything like condition, it will be the best plan to kill it; but if treatment is resorted to, the following will be found an appropriate medicine:—

Opium powdered.....	$\frac{3}{4}$ drachm.
Ginger	1 oz.
Sulphate of magnesia	1 lb.
Gentian powdered	1 oz.

This will be enough for ten sheep, dissolved in warm water, or given in gruel.

82. **SMALL-POX.**—Small-pox is fortunately a rare disease in this country, though it has been imported from abroad occasionally. The symptoms are dulness of the eyes, accompanied with swelling of the eyelids, succeeded by reddish spots on the naked places;

the animal having a dull and moping appearance. After a few days, swellings something like flea-bites appear, varying in size; in severe cases being of a purple hue, and running into one another. Small-pox is presented under two aspects: the distinct and the confluent; the latter being the worst phase.

It is dreadfully contagious, and little can be done in the way of medicine; warmth and shelter, plenty of water, and febrifuge medicines, with gruel and tonics, being the best remedies; but the most prudent course to pursue, upon the first breaking out of the disorder, would be to destroy those sheep at once that are infected, to prevent contagion, as only partial remedies can be adopted.

83. **BLACK MUZZLE.**—An eruption sometimes takes place upon the face and nose of sheep, which is known by the name of "black muzzle" in some districts, which is caused by the sour nature of some kinds of herbage.

An ointment composed of the following ingredients will be found to cure the eruption:—

Hog's lard.....	1 lb.
Powdered alum	4 drachms.
Sulphate of zinc powdered	4 drachms.

and applied to the affected parts.

84. **THE SCAB.**—The scab is due to the presence of insects (*acari*), which burrow beneath the skin, and cause great irritation; being of a similar nature to the mange in dogs and horses, produced, in the first place, by poverty and filth, and afterwards spread by contagion.

About twelve days after becoming infected, the sheep will commence to rub themselves against some hard object or other, removing the wool in the action, and getting out of condition from the self-imposed labour, and the uneasiness caused, and hard pimples will form, and the skin feel rough. These pustules get broken, and a scab forms, which leaves a sore, if it is rubbed off.

Prompt treatment is required to stop its progress, and tobacco-water rubbed into the skin is a good application, or dipping the sheep in a solution of arsenic, which also contains some sulphur, is effectual; or an ointment rubbed into the skin is found to answer, composed of the following (rubbed into the skin in lines about four inches apart):—

Hog's lard.....	2 lbs.
Oil of tar	$\frac{1}{2}$ lb.
Sulphur	1 lb.

These remedies should be applied whenever scab is even only suspected, as a precautionary measure.

85. **TURN-SICK, GIDDINESS.**—Called in various localities

Goggles, Sturdy-gig, Dunt, Staggers, and Blob-whirl, is due to the presence of one or more hydatids on the brain, the sheep mostly attacked by it being those under two years of age. As before described, trepanning has been attempted with more or less success, but it is not to be depended upon.

86. **INFLAMMATION OF THE BRAIN (PHRENITIS).**—Excess of nourishment is mostly the cause of inflammation of the brain with sheep; but the disorder is not of a very common occurrence, mostly taking place when they have been suddenly removed from poor food and put upon rich. The disease sometimes causes the animal to display great violence, quite opposed to the usual quiet demeanour of a sheep; and the jugular vein should be at once opened, and from 8 ozs. to 1 lb. of blood abstracted, and a purgative given, consisting of 2 ozs. of sulphate of magnesia. In the case of a lamb, a smaller dose should be given, and less blood abstracted in proportion.

87. **PALSY.**—Palsy is produced by excessive cold and moisture, lambs being more subject to it than sheep, the loins being most generally affected, a suspension of the powers of the nervous system taking place. An excessive quantity of cold roots has been known to produce it—warmth of the animal economy being the best restorative. A stimulant of a suitable nature can be composed of the following ingredients:—

Powdered ginger	1 drachm.
Powdered gentian	1 "
Spirit of nitrous ether	1 "

Administered twice a-day to a sheep, and from a quarter to half the quantity to a lamb.

88. **APOPLEXY.**—Must be treated in the same way as prescribed for inflammation of the brain, being a sudden determination of blood to the head.

89. **INFLAMMATION OF THE BLADDER.**—Rams are more liable to this disorder than ewes, which frequently results from high feeding, and when supplied with such highly nutritious food as beans and oil-cake, when the internal coat of the bladder becomes inflamed.

Bleeding from the neck should be resorted to, and aperient medicine and opiates given. Injections of warm water or linseed-tea are sometimes administered, mixed with small doses of laudanum.

90. **AILMENTS OF THE UDDER.**—After the lambs have

been taken away from the ewes, their udders are not unfrequently affected by tumours, which, if not attended to, sometimes end in mortification. Preventive means can, however, be taken to guard against this happening, by milking the ewes a few times after weaning. If this is neglected, and a curing process is necessary, the part affected should be frequently rubbed with camphorated spirits of wine. If the tumours suppurate, they should be opened with a sharp penknife, and the wound so caused cured by a healing salve.

91. **SORE TEATS.**—When the ewes have sore teats they will sometimes refuse to allow the lambs to suck. The lamb, in such a case, should be put to another ewe—which, although sometimes difficult to manage, may be done by using certain means—or fed by hand with cows'-milk, or milk taken by hand from the ewe. The udder should be bathed in warm water for some time, and afterwards washed with goulard water, spirits, or a slight infusion of sugar of lead. These, carefully repeated, will generally effect a cure; but if not, and there is much inflammation, the teats should be poulticed, to cause suppuration.

92. **DISEASES PECULIAR TO EWES.**—Slipping the lamb is generally occasioned by the animals being hard-driven, or worried by dogs, or hunted about when heavy with young; or by being cast into ruts, where they struggle violently in their attempts to rise. It is said, also, that when ewes are fed upon rape, it is apt to be produced.

Protrusion of the uterus usually takes place after an ewe has had a difficult labour, when it should be returned as quickly as possible, and means taken to confine it in its proper position, which may be done by putting a ring through the lips of the orifice, the same as are used for ringing swine; or a narrow strip of lead, twisted at the ends to secure it, which is found to answer the purpose very well.





SHEEP FOLDING HURDLE WITH LAMB CREEP.

CHAPTER VII.

IN THE MARKET.

Fattening Sheep—Markets—Selection for Market—Treatment on the Road—Sending by Rail—Slaughtering—Imports of Sheep—Profits resulting from Sheep-farming.

93. **FATTENING SHEEP.**—Sheep can be made fat through a great variety of different ways of feeding, but of course the main object is to do this in the most economical manner, and also in the shortest space of time.

Corn, doubtless, is a most effective agent in fattening all animals, the drawback to its use being the expense; so that grain can seldom be given profitably to sheep in its entirety, though meal of various kinds can be used economically in conjunction with roots.

Nothing, perhaps, has proved of greater assistance in fattening sheep than oil-cake, for when fed upon turnips the addition of 1 lb. of oil-cake per day will make a wonderful difference in the rapidity of the progress and general health.

Hay or straw should always be given to promote digestion, the most effectual manner being in the form of chaff, whether they are fed upon mangold-wurzel, cabbages, turnips, swedes or carrots.

Many sheep are fattened without the admixture of any other than natural food, upon rich grazing grounds, where they arrive gradually at a state of perfection; though it is not every kind of pasture that is capable of fattening sheep, and on these it will be found desirable to use concentrated food in some form or other in addition.

A certain degree of fatness is absolutely necessary, but when carried too far it does not pay the feeder, tending more to increase of tallow than advantage to the mutton. The quantity of inside fat depends a good deal upon the age and time of fattening, old sheep making more than young ones; the tallow of a wether in the ordi-

nary way of feeding averaging from an eighth to a tenth of its dead weight.

94. **MARKETS.**—The markets for sheep are very numerous, there scarcely being a county town of any size without its sheep and cattle-market; though some of the great fairs, as Weyhill Fair, attract great numbers of sheep, and a very large amount of business is done in them.

95. **SELECTION FOR MARKET.**—In pursuing a definite system of management, in order to ensure the highest state of efficiency of a flock, a system of continued selection should be carried on, and all indifferent animals weeded out and sent to market.

Old ewes should be replaced by an equal number of the best and most vigorous female lambs; in well-managed sheep-farms in the southern counties of England, this process of selection being generally carried out from six to ten weeks after shearing-time.

Not only is this selection necessary for weeding out the faulty specimens arising from either defects or old age—for the purpose of sending them to market, and selling them off—but they should be separated, and assigned to different pastures according to their strength or weakness; placing those animals that are designed for fattening in one place, the ewes by themselves and the wethers also in the same way; the two-year-old in one parcel, and the old wethers and rams in another; and, lastly, the lambs by themselves; otherwise the stronger will injure the weaker animals, and eat up the best food which the weakest have the most pressing need of.

96. **TREATMENT ON THE ROAD.**—We have incidentally spoken before of the evils attendant upon over-driving, and this part of the business should be carefully managed, and if the animals have to travel a long distance, arrangements should be made beforehand for their reception on the journey where they can be turned upon accommodation land, which is generally to be obtained without much difficulty.

97. **SENDING BY RAIL.**—The long journeys, however, which used to be painfully performed by large droves of cattle, and flocks of sheep, along dusty high roads, when the animals suffered greatly from thirst and heat, have been superseded in a great measure by railway travelling, the legislature having issued certain regulations which are under the control of the Privy Council, for the proper conveyance of all animals. And not only the pens in which they are kept, but the trucks in which they are conveyed, are regularly white-washed, and every precaution is taken to ensure against contagion

and other incidental evils that at one time were rife ; so that on this account there is very little room for sheep-farmers to complain, though there were so many complaints at one time of the barbarity often exercised, that an Act was passed, 3 Geo. IV., c. 71, s. 1, which contained the proviso that any persons wantonly ill-treating any species of cattle, may be summoned before any Justice of the Peace, and, if convicted upon oath, are subject to a penalty according to circumstances, not under 10s. nor above £5, or in default of payment, to be committed to the House of Correction for any period not exceeding three months.

98. **SLAUGHTERING.**—Sheep are quickly and easily slaughtered, being generally stuck in the neck, and hung up with their heads downwards; but as the services of an experienced butcher are always to be obtained for a trifle, and it is much the best way for a farmer to avail himself of them, a detailed description of the method of slaughtering sheep is scarcely necessary.

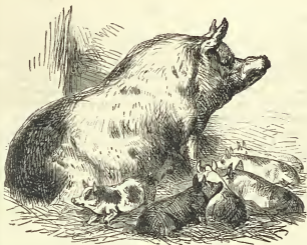
99. **IMPORTS OF SHEEP.**—A good many sheep are imported into England from various parts of the Continent, the supply ever fluctuating according to the condition of our markets here. Stringent rules are now in vogue against contagion, and all infected animals are at once slaughtered at the place of debarkation.

100. **PROFITS RESULTING FROM SHEEP-FARMING.**—It is very difficult to give any definite account of the profits to be obtained by sheep-farming, as there are so many indirect advantages to be obtained in connection with it, in addition to and beyond the mere debtor and creditor account; such as the opportunity of manuring the land through this means, and the conversion of bulky, heavy crops of comparatively small value, into so much portable wool and mutton, for which there is always a ready market at one's doors, as it may be said.

With skilful management, however, as mutton realises a high price, sheep-farming can be made very remunerative; particularly if all waste is avoided in feeding, and full use is made of those economical contrivances for eking out the food of the farm which have been already glanced at. It may safely be affirmed, that by skilful management in the matter of feeding, and all other departments equally well looked after, that a saving in the cost of fodder may be gained which will amount to one-third less than the expense incurred by careless sheep-farmers, who permit a large amount of waste—though, perhaps, not knowingly—to take place every day in the management of their stock.



A GOOD BARKER.



CHAPTER VIII.

FIGS.

Natural History of the Hog—Varieties—Foreign Breeds—French Pigs—Prussian or Polish Pigs—Spanish Pigs—German Pigs—British Breeds—The Berkshire—Improved Essex Pig—The Suffolk and Norfolk—The Cheshire Pig—The Old Lincolnshire, or Yorkshire Pig—The Improved Lincolnshire Pig—The Small Breed, or Prick-eared Lincolnshire—The Old Irish—The Rudgewick—The Hampshire Hog—The Shropshire—The Gloucester—The Chinese—The Mediterranean Breeds—Scotch Pigs—The "Tunkey" or Tonquin.

101. **THE NATURAL HISTORY OF THE HOG.**—The hog is found in a wild state in several European and Asiatic countries; and though boar-hunting is not now practised in England, yet, before the land was enclosed, many wild hogs were to be found and the pastime was carried on in these islands, but never to a very great extent. The latest resemblance to the wild boar that has been seen in modern times in Britain was the old Highland breed of pig, which has been described as an ugly little brindled monster, scarcely bigger than an English terrier.

Wild pigs are found in the distant islands of the Pacific, as well as other places far out of the usual track of ordinary voyagers; but these, in many instances, have originally sprung from pigs that have been put ashore by voyagers.

In India they are found in large numbers, and there "pig-sticking" is a very popular sport; and the race known as the Chinese pig is supposed to have come to us from the Indies, of which there are two distinct species—the white and the black; the former the better-shaped animals of the two, but not so hardy or so prolific as the latter—the black being thrifty, and fattening upon a comparatively small quantity of food.

Some writers are of opinion that to the Chinese pig, and to the pigs that have been introduced from the shores of the Mediterranean, we are indebted for the greatly-improved race of swine that now figure so prominently in all English farm-yards; the sleek, contented animals in the condition they are now mostly seen offering a very distinct contrast to the old wild boar, the actual denizen of the forest, when—

" His bristled back a trench impaled appears,
And stands erected like a field of spears."

In his wild state, the animal is both herbivorous and carnivorous to a certain extent, eating frogs, field-mice, sedge in miry grounds, fern, and the wild fruits and berries that fall from the trees to the ground, still keeping up their universal appetite in their tame condition, nothing coming amiss to them, and feeding on sloes, crabs, "hips and haws," beech-mast, acorns and similar products. As to their habit of turning up the earth in search of roots of all kinds with their snouts—a trait which they still retain, and which many a ploughed-up piece of pasture-land has borne witness to where pigs have obtained access, and they have not been properly "ringed"—it may be remarked here, that if the gristle in the tops of the snouts of young pigs is cut off with a razor, they are rendered incapable of the destructive turning up the ground which they often practise, ploughing up the turf in long stretches, which is both unsightly and detrimental—the place healing over while they are young, without very much trouble.

Of the acute sense of smell possessed by the pig, Rowlandson remarks that—"The acuteness of its olfactory organs has been made subservient to the uses of man by the truffle-hunter. This faculty has also been made use of in setting game in the two well-known instances of Colonel Thornton, and the sow now broken in by Mr. Foomer, gamekeeper to Sir H. P. St. John Mildmay. In both instances, it was remarked that the scent of the game was noticed by the pig when it had been passed over by the best pointers."

The consumption of pork and bacon is very large in Great

Britain, but the price realised by the farmer is kept down by the immense importations that now take place from America, where the "hog-crop," as it is termed, is very large each year.

As it principally comes to us in the form of bacon, or pickled pork (the latter of which, upon occasions of glut, has been sold as low as $2\frac{1}{2}d.$ per pound in Liverpool), there is not that competition to be feared in the case of "porker pigs," or pigs of a small size that are sold by pork-butchers, who get a long price for choice meat. There can be no doubt the omnivorous appetite of the pig is not turned to such good account as it might often be made to do by English farmers, in resorting to many economical contrivances in feeding, that are often entirely overlooked, which will be glanced at in the pages that follow.

Indeed, it will be upon a much greater resort to economical feeding and management of stock, that the profits of the future English farmer will be made to depend. Pigs have long been regarded as useful stock that eat up refuse, or damaged produce of varied kinds, which otherwise would become entirely wasted; but the principle may be carried to a much further extent than most farmers in this country ever dream of carrying it, and enormous quantities of *weeds* that are collected in our fields could be made to come in as food for store-stock, supplemented by other of a better condition, if collected and thrown over into their sties from time to time.

What the pigs did not eat in this way, their hooves would convert into valuable manure, of which few farmers can obtain enough.

The pig is often spoken of as an animal of proverbially filthy habits. It is true that he will wallow in the mire, but this does not arise from an inherent love of filth—for the pig can relish a delicate morsel with as lively an appreciation as any known animal, and perhaps enjoy it with more real *gusto*—but feeding often upon food of a very heating description, he rolls in *miry* places simply to *cool his skin*.

Pigs that have been fed upon beans, peas, and other heating food often have sores break out at the back of their ears, which speaks plainly of the heated condition of their bodies; and can it be wondered at, that the poor animals under such circumstances wallow in *cool* places, although they are *miry*? Pigs will be found to thrive best when they are kept very clean, and an occasional washing even proves of infinite service to them. The manure they produce is very valuable, the quality being only inferior to that of the sheep.

102. VARIETIES.—There are numerous varieties of pigs, the old English breed, that used at one time to possess strongly-marked individual characteristics, being gradually improved away, and more profitable breeds substituted in their places, which better answers the purpose of the farmer.

For ordinary purposes, the improved Berkshire breed stands the highest in general estimation; the most marked varieties that find favour in various districts, that are kept, perhaps, because they are either met with most commonly in those particular districts, or are found to answer best the special objects of each breeder, or storekeeper, being the Chinese, Essex, Suffolk and Norfolk, Shropshire, Hampshire, Woburn, Dishly, and Rudgewick, besides the original English breeds, to which we shall make cursory allusion.

183. **FOREIGN BREEDS.**—Of the various foreign breeds of pigs it will be only worth while mentioning for practical purposes, besides the Chinese pigs above referred to, the Neapolitan, Maltese, and similar breeds of pigs that have come to us from the shores of the Mediterranean; as from these it is supposed the English breeds of pigs owe much of their improvement, so far as the small varieties are concerned. More especially the black kinds, to which they are indebted for their improved delicacy of flesh and beauty of form, fineness of bone, round plump shape, fine snout, and soft hair and bristle, resulting from a finer skin (a change in the latter particular being only regretted by the brushmaker); many of them being almost without hair or bristle, their aptitude to fatten at an early age being unequalled, and the flavour of the meat unsurpassed where delicacy is sought for, and not the large bacon upon which farm-labourers at one time used chiefly to be fed, when they lived in the house with the farmer's family.

104. **FRENCH PIGS.**—French pigs are, for the most part, tall, thin and coarse, though of late years more attention has been paid to improvement of breed than at one time was the case, pork not being held in so much estimation by our neighbours across the Channel, whose culinary tastes more accord with stews that are produced from the gravy of meats of a different order, which they consume with large quantities of vegetables; from whom the English lower classes might with great advantage take a useful lesson, in the establishment of the universal stew-pot.

105. **PRUSSIAN OR POLISH PIGS.**—Prussian or Polish pigs are mostly large in size, and coarse; and are both bad breeders and bad feeders.

106. **THE SPANISH PIG.**—Spanish pigs are small in size, and not particularly noteworthy beyond being of good flavour, and making capital sweet meat; which is supposed to be owing, in many instances, to their being largely fed upon the sweet chestnut, of which great quantities are grown in Spain.

107. **GERMAN PIGS.**—German pigs are smaller than the Prussian, or Podolian, but are better feeders; the Bavarian pigs being still smaller in size.

108. **BRITISH BREEDS.**—Most of the British breeds of pigs possess distinctive peculiarities of their own, which are more specially adapted to the objects in view entertained by different people, and thus some farmers require a larger, stronger, and hardier race than others, to suit their own particular purpose; some pigs being contented with rough food, while others require provision of a more delicate quality. The dairyman, or dairy-



BERKSHIRE PIG.

farmer, that has a large quantity of skimmed milk to spare, the refuse of butter-making, will find his greatest profit in rearing the small breeds, that fatten quickly and can be sold as "porkers," which fetch a long price from the best pork-butchers; while farmers who have a lot of coarse or spoiled food to be eaten up, will find their account in a larger and hardier race.

109. **THE BERKSHIRE.**—The *improved* Berkshire breed is perhaps the best of all the English breeds of pigs for general purposes, but it has been crossed so often with other varieties, that it is often presented under somewhat different aspects; but the cross with the Tonquin, or "Tunkey" pigs, as they are sometimes called, has resulted in producing a very superior race, being black and white, short-haired, fine-skinned, and with smaller heads and ears than

the Berkshire, some of them having quite pointed or "prick" ears, feathered with hair inside, which is a distinctive mark of both; very fine in bone; broad and deep in the belly; full hind quarters; and light in offal. Such breeds, founded upon the Berkshire old stock, wear different names, and form, as it were distinctive breeds, as "Essex Half-blacks," "Essex and Hertford Breed;" the hardihood of the original Berkshire, which is retained in many of these new *improved* breeds, being a leading and most valuable feature.

Loudon describes the old Berkshire pig as "being in general of a tawny white, or reddish colour, spotted with black; large ears hanging over the eyes; thick, close, and well-made in body; legs short; small in the bone; having a disposition to fatten quickly, and, when well fed, the flesh is fine; feeds to a great weight; is good for either pork or bacon."

Another description of the Berkshire hog accredits it as being of a reddish-brown colour with black spots, well-placed head, but with large ears, sometimes hanging over the eyes and sometimes standing forward, being short-legged, small-boned, and of a rough, curly coat, to all appearance indicating flesh of a coarse quality, though nothing can be finer than the bacon, the hogs attaining to a great size, sometimes reaching the weight of 100 stones, but 40 or 50 stones when fattened being the more common average.

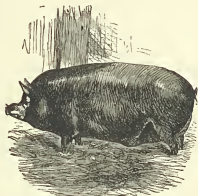
Such, doubtless, was a fair description of the old Berkshire, but of late their size has been reduced, and instead of the rough yellowish, or tawny coat—although vestiges of it remain in many instances—they are mostly black and white, and often nearly black, the latter including the hardiest breeds, while the whiter colours partake more largely of the Chinese cross.

The black, or black-and-white breeds of medium size, are perhaps the best stock that can be kept. They are hardy, not susceptible to changes of the weather, as some of the more delicate breeds of pigs are, will eat almost anything, and do well upon rough fare—a most important consideration in pig-keeping—and fatten quickly when put upon good food; they are fairly prolific, though they do not bring such large litters as some other breeds that can be mentioned.

110. **IMPROVED ESSEX PIG.**—These, originally descendants of the Berkshire, located in Essex, crossed with Chinese and black Neapolitan, have resulted in a very superior breed, which takes equal rank perhaps with the improved Berkshire. The old breed has been described as "up-eared with long sharp heads; roach-backed; carcasses flat, long, and generally high upon the head;

bone not large; colour white, or black-and-white; bare of hair; quick feeders, but great consumers; and of an unquiet disposition." This not very flattering picture has been succeeded by the improved breed alluded to.

III. **THE SUFFOLK AND NORFOLK.**—These have been held in high estimation as a useful and prolific race, though not of very large size; lately they have been crossed to a very considerable extent by the Berkshire—the improved Berkshire pig occupying much the same relative position amongst swine as the improved Leicester does among sheep.



ESSEX PIG.

112. **THE CHESHIRE PIG.**—The old Cheshire pig formerly attained an enormous size, some individual specimens almost equalling the proportions of a bullock.

Culley in his "Observations on Live Stock," says:—

"On Monday the 24th January, 1774, a pig (fed by Mr. Joseph Lawson, of Cheshire) was killed, which measured, from the nose to the end of the tail, three yards eight inches, and in height four feet five inches and a half; when alive it weighed 12 cwt., 2 qrs., 10 lbs., or 86 stone, 10 lbs. avoirdupois. This pig was killed by James Washington, butcher, Congleton in Cheshire."

The name of the butcher which is given, may be presumed to be furnished not on account of his having the honour of killing so large a pig, but by way of evidence or attestation of the fact narrated.

The old breed are described as standing very high on long legs,

having large heads, with long hanging ears, narrow back greatly curved, with deep flat sides varying in colour, being white, blue-and-white, black-and-white.

113. **THE OLD LINCOLNSHIRE, OR YORKSHIRE PIG.**—The old Lincolnshire, or Yorkshire pig, was of very large size, extremely long in the leg, and weak-loined, being very long-bodied, with long, coarse, curly hair; the flesh being flabby and of inferior quality.

114. **THE IMPROVED LINCOLNSHIRE PIG.**—Upon the unpromising materials described above have been grafted the *improved* breed, of which there may be said to be two varieties—the large breed, or wold pig, which is mostly met with in the Lincolnshire wolds, and throughout a large portion of the county of York, and the counties bordering on Lancashire; and the small breed, or pointed prick-eared pig, which are chiefly met with in the more southern parts of the county, and the adjoining ones of Northamptonshire, Leicestershire, Huntingdonshire, and Cambridgeshire.

The original large breed has been almost displaced, the race occupying its place being very much improved, with far better points; such as broad back, with wide, well-set rump, springing ribs, and broad chine and loin, with deep sides, and full chest.

It is generally considered a profitable kind of pig; feeding well, and growing fast, attaining 20 to 25 imperial stones, in twelve months from birth when well fed, the pork being remarkably good, and possessing a full proportion of fine lean flesh.

115. **THE SMALL BREED; OR, PRICK-EARED LINCOLNSHIRE.**—These are not the small animals which their names would describe, as they are as fine a race of pigs as can be found; but the term probably grew up in distinguishing them from the old Lincolnshire, which was one of the largest breeds in the kingdom—clever breeders having attained the object of securing the desirable points of the smaller races which they have grafted upon a large frame, reaching maturity early, and being compactly formed, broad-chested, and accompanied with lightness of offal.

116. **THE OLD IRISH.**—While speaking of large-sized pigs, we must not forget to mention here the old Irish, which Parkinson says "are all of the size of a large jackass, and very large-boned, and being of such an unprofitable nature that it is not uncommon for the poorer sort of men to be two years in fattening a pig."

Large mis-shapen animals with long, hanging ears, strong bristly hair, and narrow frame—their colours were various, being white,

black-and-white, and spotted. But of late years, by judicious crossing—mostly with Berkshire and some of the smaller breeds, as Suffolk and Norfolk—they have become vastly improved, and Irish bacon, which at one time was considered inferior, now occupies a high place in the market, a good deal of it finding its way to London.

117. **THE RUDGEWICK.**—This breed of pig, though long known and reared on the borders of Sussex and Surrey, and celebrated for their extraordinary size, appears to have been a good deal confined to the district mentioned, some of them attaining to the weight of oxen, instances being recorded in some of the County Reports of enormous weights having been reached, individual examples being quoted of 91 stone, 93 stone, 99 stone, and 116 stone; while the almost incredible weight of 182 stone was reached in one instance, at three years old! These weights must cause them to be considered the largest kind in Britain, but this very large-sized pork and bacon is now no longer marketable, as once was the case; which in all probability is the reason why we hear so little of the breed that was once so celebrated.

118. **THE HAMPSHIRE HOG.**—The Hampshire bacon has long been celebrated, but it is supposed to have been caused by the fact of its being fed when young to a great extent upon the mast that is to be found in the New Forest, and to the capital method of curing it, rather than to any inherent good qualities of the breed itself; being somewhat of a coarse animal, though fattening easily. But, in common with most other original breeds, it is now seldom met with as a pure race, having been largely crossed with the Berkshire, Chinese, Suffolk, and other breeds. These judicious crossings have resulted in an animal that is not only naturally hardy, but one that can be fattened at an early age, unlike some other breeds that must be kept for a considerable time as store pigs before the fattening process is commenced. The original breed was never of an extremely large size.

119. **THE SHROPSHIRE.**—The Shropshire is a somewhat large-sized pig, the prevailing colour being white or brindled, but possessing no very salient features.

120. **THE GLOUCESTER.**—The Gloucester is somewhat remarkable, on account of its having two wattle-like appendages hanging from the throat. It is not a well-formed or compact race, and does not call for any particular mention beyond the peculiarity referred to.

121. **THE CHINESE.**—What are termed the pure Chinese breed, though raised and naturalised in England, are beautifully white, both as regards the skin and the hair; the former being remarkably thin, and the latter thinly set with a few fine bristles; the snout being rather broad; head short; eyes bright and fiery; very small prick ears; wide cheek: high chine; and disproportionately large neck, which seems to be one with the carcase, when fat, so as to be without shape or symmetry. The legs are remarkably short, the belly nearly touching the ground; with an unusually short tail.

The flesh is delicate when fed upon the best food, as barley-meal and skimmed milk; but becomes oily and fat if the animal is fed



CHINESE PIG.

with animal or greasy substances; for it will eat almost anything, its prevailing tendency being to make fat; the cross with the English breeds having reduced this tendency. When fattened, there is scarcely any useless offal to be dealt with.

There are, however, many varieties of distinct kinds, at least seven kinds of Chinese being classified, difference in colour and size forming the chief variations. The small white breed is considered to be almost perfection in its shape and leading characteristics. Parkinson describes them as "being pigs in miniature; their legs about two-and-a-half inches long; ears about the size of a large leaf on an apple-tree; the length of the jaw, from the snout to the crown, about six inches; from the crown to where the tail is set on, about two feet; height about twelve inches; weight, when

full-grown and fat, six stones at two years old." They are somewhat delicate. The Black Chinese with bald faces, which possess something of the same bodily characteristics, are at once hardier, grow quicker, and are more prolific and reach heavier weights when fat.

The large black breed are the largest of all the Chinese varieties, being beautifully-shaped pigs, and reaching heavy weights when well fed; thirty stone being attained, and sometimes as much as forty, though the latter is a very unusual weight for this kind of pig.

122. **THE MEDITERRANEAN BREEDS.**—The Mediterranean breeds, including the Maltese and Neapolitan, to which we have alluded before, are round, plump and symmetrical; satisfying to the eye of the best judges, being shorter in body than the Chinese, but, upon the whole, somewhat larger in frame, being coal-black and almost entirely without hair or bristles. The most noticeable feature in connection with this race of pigs is their aptitude to fatten at an early age, and the pork produced by them is of very fine quality. They are tolerably prolific, and will thrive pretty well upon only moderate food; but there are many better breeds, as the improved Berkshire, which will answer the ordinary farmer's purpose better to keep, though all the breeds of this nature, as well as the Chinese, are admirably adapted, as before said, for the dairy-farmer.

123. **SCOTCH PIGS.**—The Scotch breeds of pigs were various, and of different varieties, but all of a very inferior description, until an improvement took place by crossing with English pigs.

124. **THE "TUNKEY," OR TONQUIN.**—This variety, alluded to before, is a small race, which make very delicate pork, and fatten early, being mostly white, of thick compact shape. They are fine-boned and short in the leg, attaining good weights in comparison to their size, and are of the kind most approved when sold in the form of small pork, and are therefore better adapted for the purpose of the dairyman than the farmer.

The foregoing list includes all the most noticeable breeds of pigs. There are other distinct races, such as the Herefordshire and the Wiltshire, but they do not call for any particular mention or notice; but, as we proceed, we shall duly point out the kind of breed best suited for certain definite ends, as the farmer should make choice of a race of pigs in accordance with his means and opportunities of keeping them to the best advantage.



CUMBERLAND FIG.

CHAPTER IX.

PIGS (*continued*).

Names of Pigs—Statistics relating to Hogs in the United Kingdom, Australia, and America—Characteristics of a good Boar and Sow—Uses—As Food.

125. **NAMES OF PIGS.**—Pigs are known by different names and terms, according to their age, sex, and condition. The female is called a sow; when spayed, a gelt or sow-pig—the operation of spaying being performed when the young sows are intended to be sold off fattened, or as store-pigs; the male being called a boar, or brawn, and when castrated a gelt, or cut-pig, hog-pig, or barrow-pig—in different stages of their growth and condition. The general terms applied to both sexes are: sucklers, fattening-pigs, and store-pigs; and the whole race is spoken of collectively as swine, hogs, or pigs indifferently.

126. **STATISTICS RELATING TO HOGS IN THE UNITED KINGDOM, AUSTRALIA, AND AMERICA.**—According to the Agricultural Returns of Live Stock issued by the Government in October, 1879, pigs in Great Britain were fewer in number by nearly 16 per cent. than in the year 1878. The competition of American bacon is reported to have reduced the price of pork and bacon, and a species of typhoid is also noticed by some collectors, especially in the south of England, as accounting for a great part of the decrease. There is also a proportionate reduction in the number of pigs in Ireland.

It may also be incidentally mentioned here that the number of pigs in Australia were given in the same report as 815,000; while the report received by the Department of Agriculture at Washington states that the number of pigs in the United States amounted to 34½ millions.

127. **CHARACTERISTICS OF A GOOD BOAR AND SOW.**—As will be seen from the description given of the various breeds of pigs, the points of the different races vary a good deal, but there are certain good qualities that are common to all, the characteristic signs of a good hog being moderate length as to the carcass, the head and cheek being plump and full, the neck short and thick; fine bone; full quarters; the proportions of the whole body being in accordance with the symmetry proper to each respective breed or variety.

In choosing a boar much depends upon local prejudice, so that it is somewhat hard to lay down a general rule, but a large-headed animal should be avoided, and one selected that is deep and broad in the chest, chine rather arched, with ribs and barrel well rounded, and his haunch falling full down nearly to the hock.

The boar should be more compact in his form, and rather smaller than the sow, because if the latter is somewhat coarse her offspring will be improved by the cross in form and flesh, and the more roomy she is, the greater likelihood of her producing a numerous and healthy litter.

The sow on this account should be chosen with a deep and capacious belly, and as symmetrical in proportion as the character of her breed will allow. One important point is that she has at least ten or a dozen teats; for as each sucking pig attaches itself to one particular teat, if there be not enough to tally with the number of pigs given birth to, some little outcast or other can only obtain a scanty allowance when the others fall off here and there, and will in consequence go back in condition.

128. **USES.**—The chief uses of the pig consist in its marketable value as food for man, and as a manufacturer of valuable manure on a farm; in England, the bristles and skin being only of very secondary importance. Bristles are used in the manufacture of brushes, and for other subsidiary purposes, while the skin makes excellent saddles, bags, &c., but these are chiefly sent to us from abroad, and are taken very little account of by the ordinary English agriculturist; the bristles being mostly burnt, or scraped off when the pig is killed, the skin being left upon the meat, which helps to

preserve it in the form of bacon and hams, and in this form, and that of fresh pork, which becomes "crackling" when roasted.

129. **AS FOOD.**—Buffon has pointed out that the fat of man, and of those animals which have no suet, as the dog and horse, are pretty equally mixed with the flesh, while the suet of the sheep, goat, and deer is found only at its extremities; but the fat of the hog covers the animal all over, and forms a thick, distinct, and continued layer between the flesh and the skin, thus differing from that of every other quadruped.

The drying of hams and bacon is very easily performed, it being usual in old times to hang them up in the wide kitchen chimneys of the old-fashioned farm-houses, where wood used formerly to be chiefly burnt for fuel. But proper smoke-houses can be constructed for a very trifling sum, made of a few boards, about 7 feet high, closed on all sides, with a small hole in the roof for the smoke to escape through. Saw-dust should be spread all over the earthen floor, to about the depth of 5 or 6 inches, which, when kindled, will smoulder without breaking out into flame. Pieces of timber, strong enough to bear the weight of the flitches and hams, should be placed across, so that the ends of the flitches hang down within a couple of feet or more of the floor, the neck being downwards. It is of no consequence how closely they hang together, so that they do not absolutely touch one another.

Generally speaking, they will be cured in this way in about a fortnight's time, the hams requiring longer.

The flavour of the hams is considerably improved if sugar is used in curing, in the proportion of 1 lb. of sugar to 3 lbs. of salt, and 2 ozs. of saltpetre. The sugar not only assists in preserving the meat, but renders its fibres mellow, while it corrects the extreme pungency that is often given to the flavour of bacon and hams by the too liberal use of salt alone.

In some parts of the Continent the hide is stripped off, under the belief that the flesh takes the salt better, and the hide is sold to saddlers for making saddles, but the practice is hardly ever followed in England.

When the farmer is in a position to feed his pigs and make them fat as porkers, in the event of his carrying on dairying operations, or having means at his command to feed his pigs advantageously, it is found very profitable to sell off his produce in the shape of young pork. But when his object is to keep store pigs to eat up any rough food that he may have to dispose of, such as diseased potatoes, vegetables, or various farm refuse, he must necessarily keep them a certain time, and then sell them alive, or fatten them off for bacon; for in the shape of pickled pork, he cannot compete with barrelled pork that is imported.



YORKSHIRE PIG.

CHAPTER X.

PIGS (*continued*).

Management of Stock—Feeding—Fattening—Ringing—Slaughtering—Pig-styes and Figgeries—Breeding—Period of Gestation—Sows Destroying their Young—Littering Sows—Rearing—Sucking Pigs—Weaning.

130. **MANAGEMENT OF STOCK.**—There are several ways of profitably managing swine, which must depend a good deal upon the capabilities of the farm, or situation occupied by the breeder or stock-keeper; for many people do not take the trouble to breed pigs themselves, but merely buy in young animals to eat up a certain amount of food that otherwise would be wasted, but which these animals glean, and then sell them off afterwards fattened.

Store-pigs, which had attained half their growth, used formerly to be separated from the others in the course of the month of May, and turned into the fields, where they were kept till Michaelmas, the gates being closed upon them, and care being taken that the fences were in sound condition, so that they did not break out and wander to some other points where they might do a considerable amount of damage in a very short time. But this plan, although partially carried out, on account of the different system of farming which now most commonly prevails, and the reduced amount of fallow land there is, is not so frequently resorted to; and now they are not turned out so much, except towards autumn, when they are put upon the stubbles and other spots, where they are enabled

to pick up a tolerably good living for themselves without any great amount of cost having to be incurred. Still, under a good course of management, and by methods of feeding not generally practised, pigs can be kept upon a farm for a comparatively much smaller amount than their food usually costs, if not in absolute money, which cannot be actually reckoned, in the amount of good food consumed, of which we will briefly speak.

131. **FEEDING.**—The custom of turning pigs out is indeed a very good and profitable one at certain seasons of the year; but it is not at times nearly so advantageous as keeping them in their styes (where their manure accumulates) and carrying their food to them.

The profitable time for turning swine out is, as before-mentioned, after harvest, when they can pick up a good deal amongst the stubbles, and eat the springing clover or other grasses, and especially where there are oak trees, either in woods or plantations, or placed round the fields as hedge-row timber, as well as where beech-mast is to be found.

Some oak trees will produce a very large quantity of acorns, which fall day by day, and the pigs, where these abound, may be seen making their daily rounds from tree to tree, and scampering off to another tree as soon as all the acorns beneath one are picked up.

Pigs will eat a good deal of grass, and find both health and amusement from being turned into a meadow, but their manure is then dropped about, and not concentrated in one spot, with the addition of much other matter which can be added to swell up the manure-heap, and it is when the pig-stye is regarded as a manufactory of manure upon a large scale, that pigs become so valuable to the farmer; though swine can be kept profitably by resorting to economical contrivances, and be made to answer well, even without looking upon the manure as the chief source of profit, which is the light in which many farmers are in the habit of regarding the subject.

They, however, cannot be made to do this as store-pigs between the ages of two months and twelve months old, which is the most unprofitable time in the life of a pig that is kept as a store animal, though breeding sows can be made eminently profitable. If the farmer has no skimmed milk, or spoiled grain with which to fatten young pigs and sell them off as porkers, if he breeds upon a large scale it will be found to pay best to sell the young pigs off directly they are weaned. If he wants the manure, and can find any kind of

rough food—and there are many sources which will supply this that are very often overlooked—store-pigs will answer his purpose to keep, but not without.

Although it never answers the purpose to have any animal in a half-starved condition, which is the most expensive possible way of keeping stock in the long run, yet, as pigs of a hardy breed, as the Berkshire, are coarse feeders, there is a vast amount of possible fodder that is often entirely neglected, that may be used to great advantage.

Where any number of pigs are kept, there ought to be two distinct sets of cooking-apparatus: a good large copper for boiling, and a small kind of *kiln* for baking. The latter can be constructed at a trifling expense, and should consist of a few bricks built up to support a thick, flat plate of iron, beneath which is a fire-hole, and so make a rough kind of oven, but more open than an oven, and partaking rather of the nature of a *kiln*.

Upon this sheet of iron, which will constitute the chief expense, and may possibly cost a pound, diseased potatoes may be *baked*. Unfortunately, since the potato disease has become established in this country, there is no lack of diseased potatoes, either of one's own growing, or that can be purchased of one's neighbours; and some of these are in a deplorable condition, and as the longer they are kept the worse they get, till they sometimes become an offensive, pasty mass, instead of boiling them, and stamping them down in barrels, or in a pit, and sprinkling salt over them—both excellent ways of preserving diseased or other potatoes for food—the baking process will be found a capital one, the undue moisture in the diseased part being dried up, and the whole made so palatable that pigs will eat them as readily as they will do corn.

Diseased potatoes may often be bought for sixpence per bushel of farmers who want to get rid of them, and, when very bad, are sometimes sold for as little as threepence per bushel, people being often only too willing to get such offensive matter out of their way; and as there are generally the result of sundry pickings over, and sortings, the supply is often pretty constant during the winter.

The kiln will often be found very useful for many other purposes, as when damp food needs to be dried; and the firing can mostly be picked up and formed out of the trimmings of hedges, clumps of old wood, and odds and ends that lie about, and the ashes should be saved, and put in a dry place to drill in with seeds, or use as they may be wanted.

The copper should always be kept going, and all manner of refuse boiled up. Nettles which grow in hedges in too abundant profusion in many places, should all be gathered together by a lad with a hook, and brought to the feeding-place for the use of the pigs. The young ones will be eaten readily when green by the store-pigs, and the older ones should be boiled, leaving out the very tough stalks. These will boil up well with other green food, such as the outside leaves of cabbages, or any refuse vegetables, and a few handfuls of meal, pollard, or bran will vastly improve the quality of the mess, and a large amount of food be got together at a very small cost.

The ordinary farm labourer will most likely deride the notion of feeding pigs upon such food, and may not be found to enter very readily into this kind of system, but those who have the feeding of pigs should be made to do it.

In the north of England, the young tops of nettles are often eaten and relished as a vegetable, and "nettle tea" is considered a very fine thing for the blood in the spring of the year, and if good food for man, it may safely be affirmed to be the same for pigs; and many kinds of vegetable food that would not be eaten without being cooked, when it finds its way to the copper, goes down very well with the rest, and by boiling the rougher parts that would be rejected uncooked, these are softened and assimilated with the other.

When turnips are singled, or mangold, those that are cut out, and the tops of early potatoes that are dug, should all be gathered together and thrown down *outside* the pig-styes, and portions thrown over several times during the course of the day. When large quantities are thrown over at once, the pigs pick out some, and in course of time trample down and spoil the remainder, before they have time to consume a quarter of what might be eaten, had it been thrown to them on separate occasions. When grass-plots are mowed, or hedges trimmed, a similar course ought to be pursued, and the same with the vast quantities of weeds that often come off the land in rainy seasons. These, instead of being burned—a good enough practice of itself—should be carted to the pig-styes, and served in the same way. Sow-thistle and other weeds abound amongst it, and the earth attached to the roots will be trodden down with that which is left, and their hooves will convert the whole into a valuable manure; and when this is persistently carried out, the amount that can be collected together where a large number of pigs are kept will be enormous, and very much surprise those who have never practised it.

Every farmer, or every person who has a large garden, has occasion to sweep up the leaves which fall in autumn, and make a clearance so that tidiness may prevail. These should all go to the pigs, to swell up the manure-heap, and amongst them will be acorns, beech-mast, and many unconsidered trifles that all swell up the amount of food for these hearty eaters to consume.

By such contrivances as these, the pigs' food-bill is kept down considerably, and, by resorting to them, even store-pigs may be kept almost without expense until they have attained to twelve months old, when, if put upon good food, they will be found to fatten readily, and be ready for the butcher upon a much smaller allowance of meal, or corn, than often would be supposed.

In following out a system of this kind, of course a hardy breed of pigs must be selected, such as the improved Berkshire.

When a number of cows are kept, or upon a dairy-farm where there is plenty of dairy-refuse, some of the smaller breeds that have been described, that reach a certain degree of maturity early, will be found the best class of pig to keep; but each person must, in this respect, be guided by his own circumstances.

Some farmers allow their store-pigs to graze over the clover and other artificial grasses. This, at best, is but a slovenly and wasteful practice, but is endeavoured to be justified sometimes by their owner pointing out that, when slaughtered, the pigs fetch a good round sum, and want but a few handfuls of corn whilst they are growing into money; but it will be readily seen that the method recommended is much more desirable and efficacious in carrying out the objects in view.

Brewers' grains make a good article of food for pigs, when they can be obtained cheap. They are sold at 1s. to 2s. per quarter by the large London brewers; and, when pressed down in a pit, or a sugar hogshead, and kept for a few months, they undergo a kind of fermentation, and are much more serviceable to them on this account than when used fresh.

There is a dreadful outcry at the time these lines are being written, about agricultural distress and the unprofitable character of British agriculture; but the question may well be asked, Do English farmers rear their stock at the smallest possible rate of expense? Unfortunately they do not do this in many instances; and unprofitable feeding, though not exactly to be called waste, in effect really amounts to much the same thing.

What would be thought of a manufacturer who put twice the amount of material into his fabrics that there was any real occasion for, or neglected his opportunities for economising the expenditure of his raw material?

The large amount of food that an unprofitable breed of pig will consume is

something enormous, especially if in lean or poor condition before the fattening process is begun—cases being recorded where it has taken seventy-eight bushels of peas, barley, and oats to fatten one animal, which, however, was of large size. Butchers' offal, chandlers' greaves, and such food, causes the pork to be rank, and should never be given.

In country places, a valuable stock of food can be often got together at a small cost, by giving the women and children of a village a shilling per bushel for all the acorns they can pick up. Some object to the use of acorns on account of its making the flesh hard, but acorns may be given to great advantage, if their use is discontinued before the pigs are shut up for fattening; and they will be found almost as good as corn for strong and hearty store-pigs.

132. **FATTENING.**—Pigs are usually fattened with barley-meal mixed into a thin paste with water; and are often taken from a store condition and put upon this food at once, which is an excellent food, but costs a good deal of money. The most economical way, however, is to make a gradual commencement in the improvement of the quality of food, and begin by giving them boiled potatoes mixed with a little meal, gradually increasing the quantity of the latter till it is given wholly.

By this means the expense is considerably lessened while the pig is approaching the fat condition by progressive stages; and each heightening, as it were, of the quality of the food gives a renewed stimulus towards the fattening process. Bran, and pollard, may be usefully given in conjunction with potatoes at the early stage of fattening, to bring down the gross cost of the food; and by attention to such details as these, pigs may be fattened at a considerably less cost than by the method ordinarily pursued of putting them upon the best food at once, and keeping them to it continuously.

To hogs of large size, peas; or corn bruised, may be given in addition with advantage.

When pigs are being fattened, the most scrupulous cleanliness should be practised, and not more food given at a time than the pig will lick clean up, as none should be left in the trough to stand or get sour; and should there be any left at times, this should be emptied out, and given to the other pigs. The attendant will soon find out how much each animal will eat, and lazily lick the trough for the little that remains adhering to its sides; and they should be fed at least three times a-day, and a little salt put into their food.

Linseed, which has been recommended by some writers, should never be given to pigs, as it makes the flesh rank in flavour. Nothing, indeed, can excel barley-meal as a food for fattening pigs, the only drawback being its great expense; but this can be kept down, as described, by the free use of potatoes, or by starting off with a mixture of pollard and potatoes, or even bran (assimila-

tion of food being a great point in all feeding), when the pig is first shut up for fattening.

Pigs, as a rule, do not fatten well before they are fifteen months old, except in the case of certain special breeds that have been described, especially well suited for becoming porkers.

March and October are the best times for pigs to come round when fattened, which will allow of fresh-cured bacon to come into use all the year round; and pigs are never killed during the heats of summer, and the duration of time consumed in the process of fattening is usually from six weeks to two or three months, some breeds fattening much more quickly than others. Anything like the poor Irishman's pig, that took two years to fatten, will prove a decided loss.

While they are being fattened, the pigs should be kept warm; a certain amount of food being always consumed by all animals for the mere purpose of keeping up the animal heat.

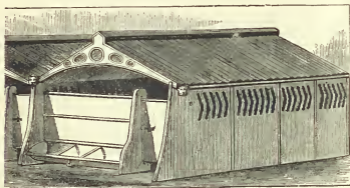
133. **RINGING.**—In order to prevent pigs from turning up the ground with their noses when turned abroad, or even rooting up the floors of their styes, it is necessary to *ring* them with a ring of iron, which is fixed in the snout of the pig when young, and the tenderness this occasions when it is pressed hardly upon the ground deprives the animal of the power of doing mischief. Some have effected this by cutting the two tendons of the snout about an inch-and-a-half from the nose, which it is said may be done without prejudice to the animal when about two or three months old.

134. **SLAUGHTERING.**—Pigs are usually stuck in the neck with a knife—the pig-killers who perform this office, and cut up a pig, charging about eighteen-pence, and performing the job with wonderful celerity; but the quickest and mildest way is to use a kind of hammer, or small pole-axe, having a handle about three feet long, and a kind of spike about three inches long at the head. A smart blow struck with this spike on the part of the brain immediately under the curl of hair on the forehead, will cause the pig to die instantly. The aorta must then be immediately opened, to let out the blood, and in this way several pigs can be killed in a few minutes.

The carcase is then scalded on a board or "cratch," by having pailfuls of scalding water thrown over it, taking care the water does not half-cook the outside of the pig, but it should be sufficiently hot to cause the hair to come off freely when scraped with a knife.

When this is done it should be hung up in a cool place, opened, and the entrails taken out, cleansed, and left for at least twelve or fifteen hours. The pig before being slaughtered should be kept without food for twenty-four hours, but plenty of water should be allowed to it in the mean time.

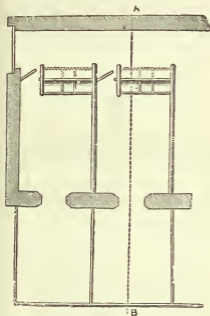
135. PIG-STYES AND PIGGERIES.—Pig-styes are often but of very humble pretensions, and a pig can be made comfortable upon very slender accommodation, if arranged upon right principles. The pig-stye should always face the south, and he should be kept warm, so as not to feel the influence of atmospheric changes, pigs being gifted proverbially with the talent of being able "to see the wind." That little pigs acutely feel an unfavourable change upon the advent of a cold or biting wind, is amply evidenced in the querulous cries they utter upon these occasions.



This illustration and the two following ones show some Piggeries in which the open yard is covered with an iron roof. The doors are either in front or behind. If preferred, the arrangement may be reversed, putting the feeding troughs at the back under cover, in which case the brick houses should be widened so as to provide a covered feeding passage as shown. These illustrations are kindly lent us by the St. Pancras Iron Work Company.

Wherever the stye is put, it should be placed upon a slight elevation, so as to allow of sufficient drainage, and on no account should it be allowed to remain in a condition of liquid mud of various consistencies, as may be often seen, under a mistaken idea that a dirty condition is the natural one for a pig; and upon whatever scale the accommodation for swine may be fixed, as respects the number of animals to be kept, each stye should be about fourteen feet long and seven feet broad, the back portion to be covered in with a low roof; sufficiently spacious for a large sow or fatting hog to turn about comfortably in. Sometimes the sleeping

apartment is left open in front, which is a very good plan in summer, but not warm enough in winter, the best method being to have boards to run in a groove at top and bottom, which may be used or taken away at pleasure, a small framework being made to form a doorway. This arrangement will be found much better than making the front of the styte a fixture, as the boards can be taken



PLAN.

away and replaced when the inner styte wants cleaning out, and prevents the necessity of a man's stooping down to creep through a small hole, which is often the occasion of a styte not being properly cleansed and kept clean.

The uncovered part where the animal is fed should be surrounded by a low paling, or low wall, which admits plenty of sun and air. A trough should be placed in front for the reception of the food, with bars across, so that where there is a litter, or several store pigs are shut up together, the stronger ones should not be able to push the weaker ones away with their snouts by thrusting

them violently forward, which they will sometimes do.

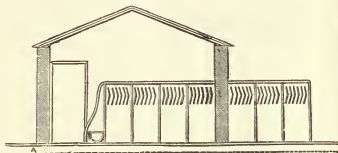
The method cannot well be adopted where there is a thick wall, but where there is only a paling, it is better to have the food-trough outside, with holes large enough to admit one pig's head. There is a double advantage in this arrangement, for only one pig can occupy a hole at a time, and when one animal, even if he is but a little fellow, has possession of a hole, it is somewhat hard work for another to dislodge him, while the greediness of the would-be monopoliser of the whole trough, in his anxiety to feed, hastens off to an empty hole, and so leaves the one he has tried to molest in quiet possession. This is one advantage.

Another is, that when a man has to pour wash from a pail into a trough

inside, the pigs, in their eagerness, get their heads in the way, or crowd near the pail in such a manner that a good deal is spilled over them at times, and much of the food wasted.

When the troughs cannot be placed outside, hinged shutters, locally termed "witches," are sometimes fixed before them, in order to prevent the pigs putting their feet in them, which yield to the pressure of the snout when he is feeding, but close upon his withdrawing his head.

A few styes, where a number of pigs are kept, should be of larger dimensions, to accommodate several animals of the same age. If water can be conveniently laid on, it will be found of great advantage to have a pipe both for the purpose of cleansing the styes and of mixing the food, which will save a good deal of trouble at times,



SECTION THROUGH A B ON PLAN.

though "wash," however poor, is always preferable to water for mixing pigs' victuals.

When piggeries are required upon a large scale, a boiling-house should be constructed in the centre, and the styes arranged in a half-circular manner around it, or they may be extended to any length, and a cesspool should be sunk for the liquid manure to run in, which will be found very valuable.

Many very complete buildings have been erected for the accommodation of pigs, but, as a rule, they are a good deal overlooked as profitable stock; many farmers not being able to make them pay when food has to be purchased for them, or they consume food from off the farm which might be sold for so much ready money; but this arises more from defective or bad management, than from any fault connected with the race of animals themselves.

If conveniently arranged, one man could attend to a great number of pigs; Arthur Young having been said to have fattened

eighty-eight hogs in one spring, with the attendance of only one man; the buildings having been arranged in a semicircular fashion.

With economical feeding, and well-arranged piggeries, swine can be made very profitable stock, and valuable adjuncts in a farm, from the vast quantity of manure they can be made the means of manufacturing, with proper and judicious management.

136. **BREEDING.**—Swine are capable of breeding at eight or nine months, but the boar should be at least twelve months old before he is admitted to the sow, which will also bring a stronger litter if kept back till the same age, and one boar should not be allowed to serve more than ten sows.

137. **PERIOD OF GESTATION.**—The period of gestation is from sixteen to twenty weeks, the term being extremely various in many species. According to the experiments of M. Teissier, the extreme short and long periods of twenty-five sows were 109 and 143 days; and as sows can bring two litters a year, it is considered best to arrange the time of farrowing so that it may take place about the latter end of March or early in April; or towards the end of August; which lessens the chance of losing young pigs through cold weather, and they require less feeding. The sow, as she approaches her time of farrowing, should be kept tolerably well, in order to be able to supply her young with a proper amount of nourishment, and particularly well fed two or three days before the expected time, which is indicated by her carrying straws in her month to form her bed.

138. **SOWS DESTROYING THEIR YOUNG.**—It sometimes happens that at the first farrowing a sow will eat her young ones, and in order to guard against this happening, the practice is recommended of washing the backs of newly farrowed pigs with a sponge dipped in an infusion of aloes and water, which will prevent her from destroying them; and about the time of farrowing sows should always be carefully watched.

139. **LITTERING SOWS.**—The sow should be lodged dryly and warmly, and be well littered up, but the straw should be cut short, to prevent the pigs from nestling under it, in which case the sow is apt to overlay them; and if a heavy animal, with a large litter, this is pretty sure to happen if this precaution is neglected. The average number of pigs in the first litter is from seven to eight, but it is not always the most numerous litters that are the best ones, as in large litters there are very often several weakly specimens.

140. **REARING.**—About a week after farrowing, all going on well

the sow may be permitted to leave her sty for a short time every day, and when the little ones are sufficiently strong, they may also accompany her to some orchard or enclosure, keeping them away from the farm yard, where at times they might stand a chance of being smothered, the herbage of a green field improving the quality of a sow's milk; while the pigs will grow faster from the enjoyment of the air and exercise.

141. **SUCKING-PIGS.**—If the litter is numerous, the number should be lessened, and some killed off as sucking-pigs, which will be best done when they are about three weeks old, by which time the others intended to be raised will be able to follow the sow about, when the males may be castrated; but the spaying of the females should be delayed for another week.

It is generally thought that seven, or at most nine, is a sufficient number of pigs to rear, as it is a great tax upon the sow's power of nourishment to suckle a greater number; and it is best to have fewer strong healthy pigs, which of course would be selected to be kept, and the less strong ones disposed of as sucking-pigs, than rear a large number of weakly pigs.

142. **WEANING.**—When it is proposed to wean pigs, they should be fed with a little warm skimmed milk, mixed with a small quantity of meal, during the sow's absence; but even her presence will be immaterial, if a small trough is placed in a corner of the sty, with a strong hurdle fastened before it, or a framework of wood, to which the sow cannot obtain access by reason of her size.

They will very soon learn to feed themselves and be independent of the mother, if need be, generally being strong enough for weaning in six weeks' or two months' time, when they should be gradually separated from the sow, and only allowed to suck her twice a-day at first, and once a-day afterwards, leaving the weakest ones a few days longer with their mother.

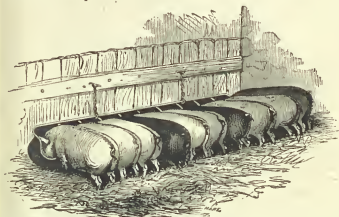
The young pigs should be taught to feed themselves as early as possible while sucklers, by adopting the contrivance, before spoken of, of having some skimmed milk, butter-milk, or a little good wash, with meal in it, made luke warm, put in a corner for them to have access to, by which the operation of weaning will be very much facilitated.

In concluding our notice of pig-keeping, we may here remark that, under a system of good management and proper attention, few animals can be kept to greater profit or advantage than pigs upon a general farm, if the proper precautions are taken for ea-

suring them a supply of food at a small cost, or rather, of turning those things to account which cost nothing beyond the value of the labour of their collection, and if it is made a matter of business to purchase at a small cost any kind of food that can be utilized.

The sweepings of markets or granaries—even malt-dust—is an excellent thing, when sprinkled over boiled vegetables or green stuff, that will be benefited by such an admixture; damaged grain or rice, and the other articles we have mentioned, all can be made to come in most usefully for pigs.

It is more than probable, too, that the farmers of the future will



pay more attention to the growth of vegetables, and be to a greater extent *market-gardeners*, there being a large and profitable demand for vegetables; and upon the refuse of these a large number of pigs can be cheaply maintained, in addition to other sources of supply.

Pigs can be put anywhere—in any corner: and keeping them as stock does not demand any special capabilities of soil, position, or other requirements, as is the case with other kinds of stock; and they are stock that may be said to be well in hand, it being possible to keep a great number or a few, according to circumstances, and the facilities which exist for feeding them; though a contrary opinion is often found to be entertained, especially by those who are in the habit of constantly sending to the miller or the cornchandler, in order to satisfy the appetite of these hearty eaters, instead of taking off its edge with the large amount of rough stuff that is to be found on every farm, which, with a little management, can be converted into a large amount of nutritious aliment by the admixture of a small quantity of concentrated food, the manure they make lessening considerably the necessity of purchasing, at a high cost, expensive artificial manures.



WESTPHALIAN PIG.

CHAPTER XI.

PIGS (*continued*).

Diseases and their Remedies—Rheumatism—Catarrh, or Cold—Eruptions of the Skin—Scrofula—The Epidemic—Inflammation of the Chest and Lungs—Protusion of the Rectum—Inflammation of the Bowels—Diarrhoea—Diseases of the Spleen—Colic, or Spasm of the Bowels—Inflammation of the Brain—Gargut—Quinsy, or Strangles—Measles—Leprosy and the Murrain—Mange—Small pox.

143. **DISEASES AND THEIR REMEDIES.**—Pigs are not subject to nearly so long a list of diseases as some of our other domesticated animals; but, from their nature, the symptoms of any derangement are generally very obscure, and diseases often make a good deal of progress before they are discovered; but a good many of these are produced by neglect and want of proper attention.

144. **RHEUMATISM.**—Rheumatism is, perhaps, one of the most common disorders of swine, and is mostly brought about by damp and unwholesome lodging, or exposure to cold; the sty, perhaps, being in too exposed a situation, or placed on damp, undrained ground. A sty on a slight elevation will, with proper means of drainage, be a good safeguard against this disorder, coupled with some warm litter for bedding—pigs, to do well, requiring to be kept warm.

Two to five grains of colchicum, given daily for three or four days, will be found the best medicine for this disease, the bowels being well opened also; but by giving the pigs a good warm sty,

and plenty of bedding, and protecting them from keen and biting winds, to which these animals are very averse, rheumatism may be guarded against pretty effectually.

145. **CATARRH, OR COLD.**—Wet, or exposure to the weather, brings on catarrh very often with pigs—the best-cared-for animals being the most exempt—the symptoms being a cough and a mucous discharge from the nostrils. Proper care and good housing, are the first steps towards a cure; but when the animal is evidently a good deal affected, it will be found of advantage to administer the following for several successive days:—

Antimonial powder	3 to 6 grains.
Nitre	10 „ 30 „
Digitalis	1 „ 2 „

When the disorder extends to the lungs, and becomes bronchitis, a more serious phase is entered upon. The animal should then be bled, and a stimulant rubbed on the brisket.

146. **ERUPTIONS OF THE SKIN.**—Pigs suffer occasionally from eruptions of the skin, which usually break out first at the ears, and proceed from opposite causes at times.

A high state of living, when too much heating food is given, will require to be modified by a change of diet, beans and peas being a description of food that has a heating tendency, and when arising from this cause, a cooling lotion should be applied, consisting of the following:—

Muriate of ammonia	4 drachms.
Acetic acid	1 oz.
Cold water	1 pint.

Want of air and attention to cleanliness, as well as poor living, will, however, produce the same appearances; and, if not attended to, will spread from the ears over the body in cutaneous pustules, which itch violently and eventually turn into scabs. When the first symptoms make themselves manifest, which will be known by the pigs scratching themselves, if an ounce of sulphur and nitre is mixed with their food, it will be found beneficial. In the large, long-eared breeds the neck and ears become ulcerated; when a mixture of mutton suet and tar, melted together, to which is added a small quantity of the flour of sulphur, should be applied to the affected parts every third day.

If this is not efficacious, the animal should be separated from the rest, and washed thoroughly with strong soap-ley; and ointment of a similar kind occasionally should be applied to the affected parts of the body.

147. **SCROFULA.**—Scrofula is found to affect pigs that are bred too much in and in, finely-bred pigs being the most subject to the disease. Tubercles form in the lungs and mlsentery, which interferes in the case of the latter with the proper absorption of the chyle; nothing in the way of medical treatment being of any avail, till at length the animal dwindles away and dies. The infusion of fresh blood in a stock of pigs is the best preventive.

148. THE EPIDEMIC. — This disorder attacks pigs as well as other animals, the indications being lameness of the feet, caused by soreness between the claws, and the usual inflammation of the substance connecting the bone with the horn, which causes the hoof to be cast when pus has been formed; there being a considerable amount of fever in the system.

Cooling medicine should be given, such as Epsom salts, and an astringent applied to the feet, like that used for sheep affected with sheep-rot. A good astringent is made of a saturated solution of sulphate of copper or zinc.

149. INFLAMMATION OF THE CHEST AND LUNGS. — Pigs that are compelled to lie in damp and wet places are frequently attacked by inflammation of the lungs. Bleeding is generally thought necessary, whether the disorder incline either to bronchitis or pleurisy. The symptoms are quick breathing, a diminished appetite, and fever.

Bleeding is generally recommended as a first step, the bowels being moderately opened by aperient medicine, and the following given once a-day:—

Nitre.....	5 to 20 grains.
Calomel	1 " 3 "
Tartarised antimony	1 " 3 "

The calomel should be omitted after two doses have been taken. Blisters may also be applied with advantage to the chest.

150. PROTRUSION OF THE RECTUM.—Pigs that are kept upon animal food, and are confined in close, unhealthy quarters, as in the yards of butchers in towns, are the most likely to be visited with this disease, which is also sometimes brought on by violence, or by hunting an animal about, being most frequent with young pigs, and often ending fatally.

The proper treatment for these cases is to keep the pig in a clean, quiet place, and give no food but a little milk, in order to get the bowels well emptied before the gut is put back.

As pigs are rather difficult patients to deal with, after being properly secured, the parts should be washed carefully, and the rectum returned, being pushed up some little distance. Some strong thread should then be tied through the anus, and fastened securely, and no solid food should be given for several days; milk alone being used.

151. INFLAMMATION OF THE BOWELS.—Unwholesome food is the most frequent occasion of inflammation of the bowels, which may be either acute, or sub-acute, the pain being considerable in

the former case, without intermission. There is a considerable degree of fever, and loss of appetite, the symptoms being of a more modified character in sub-acute cases, but both being very dangerous.

Bleeding is recommended from the inside of the fore-arm, blood varying in volume from 2 oz. to 2 lb. (according to circumstances) being taken away.

Linseed oil or some other purgative should be given, and in case of severe constipation, injections should be used, and warm baths are also very efficacious, especially in the case of small pigs. Calomel and opium combined, in doses of two to five grains of each, is considered the best medicine for inflammation of the bowels.

Jalap is a good medicine for constipation when there is no active inflammation, given in doses of a scruple to a drachm. Infusion of senna, Glauber salts, and Epsom salts may also be given in the form of a drink. As there is often a difficulty in giving medicine to a pig, linseed oil, which the animal will commonly drink of its own accord, will be found a very useful purgative.

152. **DIARRHŒA.**—When diarrhœa goes on unchecked for some time, it often assumes a dangerous form in the pig, and turns to inflammation. Prompt treatment is therefore called for, which must be persevered with continually, while the symptoms last, and the following medicine given:—

Powdered opium.....	15 grains.
Prepared chalk	4 drachms.
Powdered ginger.....	1 "
Peppermint water	4 ounces.

which will be enough to make eight doses.

Should the evacuation be slimy, a dose of Epsom salts should also be given.

153. **DISEASES OF THE SPLEEN.**—These are very difficult to cure, and the chances of success very remote, the forms being rupture and inflammation, denoted by foaming at the mouth and grinding of the teeth. In cases of rupture they end fatally, while inflammation of the spleen is very dangerous. Bleeding and purging are the only remedies; but there is but slender hopes of good results from treatment except in the milder cases of inflammation.

154. **COLIC, OR SPASM OF THE BOWELS.**—This is a somewhat rare disease with pigs, but occasionally is met with. Medicine is in the first place given, consisting of 1 drachm to 8 of tincture of opium, and twice that quantity of spirit of nitrous ether,

according to the size of the pig, given in a few ounces of hot water. If this does not afford relief, bleeding must then be resorted to.

155. **INFLAMMATION OF THE BRAIN.**—The symptoms of inflammation of the brain are dulness, sometimes violent convulsions, and occasionally blindness. Purging and blood-letting are the remedies.

156. **GARGUT.**—Gargut is an inflammatory affection of the udder of the sow, which being distended by coagulated milk, obstructs the lacteal ducts. Too rich feeding before the time of farrowing sometimes produces it, the treatment being in slight cases to bathe the bag with camphorated spirits of wine. As the young pigs will not suck the vitiated milk, it should be gently pressed out by the hand, but if it cannot be extracted by this means, it will be best to kill the sow.

157. **QUINSY, OR STRANGLES.**—Fat hogs are the most liable to this disease; the throat swelling, and the pulse and breathing being greatly accelerated, which ends in suffocation if relief is not afforded. The tongue protrudes, and is covered with slaver, and gangrene follows unless the progress of the disorder is arrested by bleeding and purging.

158. **MEASLES.**—Pigs are sometimes attacked by measles, though they are seldom fatal, measly pork being not uncommon, and occasionally sold to the poor in third-rate shops, the meat having a faded appearance, and the flesh punctured with small holes, or distensions of the fibre, which is caused by a number of small watery pustules externally.

Cooling medicines, such as Epsom salts and nitre, are generally efficacious, the symptoms being fever, cough, discharge from the nostrils, and pustules under the tongue.

159. **LEPROSY, AND THE MURRAIN.**—Leprosy is a formidable disease, but very seldom met with in this country; but the murrain—a species of leprosy—is caused by inflammation of the blood in hot seasons; the best preventive being to keep the pigs cool, and not give them any heating food, such as animal refuse.

160. **MANGE.**—Pigs are much less subject to mange than dogs, horses and sheep, though it is occasionally met with, the symptoms being the usual itching. Sulphur ointment, mercurial ointment, or tobacco-water, well rubbed in the skin, are the best remedies to have recourse to.

161. **SMALL-POX.**—Small pox is extremely rare in the case of pigs, though they are occasionally attacked by this disease.

Regularity in feeding, and perfect cleanliness are the best safeguards against attacks of disease of all kinds, and, as prevention is better than cure, if a small quantity of nitre and sulphur is occasionally mixed up with their food, it will often prevent disease, keep them cool, and yet be the means of giving a healthy stimulus to their appetite.





CASHMERE GOATS.



SYRIAN GOATS.

CHAPTER XII.

GOATS.

Natural History—Varieties—Statistics relating to Goats in England—Uses—Goat's Hair—As Food—Goat's-Milk Cheese—The Skin—Uses in Foreign Countries—Management—Tethering—Breeding—Diseases.

162. **NATURAL HISTORY.**—As mentioned before in reference to the sheep, the goat so closely resembles the latter that some naturalists have regarded them as one and the same species; the difference between them being so very trifling as scarcely to be noticeable, the only distinct variation being the presence of the interdigital hole, or gland, which is found in one animal, but not in the other.

Those who disagree with this view have pointed to the hairy coat of the goat, which more resembles the hide of the ox than the wool of the sheep; but it is noticeable that, in cold climates, the wool of the sheep becomes nearly allied in its character to *hair*, while the hair of the goat in warmer latitudes partakes more of the nature of *wool*.

This fact has been brought strikingly forward in the case of the late Sir Titus Salt, of Bradford, who was the first to manufacture

the bright-haired wool of the alpaca into dress-stuffs in this country—fabrics that got to be world-renowned, and were turned out in vast quantities in his manufactory at Saltaire, near Bradford.

When Pizarro first reached Peru, the natives were found in possession of two domesticated animals, the llama, and the alpaca, and he and his companions were at a loss whether to consider them as camels or sheep; but finding as they advanced into the interior that large flocks were kept, and the wool was used for clothing, the Spaniards dubbed them *Carneros de la tierra*, or country sheep.

The softness of the wool of the llama has long been renowned, of which the Spanish naturalist Acosta gave the first description in his work, *Historia Natural y Moral de Las Indias*, published in 1590, the alpaca bearing a heavy fleece, and the llama bearing but a short coat. The story of Sir Titus Salt having cursorily noticed a lot of neglected alpaca wool lying in a corner of a Liverpool merchant's warehouse, and the large branch of industry which originated from his clever manipulation of it, giving employment to thousands of workmen in this country, is generally well known.

As a proof of the close affinity between the sheep and the goat, the fact has been pointed out that the hybrids produced from the cross between a goat and an ewe have not been barren, but, according to Cuvier, (*Règne Animal*, tome 1, p. 277), have not only been productive, but prolific.

Mountain sheep in a state of nature bear a close affinity to goats, being, according to Wilson, both "Alpine animals, fearless of crag and cliff, and dwelling, indeed, by preference amongst the steepest and most inaccessible summits of lofty mountains."

163. **VARIETIES.**—The varieties of the goat, as we are acquainted with the race in England, are somewhat circumscribed; but a greater difference exists amongst goats, perhaps, in individual instances, than amongst any other class of domestic animals, with respect to their productiveness, some not giving more than an English pint of milk daily, while others will give as much as four quarts.

As goats might often be kept very profitably, provided the right kind of animal is selected, those chosen should be of the largest size, with hard, stiff hair, but in not too great quantity, with a form of neck resembling that of the sheep, with small head—those not furnished with horns generally turning out the best milkers.

Light colours, such as pied, or light yellow, should be avoided,

and preference given to those that are of a dark hue, approaching black as nearly as possible.

164. **STATISTICS RELATING TO GOATS IN ENGLAND.**—

There do not appear to be any very accurate statistics furnished as to the number of goats in England, sheep and goats generally being classed together, but a society has lately been formed with the object of drawing a greater amount of public attention to the utility of the goat, which under proper management can be made a profitable animal, well worthy the attention of farmers and stock-keepers.

165. **USES.**—The goat in this country is not put to so many or profitable uses as it is abroad; a few of which we will speak of.

166. **GOAT'S HAIR.**—Goat's hair is largely used in some Eastern countries in the manufacture of many textile fabrics; certain kinds of shawls and other articles being manufactured from it, but principally used in an admixture with wool. Many beautiful and fanciful fabrics that are imported to us from India have a considerable quantity of goat's hair woven up in them. Ropes made of goat's hair are very durable and will bear all weathers, never rotting from moisture. The hair is clipped annually about the middle of May.

167. **AS FOOD.**—A great prejudice exists against the use of the flesh of the goat or kid in this country as an article of food, which is scarcely warranted. In a good many southern countries, notably in the Peninsula, the flesh of the kid is as regularly served at table as lamb, and by a good many who partake thereof considered the better of the two. The flavour of the flesh of the kid has none of that rankness which is peculiar to goat's flesh, which is commonly eaten by the peasantry in some southern countries as a staple article of meat diet; being very similar to mutton but stronger tasted, and commonly eaten both in Spain and Portugal as a regular dish.

The produce of the goat in the form of milk is often very useful in the case of invalids, being light and nutritious; a good deal of it being sold under the name of goat's whey, strongly resembling cow's milk in flavour.

168. **GOAT'S-MILK CHEESE.**—Goat's-milk cheese is another article of diet that is constantly made and eaten abroad in those southern countries where goats are numerous and flocks of them regularly kept; forming a constant portion of the evening meal, in the same way that ordinary cheese is eaten in England.

169. **THE SKIN.**—The skin of the goat is very valuable for the purpose of making shoes and "kid" gloves, as they are termed, of

which only an insufficient supply can be obtained, the demand for them ever increasing, not only in this country but abroad, and especially in America; large quantities of kid gloves being sold every year in New York. In France, for a length of time they have been a special article of commerce. Lamb's skin is often used as a substitute; a great many more lamb's-skin gloves being disposed of



ALPACA GOAT.

under the name of kid, than kid itself, which is of firmer grain and texture and retains its shape better, being what is technically called a "better fit."

170. **USES IN FOREIGN COUNTRIES.**—It will thus be seen that in foreign countries the goat is utilised to a considerably greater degree than in England, the milk being largely used also in the form of cheese, while the flesh of the kid is eaten as a deli-

cacy, like lamb, and that of the goat in the place of mutton. Kid skins are a valuable article of commerce; and there can be no question but their use and profit in this country could be largely extended under proper management.

171. **MANAGEMENT.**—At one time goats were kept to a considerable extent in Wales, but their numbers have been steadily diminishing in favour of sheep, and the generally higher condition of agriculture which now obtains; though agriculture is in a very backward condition comparatively in those parts of the Principality where goats would be most likely to be kept, mountainous regions being particularly well suited to their habits.

There are many heathy wild spots upon which goats could be kept to great pecuniary advantage, and a large amount of profit might be obtained from the milk and kids.

A main reason why sheep have been preferred to goats of late years has been, doubtless, owing to the Enclosure Acts, the enclosure of land having been the means of banishing them from many parts, as they nip the hedges and leap over high fences; and thus, in their native condition, as it may be said, it is somewhat difficult to keep them within bounds.

Doubtless the keeping of sheep and pigs would always be more satisfactory to the great majority of agriculturists than keeping goats would prove, but there are situations where other animals could not be sustained, upon which the goat would thrive.

172. **TETHERING.**—It is not generally known, and is against what would be the common supposition, but nevertheless it is a fact, that a goat will give more milk when tethered to a certain spot than when allowed to roam about at will. The tether should be attached to an iron pin, driven into the ground by a swivel, to prevent the entanglement of the chain, and the position of this peg should be shifted two or three times a-day, in order to allow the goat to browse upon fresh herbage when required.

173. **BREEDING.**—A goat breeds but once a-year, going to the buck in December, and producing kids in April, the she-goat invariably bringing two and sometimes three kids, and will give milk all the year round up to within a few weeks of parturition.

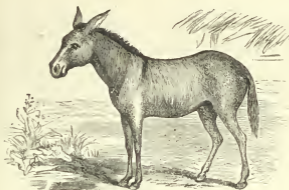
The kids should only be allowed to suck for a week, and then be disposed of to the butcher; and it may safely be affirmed that if the flesh of kids were regularly furnished to our markets, that a taste for it could be made to spring up amongst the ordinary meat-eaters of the kingdom; an unnatural prejudice only keeping it out

of the market. In the Mosaic accounts we are often told of the hospitality of the patriarchs, who killed a kid for the entertainment of their guests, and of the touching account of Isaac's blessing obtained by Jacob to the disparagement of poor Esau, whose anger against his brother was certainly justified by the fraud practised upon him.

A goat is considered at its best at the ages inclusive between three and six years; and the she-goat generally goes to the buck when six or nine months old. As the amount of milk she gives with her first kid is comparatively small, it is better to allow her to suckle it, as it will increase her supply of milk, and cause her to be much more productive during the ensuing year.

174. **DISEASES.**—The diseases of goats are comparatively few; and very likely it would be the same with many of our other domesticated animals, did they but live in a condition more resembling their natural state, as intended by nature, and not in an artificial one; and to the greater freedom and liberty enjoyed by the goat, as well as to its natural hardihood, must be attributed this fortunate immunity.





THE MULE.

CHAPTER XIII.

ASSES AND MULES.

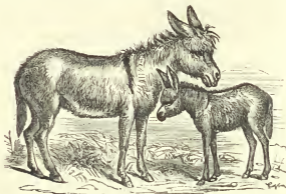
Natural History—The Ass—The Mule—Hinnys—Breeding—Diseases—Uses.

175. **NATURAL HISTORY.**—There is some little doubt as to the exact origin of the ass in this country, and from what breed or animal he has descended; the common supposition being that it is of Eastern origin, which owed its original existence to a comixture of the wild ass, which appears under somewhat different forms in various lands; there being numerous tribes of wild asses that roam the desert, some peculiar to the warm plains of Persia, and others in less genial districts, as the south of Russia; while another species is common to the Arabian deserts, a swift and handsomer animal, that in a state of liberty offers a lively contrast to that patient drudge known as the English "donkey," which is often so cruelly used, and so contemptuously spoken of, but which, under kind and rational treatment, is capable of being converted into a most useful, and intelligent servant.

176. **THE ASS.**—Hollinshed says that "our land did yield no asses in the time of Queene Elizabeth," but in this he was wrong, because in the early history of England they are stated to have been abundant in the reign of Ethelred, A.D. 870, and their second introduction is stated to be due to James the First of England and Sixth of Scotland.

The asses known in England, in their present condition, are a very inferior kind; but this is no doubt chiefly due to the utter neglect into which this race of animals has fallen; and if some skilful breeder were but to turn his attention to them, and bestow as much pains as has been given to the improvement of our other domesticated animals, doubtless a much more valuable breed would be obtained.

Asses which have been reared in the island of Gozo, in the Mediterranean, some of which have been brought over to England as



THE ASS.

stallions for the production of mules, have reached the height of fourteen hands.

In Spain there is to be found a very fine breed of asses, a good deal of attention being paid to them, with the view to their utility in the production of mules, the Spaniards making pets of them, and treating them with kindness and consideration.

It is surprising that asses are not made more use of by farmers in England, considering their useful nature, and the small cost of their living; for any picking contents the poor donkey, who will satisfy himself with the leavings of other cattle, and be content with tufts of rank and bitter grass, that none other will eat, and pick up his living in any bye-lane.

As a draught animal, two donkeys will do as much work as a horse, and in many ways their power of usefulness and general

service might be easily much increased, by more considerate and better treatment than they are in the habit of getting generally, being more hardy in constitution, more patient, and more muscular in proportion to their weight than horses; and are also less subject to disease, and live longer, the duration of the life of an ass being often forty years, and although horses sometimes attain even that age, the instances are very rare.

177. **THE MULE.**—Some writers have described the mule to be the issue produced by horses upon she-asses, and the progeny of the jackass and the mare irrespectively. But this is a mistake, the hybrids produced in these two separate ways being altogether different animals. The mule bred between the ass and the mare is a very superior animal, partaking more of the nature of the horse than of the ass, except in ear and tail, being a large, swift and sure-footed animal; and, when carefully bred, is a superior animal to both of his parents, as he possesses the stature, beauty, and paces of the horse (sometimes standing sixteen hands high, good specimens being worth fifty and sixty pounds in Spain, where they are ridden by noblemen of the highest rank at times), and possessing the patience and endurance of the ass, together with its great comparative strength.

The best mules are produced by a Spanish ass upon an English thoroughbred mare, but it is quite evident that if some farmers would raise mules by crossing indifferent mares with a good Spanish jackass, the result would be a race of animals far better adapted for farm work where light animals are required, than the poor *screws* that are often seen; this remark of course applying to those third-rate attempts at breeding horses that may be occasionally witnessed.

178. **HINNYS.**—The hybrid produced by the horse upon the she-ass is an inferior animal to the mule, called a "hinny," and in some districts locally a "mute," and in Ireland a "gennatin," and is different to the mule both in size and form. This is easily accounted for by the greater capacity of the mare for carrying a larger animal in accordance with well-known laws in breeding, the "hinny" being much smaller and less robust than the mule, and of course far less valuable.

This distinction seems to be but little understood by many writers, even by so high an authority as Buffon, who apparently considered it to have been the product arising from the union of the ox and the mare.

179. **BREEDING.**—The she-ass carries her young a few days over eleven months, and the ass-colt does not arrive at full maturity until his fourth or fifth year. In breeding, as good specimens of both male and female should be obtained as possible, and of as large a size as can be got.

The salient points to aim at are: long neck; wide nostrils; eye large and full, with raised withers, full back, and large quarters; and if care is bestowed, and continued, a very superior race of asses could be produced to what are commonly seen in England.

The mule's sterility is of course well known, being incapable of continuing its race; although there are certain well-authenticated instances to the contrary, it being a maxim of zoology that hybrids are infertile.

180. **DISEASES.**—The ass is singularly free from disease, being very hardy and capable of bearing any extremes of weather, but subject occasionally to loss of condition arising from colds, chiefly produced by exposure and neglect, which gives way before considerate treatment, warm housing and good food.

Asses have been driven in pony-carriages repeatedly, and trained to do their work as efficiently as ponies; and when well groomed, and well broken, are by no means the despicable animals they are often considered.

181. **USES.**—Even at his worst the ass is by no means to be despised, and as a beast of burden on a farm, a donkey and cart driven by a boy is capable of performing a large amount of useful service, and could upon many occasions be cheaply substituted for a horse, in carrying light loads to and fro upon a farm; the exchange in many instances being made with absolute advantage, as the lighter beast and weight of carriage will not cut up the land so much when it is crossed as the heavier horse and cart.

From the bones of the ass the ancients used to make their flutes, or *fibulæ*. In the present day the integuments are used in the manufacture of parchment, and the skin makes excellent leather for shoes—the article used for cases called *shagreen*, or more properly *sagri*, being also made from it; while the parchment formed from the integument of the ass is considered to form the best material for producing sonorous sounds from that warlike instrument the drum.

HOW TO MANAGE POULTRY.





POULTRY.

CHAPTER I.

STARTING A POULTRY FARM.

Poultry-farming on a small scale—Poultry-farming in Towns—Poultry-farming on a Small Scale in the Country—Poultry-farming upon a Large Scale—Does Poultry-farming Pay?—The Common Fowl—Natural History and Characteristics—Labour required upon a Poultry Farm—How to Choose Poultry—The best Fowls for Laying—The best Fowls for Table.

1. **POULTRY-FARMING UPON A SMALL SCALE.**—In giving general directions for the successful keeping and rearing of poultry, the difficulty has to be encountered that, out of a great number of readers, but few will possess precisely the same advantages, or labour under similar disadvantages, as regards soil, situation, space, and general accommodation; but there are leading principles which may with advantage be adopted by all, where the latter may be modified, and the former turned to the best account.

For example, those who live in damp or marshy situations may be unable to rear turkeys successfully, or even fowls, but there will perhaps be nothing to prevent their success with ducks and geese; and while a dry sandy common would afford plenty of pickings for turkeys and fowls, which would thrive thereon, marshy or damp situations offer the same advantages for ducks and geese. Even where only a few laying hens are kept to supply the family with eggs, where the house stands upon a clayey, moist, rententive

soil, as a small space only is required, this may be modified by digging out the top earth where the fowl house is to stand, and filling up the space with burnt clay, the clay which has been excavated furnishing the necessary material, without having to cart it; and a few hundredweights of small coal, which may be procured for a trifle, will burn this to the consistency of brick-earth. Over this dry mortar-rubbish should be spread, and earth sprinkled on the top, or a compact and firm bottom may be ensured by spreading over the top of the burnt clay a mixture of coal, cinder-ashes, gravel, and quicklime, slaked with water. Wooden or boarded floors, although dry, get foul in time, and the damp arising from frequent washing, if cleanliness is sought to be obtained through this means, is objectionable. A dry surface, which is not sufficiently dusty to harbour vermin, and which can be swept away and often renewed, is the best. Stone floors are too cold, and brick floors imbibe the foul moisture which is cast upon them, and the floor ought to consist of substances which can be pared and renewed. Can it be a matter of surprise, when soft food, or even hard food, for the matter of that, is thrown down upon a foul surface, and the hens swallow filth with it, that they become diseased? This is the chief drawback when fowls are kept upon a small scale. A half-dozen fowls or so, with the addition of a few handfuls of corn occasionally, can be kept upon the crumbs, crusts, cold potatoes, and scraps of meat that fall from the table, or are left in a family; but when such substances as boiled rice and other soft food are flung down on the ground where fowls are kept confined in a limited space, over which they walk, and it gets mingled with their excrement, it is morally impossible for anyone to have healthy, thriving fowls; and experience has shown over and over again that a few hens, kept clean, well looked after, and regularly attended to, will pay their owner much better than when a larger number are kept crowded together in an insufficient space.

The reason of this is plain enough. When fowls have an unlimited range, there is comparatively little trouble with them; they can go where they please, help themselves to green food in the shape of grass, pick up bits of gravel, which aids the digestion of their food, get plenty of fresh air and water, and lack for nothing. A few handfuls of corn thrown to them morning and evening is all they require, as they pick up worms and insects, and vary their food to their liking; the corn given to them morning and evening being just the kind of food, perhaps, they were unable to procure in the course of their wanderings, so that, altogether, they are able to obtain every necessary to their health and comfort, dusting their feathers in the sand-heaps they come across to rid themselves of vermin, and picking up bits of lime, which help to make the shells of the eggs they lay, and so on.



DORKINGS.

When fowls are necessarily kept in confinement, its condition should be made as near as possible to resemble that which is essential for them where there is an unlimited range. Mortar-rubbish, or lime, should be thrown down to them; and a heap of cinder-dust, which is obtainable in every house, should be placed for them in order to allow of the luxury of a dust-bath. If the accommodation is very confined, the stock should be limited to one cock and half a dozen hens.

More eggs will be got from these all the year round, than from a greater number of birds which are unduly crowded; and, of course, none but good layers should be kept, the unprofitable ones being weeded out.

2. **POULTRY-FARMING ON A SMALL SCALE IN TOWNS.**—The foregoing remarks will more particularly apply to poultry-farming upon a small scale in towns where space is limited, and perhaps the fowls can not be afforded a good "run," which is a very necessary adjunct, where it can be obtained. In the absence of this, the more care must be taken to supply the fowls with all they require—plenty of clean water, placed in a vessel which will not easily turn over and make their house wet, and that cannot very easily become fouled.

In addition to the scraps from the table, corn, &c., with which they may be fed, some green food should always be given as well, as lettuces, cabbage-leaves, or any green vegetables—none come amiss to fowls; and if these are not always to be had, some cut grass thrown to them will be eaten very readily. If they are let out occasionally, even into the garden, they will not do the mischief that is habitually ascribed to them. Hens left to themselves will, in the exultation of their liberty, sometimes make inconveniently large holes in which to dust themselves, and may unfortunately make choice of some flower-border that is highly prized; but they should be watched, and driven away when there are any signs of their doing mischief, which is generally very much exaggerated.

In towns, it is generally customary to indefatigably hunt out any stray poultry that have the impudence to trespass in one's garden. Ducks, it is often admitted, do good by eating slugs and other destructive insects. Even ducks, however, are known to be partial to young cabbage-plants, which they will pull up; but hens bear a very bad character for scratching, and committing injury, &c.; and their "room is generally considered preferable to their company."

A somewhat amusing letter in contradiction to this theory was published upon one occasion in the *Gardeners' Magazine*, in which the incursions of poultry were considered to have been an advantage rather than a detriment; the letter in question being as follows:—

"A few years back there came into my comfortable, triangular, sheltered garden about fifty head of another man's poultry. Their intrusion was not very much to his discredit, because his farm-buildings adjoin mine, and my sheltered garden presents its broadest end to his cow, pig, and poultry houses. He did not feed his poultry well, and therefore they flew the fence to look for breakfast, luncheon, and dinner, in my sheltered garden. For twelve months round I endured the intrusion of fifty head of poultry into a garden in which I grew my peas, a few select potatoes, brocoli, and cauliflowers, all my onions, sea-kale, and bush-fruits, a considerable portion of my trial crops of all kinds, and all seedlings of whatever kind, from winter greens to wall-flowers. I repeat that for a whole year this garden was daily ravaged by fifty head of poultry, young and old, all good scratchers. Now, I solemnly affirm that, although I hunted the poultry out, and complained to their owner, and once had the gun in my hand to shoot the lot, I never once discovered that the fifty head of poultry had done me any harm, even to the extent of a farthing, that I could be sure of. We had an enormous crop of bush fruits that year; I do not suppose the intruding poultry helped it, but they did not thin it much, that is certain.

"All our crops were good, including the early peas, which occupied a nice warm plot of ground adjoining the farm-buildings. Many and many a time have I searched for evidence of mischief, but I found none. I might, indeed, find a hole that an old hen had scratched to dust herself in; and perhaps this would be in the midst of a lot of lettuce, or young cabbages, or cauliflowers, and yet not a plant would be hurt.

"Now, during a twelvemonth's invasion of a dreaded enemy, I could not establish a case of loss thereby to the extent of one farthing; and so I do not feel particularly comfortable when I call to remembrance how I hunted my neighbour to keep his poultry out of my ground, and he most politely bore with my expostulations, knowing, of course, that his starvation system of poultry-keeping was at the bottom of it. Indeed, I am prepared to declare that these poultry were my benefactors, for they were always bunting for vermin; and when the small chicks were in full swing, they appeared to be the most persistent hunters of daddy-long-legs imaginable."

3. POULTRY-FARMING ON A SMALL SCALE IN THE COUNTRY.—Poultry-farming in town is often carried on with difficulty, owing to the adverse circumstances that have to be contended with, the chief of which is the necessity of keeping the fowls shut up more or less, and causing them to live, as it were, in an artificial state, often deprived of that "run" which is the most indispensable condition to their health and well-doing; for, when they have a certain amount of liberty, they can help themselves to what they want, and particles of gravel, chalk, lime, or a little grass, or green food of one kind or another, are often needed, which their natural instinct teaches them to appropriate, either to assist digestion, or make up for a deficiency from which they may be suffering.

In the country there is seldom any difficulty to be experienced on this score, as space is not so valuable as in towns, and a good run can generally be managed to be arranged for. The most appropriate methods of forming these will be found under a separate heading. A larger number of fowls may thus be



BRAHMA POOTRA FOWL.

more profitably kept than when they are cramped in a narrow space, the chief drawback in country places being that the fowl-house is often placed in exposed situations where the biting winds find an entrance, and this should be guarded against, for fowls require warmth to lay well, and if the hen-house is in a cold and exposed situation a good supply of eggs must not be locked for.

It is often commonly assumed by many who pretend to keep poultry that an unlimited number of fowls may be kept in any odd kind of place without reference to their numbers, whether in a cold, wet, or exposed situation, a damp or dry one alike—a close town situation, or in a rural position, where everything that is needed can be had; no allowance being made for the very different conditions under which the birds are kept; and then surprise is felt that they do not lay, the falling-off in this respect being brought about either from overcrowding, insufficient food, old age, want of attention, or disease; and keeping fowls is declared to be unprofitable.

The writer, when a young man, many years ago, walking to business from Highgate to the City, found out all the short cuts, so as to save as many unnecessary steps as possible, the walk being rather a long one, and used to pass under the gateway near St. Bartholomew's Church, in Smithfield, and in the area of one of the small houses close by, one fancier kept his fowls. Their forlorn condition had also been espied by a certain good Samaritan, in the form of an old man—a seller of watercresses—who, while dolefully calling out his wares for sale, would stop over this area-grating, which was level with the pavement, and afforded all the light these poor fowls had, and drop down to them the stumps and trimmings of the bunches of watercress.

After seeing this done two or three times by this considerate old man, who appeared in want himself, the writer surprised him one morning by giving him a trifle, and saying, at the same time, "Those fowls ought to have a hot roll for breakfast as well as your watercresses," as he passed rapidly by, afraid of being late at the "office." The old man looked at the white silver money in his hand, then at his watercresses, then down the area at the fowls, and finally gave a long look after the donor, who was just then dodging swiftly round the corner into Bartholomew Close, as if he could not quite understand what it all meant. He had, however, been the means of teaching a lesson—that in no situation in life can there be one so deplorable as not to allow of some little benefit or alleviation of sorrow being administered to another suffering creature.

4. **POULTRY-FARMING ON A LARGE SCALE.**—Some years ago an account went the round of the newspapers of a system of poultry-feeding upon a large scale in France, where an enormous number of fowls were kept, and the profits amounted to a very large sum annually. Minute particulars were given as to the mode of feeding adopted, some of which were singular enough, animal food such as horse-flesh being regularly chopped up for them in small pieces, the whole being a triumphant success. Circumstantial particulars were given as to the situation and

position of the farm, and many persons, out of curiosity, crossed the Channel in order to view it; but, alas! it turned out to be a hoax, and there was nothing of the kind in existence.

Many ironical articles appeared, on the strength of this paragraph, in some of the newspapers, severely reflecting upon English farmers for neglecting poultry-keeping in the way they do, when here was such a large source of profit available, the method of doing which was already made plain, and only wanted imitating. But the fact is, the keeping of large numbers of poultry involves a special kind of management, and it has been found that, after a time, when great numbers have been reared in one spot, the ground gets tainted, and in the succeeding year, or year afterwards again, the young birds die off in large numbers, and it would not perhaps be possible to raise an enormous number of fowls in one place continually, for their locality would require to be changed.

Our list of imports shows a very large amount of eggs are regularly sent over to us from France every year, but these are mostly collected from the small peasant proprietors, in the same way that "higglers" collect them in English country places, where unfortunately the supply is decreasing instead of increasing, the fact being that a good deal of attention and constant care is necessary to raise a large number of fowls, and this can best be done by a division of labour.

Any farmer having cottages on his farm in which the labourers live, desirous of turning his attention to the rearing of fowls and the production of eggs, would find it answer his purpose to interest the wives of his labourers in poultry-keeping, and assign a certain number to the care of women living apart from one another, giving a certain percentage of the produce in payment for the stock reared and eggs laid, and thus divide the responsibility, keeping as many about the homestead as can conveniently be kept, and having supplementary stations for them as well elsewhere.

Nothing is easier than to construct ample accommodation for them, as warm fowl-houses can be made by forming a framework of poles, and laying over it hurdles thickly thatched with furze, the number of fowls being thinned down on the approach of winter, by getting rid of all the bad layers, the old hens, the young cocks, which will have been fattened off and sold during the summer, as well as all others that it has not been thought desirable to keep, retaining only the early-hatched pullets that will lay when eggs are most valuable, and the best hens that are worth keeping.

A certain amount of careful superintendence is absolutely necessary, for, when first hatched, the chickens want continual attention in feeding, and, if the business is carried on with any degree of system, the coops in which the hens are confined will want moving to a fresh position each day, so that the ground is untainted, and the chickens kept dry and clean; and they will want protection at night from the vermin that prowl about in country places, as rats, foxes, &c.; and to see after them thoroughly requires the constant superintendence of some responsible person, who can devote the necessary time to the work.

Good big girls, or old or young women, will do this far better than boys or men, who might be much better employed in more profitable work, and the employment thus afforded would be the means of allowing the labourers' families to supplement the amount of their earnings by what they gained in this way, either in the shape of money or produce, while the farmer's profits might be greatly augmented.

Where fowls are kept in large numbers, it must be taken as a matter of course that the farm is one of a suitable description. Upon arable clay-land farms, where almost every inch of ground is kept cropped with corn-crops under the usual system of rotation, there is not so good an opportunity of keeping a large number of fowls, as upon a sandy area in the neighbourhood of commons, perhaps, in a gravelly district, where this kind of stock might often be kept to a much larger extent than is commonly practised.

5. DOES POULTRY-FARMING PAY?—This is a question very commonly asked, but not always satisfactorily answered. Without proper supervision it will not pay, nor will anything else that we are acquainted with; but, under an efficient system of management, poultry-farming can be made to yield very satisfactory profits. The capabilities of the farm for the kinds of poultry best adapted for the place must be first taken into account. Where a little stream runs through any portion of it, a good opportunity for rearing ducks may present itself, though water is by no means an indispensable necessity even for the rearing of ducks, for in the neighbourhood of Aylesbury, and in places adjacent, large numbers of young ducks are reared, which are never allowed to go near the water at all, but are bountifully fed upon barley-meal, and their growth hurried on, till they attain a large size at a very early age, and are disposed of quickly, and sold in the London or other markets when they are deliciously tender, and at a time of year when they will fetch a long price; for although a great deal of poultry is now sent over from the continent, yet the necessary packing, and partly heated condition in which a good deal of it arrives, will never allow it to compete in price and quality with fresh home-reared poultry, for which much higher prices are always readily given by dealers.

Ducks can be profitably reared by setting a number of eggs under hens, when enough ducks are not easily obtainable, and can be fattened in a very limited space, that can be hurdled off in an orchard, or any out-of-the-way corner, a breed being chosen that arrive at maturity early, and pay well for the food that is given to them.

Turkeys want space to roam in; and where young crops stand thickly on the ground, they may possibly be the means of doing more damage than they are worth; but in certain situations where there are plantations, or woods to roam in, they may be made eminently profitable, for where there are oak trees they will pick up and consume great quantities of acorns, which are nearly as good as corn for them; and in Suffolk a good many have always been reared, the chief dependence upon getting them in an early marketable condition being the corn-stubbles, the grand secret being to supplement with the best kind of food for them, that which they have picked up for themselves at little or no cost.

The writer has reared large numbers of turkeys, that were carefully attended to when young, and assiduously catered for till they got their "red heads," after which they mainly got their own living and foraged for themselves, excepting a little corn thrown down to them at morning and evening; and as December approached, and they had fed upon the acorns they found in plenty, many of the young cocks were almost fit to kill, and could be taken up off the ground in better condition than some turkeys that find their way to market; needing only a small amount of fattening food to bring them up to heavy birds, ranging in weights varying from fifteen to twenty pounds, costing comparatively little for their keep and general maintenance.

No one should ever attempt to keep poultry with a view to profit, and the rearing of a large number, who is not prepared to bestow a considerable amount of care and attention upon the charge he has undertaken. By a system of thorough *routine*, the necessary trouble and pains become simplified, and will soon be performed as a matter of course; but everyone must be his own overseer, and see that the first conditions for securing success are always complied with, for if left to the unsuperintended care of servants, unless there happen to be one specially trustworthy, loss and disappointment will inevitably ensue. The four primary essentials for the successful management of poultry of all kinds are Warmth—Cleanliness—Dryness—and Pure Air. Cold and damp situations are opposed to the health of fowls, as they check the proper circulation of the blood, and induce disease, which the system is unable to throw off when the first slight attack makes its appearance, which gradually becomes established and confirmed.

Dirt and bad ventilation are the fruitful sources from which proceed roup, abscesses, &c., the passage of dirt and dirty food through the crop injuring the mucous membrane in the first place, and finally acting upon the brain, heart, and lungs, by which the nervous system becomes prostrated.

6. **THE COMMON FOWL.**—The common barn-yard fowl, as it is called, now comprises amongst its ranks a great many new additions, which consist of foreign importations, such as the Cochinchina and others, to which we shall make separate allusion under a different heading for each, but the original stock of English fowls consisted of the Dorking, which is supposed to have been introduced into England by the Romans, the old Kent, Surrey, and Sussex, together with the game-fowl, these having formed the original main species common in this country since the time of the Roman invasion.

7. **NATURAL HISTORY AND CHARACTERISTICS.**— Domestic fowls, or poultry, as they are most commonly called, from the French word *poule*, a hen, cannot be traced in their first stages of domesticity, the antiquity of poultry-keeping extending so far back that it is impossible to form any idea of its first commencement, and we are therefore led to adopt the conclusion that certain kinds of *fowls* were endowed from the very commencement of creation with those qualities, or the possession of that peculiar instinct, which leads them to attach themselves to the dwellings of man, and must be classed amongst those creatures which appear specially designed for his use and service, as the horse, ox, sheep, goat, camel, &c. The term *fowls* is not nearly so good a one as *poultry*, which is much more significant and descriptive of what is intended to be expressed by the term "domestic poultry;" for there are wild-fowl and many other species of fowls, and *domestic fowls* must be taken in a much wider sense, so as to include turkeys, and others that are altogether of a different species, the domestication of which can be very easily traced, while they never so thoroughly place themselves under the control and dominion of their owners, and so contentedly settle themselves down in the accommodation provided for them, as the common barn-door fowl. Many birds which certainly must be ranked under the old scriptural denomination of "fowls of the air," as pheasants, &c., are susceptible of being tamed to a certain degree, tame pheasants being common enough, yet there is no certainty of their not resuming their original wild nature at any time, and flying off never to return again; and while the faithful

dog will never desert his master, it is very questionable whether, Cowper had turned his tame hares into the open country and allowed them to have their undisturbed liberty for an entire day, he ever could have enticed them back again to him.

The common house-sparrow affords another instance of birds in a different degree attaching themselves to the haunts of man, while the robin partakes of a compound nature, and is the tamest bird in winter, and the wildest in summer, of the two species, the broad distinction that has to be drawn being that our domestic poultry, in the light we are in the habit of regarding them, belong to the Rasorial or Gallinaceous order, amongst which the legs take precedence of the wings, the term "rasores" being derived from "rado" (scratch), seeking their food entirely from the ground, the species being denominated by naturalists as *Gallus domesticus*, or the common fowl, the quill feathers being weak, and unable to support the weight of the heavy body in flights of any lengthened duration; the beak stout, and of only moderate length, enabling the bird to break its food, when in too large pieces to be swallowed conveniently, by repeated sharp blows upon the ground.

8. LABOUR REQUIRED UPON A POULTRY-FARM.—The amount of labour required upon a poultry-farm must, of course, depend very much upon the scale upon which operations are intended to be conducted, but the *quality* of the labour is the chief point for consideration—careful attention, practical shrewdness, and a liking for the care of poultry being the main qualifications to be sought for; and for the rearing of chickens, and general aptitude for the occupation, women and girls are much better suited than men, while boys are notoriously unfitted to have the charge of poultry, being generally careless and forgetful, and too apt to amuse themselves at the expense of the various eccentricities of sitting hens, or hens with young chickens; whose maternal feelings are of the most sensitive order, easily aroused, these anxieties being very much derided by boys, who are too fond of deriving sport from their exhibition of maternal solicitude, which they commonly prefer to aggravate, rather than assuage.

Sometimes an old man or two may be found to take the necessary amount of pains and attention, who, by reason of age, are past ordinary field work; but the average agricultural labourer is generally a very bad hand to whom to entrust poultry, and he ought, besides, to be better employed in jobs more suited to his strength and endurance; but unless there is the necessary *quality*, as well as the due amount of labour supplied, success in rearing poultry upon any large scale must not be looked for.

We have already made allusion to the desirability of dividing the labour that is engaged in the superintendence of poultry, if it can be done—in the rearing of young chickens especially, although there is little or no art in bringing up a great number successfully; yet they must have warm, dry, and clean places to sleep

and run about in, and where there is not abundant opportunity for them to disport themselves upon a clean, dry surface, gravel or sand should be thrown down, and pure fresh water should be kept by them at all times. The due supply of these essentials requires an adequate amount of the right sort of labour, which can appreciate the wants and necessities of the different birds in their stages of growth and being. To rear chickens in the best manner, until they are six weeks old they should be fed every hour, and taught to look for it themselves, with which object in view a little cracked corn thrown down to them occasionally will be found useful.

Many persons who attend to young poultry, which require to be fed upon cooked or scalded food, think if they put a great mess down in some vessel or other by them, where they can help themselves, that is all they can require; but this is not so, for the little things run over the food and trample it down, and it gets mixed up with filth and is soon quite unfit for use as food, and when so administered is usually the first encouragement to disease. The proper course is to give them little at a time and often, when the birds will enjoy it, and it will do them good, and the drooping and dying off by scores of young chickens, which may be often seen where large numbers are sought to be raised without sufficient personal attendance, will be avoided.

Fowls, to be made to pay, must get the greater part of their living themselves, and careful superintendence is very necessary during the earlier infancy of the chickens, particularly in feeding, so that their bones and frames are built up, and they are kept in vigorous health. This causes them to ultimately become indefatigable foragers and strong, healthy birds; and for fowls to be made to pay, they must have proper attendance at various times and seasons, with definite objects in view, such as the production of early eggs, or eggs in winter, hens to sit early, young chickens to be raised either for sale or use, and made in fat and good condition ready for the table at the time when they are most wanted, and not when the market is glutted; and all this entails a certain amount of labour, yet it is of a light and inexpensive description, coming more under the denomination of careful superintendence than that of hard work.

9. **HOW TO CHOOSE POULTRY.**—Poultry require to be chosen, in the first place, with an eye to what is expected of them. If the principal object is the production of eggs, there are certain breeds which lay a great number, but do not trouble themselves

much about incubation, while there are other breeds that are good sitters, and good mothers, and these, perhaps, it will be advisable to distinctly enumerate.

The best fowls for laying, and which show an inclination for sitting only rarely, are Spanish, Hamburg in their different varieties, and Polish in their varied breeds.

The best fowls for sitting are Dorking, Cochinchina, Brahma, Malay, Game Fowl, and their numerous varieties, Bantams, the Old Kent, Surrey, Sussex, and the Lark-crested Fowl; these are the main distinct breeds, but there are other crosses which we shall refer to under separate headings.

The best fowls for table.—The Dorking, perhaps, is almost the best kind of fowl that can be reared for the table, as it attains a large size, and its flesh is white, juicy, and fine-flavoured, but some of the larger birds are also very useful for this purpose on account of the great size they attain at an early age, though of inferior quality, such as the Brahmans, Cochinchinas, and others of kindred species, which we shall refer to at length again, each under its separate heading, where the peculiarities of the various breeds will be pointed out.

If poultry for the table is made the principal consideration, a large breed which make handsome chickens should be procured, and these should be hatched early, so as to be ready for table in May or June. These can be provided even a little sooner if hatched early in the year.

In the ordinary way, and left to themselves, hens usually show a disposition to sit from March to June, but this is influenced mainly by the time they themselves have been hatched, so that, to have early birds, early pullets must be raised for breeding, which begin to lay in September and October, and will keep on laying during the coldest weather, if properly fed and kept warm, when they will, after having laid a certain number of eggs, display a disposition for incubation.

10. CHARACTERISTICS OF GOOD BREEDS.—From the foregoing it will be seen that various breeds possess certain characteristics which ought to be taken into account, and used in accordance with the aims of the poultry-farmer. Spanish fowls are indefatigable layers of eggs, and seldom want to sit; the Hamburg are of a similar nature. If eggs are specially wanted about Christmas time, Brahmans and Cochins are the best kinds of fowls for this purpose, of the two varieties of Brahmans, the light-coloured ones being the

best egg-producers. Cochin hens, crossed with a Dorking cock or a Game cock, produce large pullets, which will be found to come in for the double purpose (if hatched early in the season) of laying well in winter, as well as making fine, large birds to come into use for the table in the spring or summer months.

Polish fowls are non-sitters, while Dorkings are good sitters and careful mothers, and perhaps the best breed of fowls that can be raised for the table, but they require a dry situation.

The Houdan is a hardy, active, and precocious fowl, and although always spoken of and classed as a French fowl, yet in all probability it has descended from a cross between the Polish and the Dorking. It is a good species to lay, as well as being a good fowl for the table, its bones being small, while its flesh is white, and of a superior flavour. The chickens rapidly attain their feathers, and, if well fed, are soon ready to kill. Cochin chickens, on the contrary, are backward in fledging, though they arrive at maturity very early.

Dorking chickens are very delicate to rear, and hence the necessity of having this breed upon a dry, sandy, or gravelly district, or if kept in confinement, in close quarters, their place of residence should be made as nearly as possible to come up to the necessary conditions which are suitable to them in a state of nature, and plenty of sand or gravel should be thrown down, and they should be kept perfectly dry.

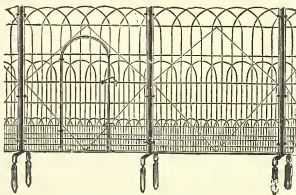
Dorkings do not bear confinement well, and require a good range, so that those persons who have only a limited space at their disposal would do better with Cochins, who reconcile themselves to a limited space, and are attached to home. With regard to the bodily characteristics of good breeds, these vary according to their several attributes. The Dorking has a large body with short legs, a good point with all the "broody" kinds, as short-legged fowls when sitting are less liable to disturb or break the eggs than long-legged ones.

Cochins make capital sitting hens, their large size enabling them to cover a good many eggs, their readiness to adapt themselves to any situation in which their nest may be placed at the time of incubation being another good point in their favour.

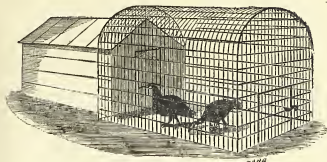
These are a few of the most salient points in reference to various breeds of fowls, which we need not further enlarge upon just now, as we shall give a full description of every variety in the pages which follow; and whether poultry is kept upon a large or

small scale, the description of stock should be chosen with a view to its adaptability to position and convenience.

Where the poultry-farmer has at his command almost unlimited space in a dry situation, near, for example's sake we will say, to some extensive common in Surrey or other county, he may keep a very large number of fowls very profitably, and may choose whatever breed he likes best, for all fowls will flourish and do well so situated; but where the accommodation is limited he should make choice of a stay-at-home species, and in damp uncongenial positions, too many head of poultry must not be kept, and the natural disadvantages of situation must be overcome by art—that is to say, the earth forming the surface of their runs, and upon which their houses are built, should be dug out, and burnt clay, coarse gravel, or other materials, as recommended in another place, filled in, and every expedient resorted to so as to cause them to be dry and warm.



PORTABLE POULTRY FENCE.



HEN COOP.

CHAPTER II.

VARIETIES OF FOWLS.

Varieties of Fowls—Spanish—White Spanish—Minorcas—Andalusian—Leghorns—Dorking—White Dorking—Hamburg Fowls—Silver-pencilled—Golden-pencilled—Silver-spangled—Golden-spangled—Silver Mooney—Silver Pheasant—Golden Pheasant—Black Hamburg—The Cochin—Buffs—Dark Cochins—White and Black Cochins—The Brahma-pootra—Game-fowl—Black-breasted Reds—Brown-breasted Reds, or Gingers—Duckwings—Piles (or Pies)—White and Black Game.

11. **VARIETIES OF FOWLS.**—Fowls of different species possess competing merits, and the inexperienced poultry-farmer, before making choice of any particular breed or breeds, should first of all clearly make up his mind what qualities will suit him best, and answer his purpose most completely, so that he may be guided to a proper selection. If he desires to rear fowls for the table, some are not appropriate, as, for instance, the Malays, which are slow in fattening and carry a large amount of offal; some being yellow skinned, as Cochin and Game-fowl, which, though immaterial perhaps in point of colour when intended for the spit, are not so well adapted for the table when boiled, on that account; while, as table fowls, no breed perhaps excels the Dorking.

If eggs are the main object, what are termed "everlasting layers" should be provided, and these are to be found in the Spanish, Hamburg, and Polish, the latter being perhaps the least inclined of any breed to sit.

As general useful stock, Cochins, Brahmans, Surrey fowls, &c., are found capital breeds, as well as some others, while Dorkings

are hard to rear, and the chickens require to be brought up in a dry district, and a good range is necessary, as well as for some other kinds, while Cochins will reconcile themselves to the most circumscribed bounds.

12. **THE SPANISH.**—The Spanish is a fine large breed; and the hens are conspicuously good layers, their eggs being perfectly white, and of a large size, weighing from two and a half to three ounces and upwards, each being thick at both ends, tapering off at the extremities; though they are, however, not good fowls for the fattening coop, and the chickens when young are delicate, and consequently difficult to rear. They also acquire their feathers late, early fledging being a decided advantage in a breed, as, when hatched early, so as to have laying pullets at a time of the year



BLACK SPANISH.

when eggs are most scarce and valuable, it is not desirable to have chickens that have to run about with naked legs and wings, exposed to bleak winds and cold weather.

The flesh of the Spanish fowl is of good quality, though it does not come up to the Dorking for table use, its dark legs being against its culinary appearance. From the long time they take to moult, their laying qualities in winter are considerably interfered with, yet, nevertheless, they are most profitable as layers on account of the large size and number of their eggs when they are in their prime and best condition.

It is a great object in successful poultry-breeding to have early chickens, but, in consequence of the delicacy of the Spanish, it is not desirable to get them hatched before the end of April. The hens are both bad sitters and bad nurses; and when it is desired to hatch Spanish eggs, a hen of a better breed for this purpose should be selected, such as the Dorking, which is both a constant sitter and a careful nurse.

The true Spanish fowls are uniformly black in colour, glistening with metallic tints, and having great development of comb and

wattle, while the face is white, and the comb of the cock is stiff, strong, and erect, thick at the base, but tapering upwards towards the points, and of a bright red colour. The comb of the hen falls over on one side, over the eye, yet should be perfectly stiff throughout; a flabby-combed hen being considered objectionable for breeding purposes, as her progeny in the male birds would, in all probability have drooping combs, in the opinion of the best breeders. When not laying, the combs of the hens shrink a good deal, and also during the time they are moulting; while the fleshy comb of the cock, as well as his wattles, are apt to suffer during seasons of severe cold.

They are well adapted for being kept in towns and in suburban districts where the space is somewhat confined, from which they do not appear to suffer, when they are strong, well-grown fowls; while their plumage hides any contamination arising from dirt, on account of its colour; and to those who do not want to have the trouble of rearing chickens, the Spanish will prove as good a breed to keep as could well be made choice of. The white patch, or ear-lobe, behind the cheek, is small in the hens, but large and prominent in the cocks; the cheek of both cocks and hens in a pure breed being white.

In choosing birds for breeding purposes, it is considered the best practice not to put more than three hens to one cock, the age of all to be two years, the latter weighing from seven to eight pounds, and the former about six pounds each.

13. **WHITE SPANISH.**—The white-faced white Spanish fowls are supposed to be merely an eccentricity of the white-faced black Spanish, the stock originally coming from Spain. These also are capital layers.

14. **MINORCAS.**—These are sometimes called the red-faced Spanish, and closely resemble the white-faced, except in that particular, the plumage being of the same dark-coloured metallic lustre hue, and the hens laying the same fine large eggs; but the chickens are hardier than the others, and consequently may be hatched earlier in the season, while the hens take better to a nest than their prototypes.

15. **ANDALUSIAN.**—These fowls are of a slate or grey colour, sometimes shaded with black, resembling the Spanish in main particulars, relative to ear-lobe, comb, their size and weight, and general *tout ensemble*, and are good-looking fowls, having the same large pendent combs which distinguish the pure black Spanish.

16. **LEGHORNS** are understood to be an American importation, resembling the Spanish in general appearance, except the face, colour, and legs, the latter of which are yellow, the plumage white, and the face red.

17. **DORKINGS**.—The Dorking breed has been proved to be one of great antiquity, its distinguishing characteristics having been described a couple of thousand years ago by Columella, and other Roman writers—it is unnecessary to say not by the same name, the breed having been supposed to have been introduced into England at the time of the Roman conquest.

Dorkings, although a very superior fowl in many respects, yet require good living at every period of their lives, and although they do not bear confinement well, and want an extensive range.



DORKINGS.

they are not such indefatigable foragers as some of the smaller species, and are therefore more expensive birds to keep, while they are not remarkable as good layers, their excellence consisting in their making the best birds for the table.

Another drawback consists of the great delicacy of the chickens, which require to be reared on a warm, sandy soil, where they do well enough; but anywhere else they are constitutionally delicate, which is betrayed by their drooping wings, in places where some other kinds thrive well enough.

This constitutional delicacy may be improved by crossing the breed with a Brahma, for no breed deteriorates so much from continual in-breeding; this circumstance being well known to old breeders, who generally used to cross with the Game-cock; and, where this is not done, it will be found the better course to breed with a fresh Dorking cock where no relationship exists. The leading characteristics of the Dorking breed are five toes, a square, solid body, with a short neck, short legs, making little offal and plenty of flesh; and they rank with the largest fowls.

Dorkings are usually divided into three classes: white, silver-

grey, and coloured Dorkings. Some have contended that the pure Dorking, so distinguished by the fifth claw, is the rose-combed white Dorking, and that the "coloured Dorking," so termed, is but the Dorking crossed with the Surrey and grey Sussex fowl.

However this may be, the birds now accepted as Dorkings vary very much in colour, and, when shown at exhibitions, the single-combed and rose-combed fowls are allowed to compete together by the judges, provided that the combs belonging to the birds in each pen are alike. As the colour varies so much, there is some little difficulty in breeding them to any true marking; but, in the silver-grey, it is aimed to furnish the cock with black breast and tail, and white hackle on neck and saddle, the hen having a white hackle streaked with black, light grey body, with light shafts to the feathers; but these are generally deficient in size. Sometimes, by crossing a dark Dorking with a silver-grey, good birds are obtained.

18. **WHITE DORKING.**—The White Dorkings are generally liked by those who prefer to keep white fowls on account of their feathers, and they are ornamental birds, but they are not nearly such profitable ones as those which are commonly accepted as the coloured Dorking, which derives some of its prominent characteristics from the large Surrey fowls, which it closely resembles, except in the presence of the fifth toe. The White Dorkings invariably have the rose, or double comb, but they are smaller in size and longer and narrower in the body than the others, which are large and compact, square-made fowls, with plump breast and ample furnishing. The white will breed truly to their points, but they are said to have sadly degenerated of late years, and to have fallen off very much in size, which is doubtless to be attributed to breeding in-and-in very much; while the grey Sussex, Surrey, or coloured Dorking are very much given to sporting. To improve the size of White Dorking it has been recommended to cross with a rose-combed Grey Dorking, so as to regain the attribute of size, and then mate the progeny so obtained with pure White Dorkings of another strain, and select the best specimens, rejecting those which do not come up to the desired standard, breeding in the same way again from the whitest, but always from strains not related. Without some such expedient as the above, it is difficult to breed White Dorkings of a large size.

The mottled Cuckoo Dorkings are also pretty and useful birds, being good sitters, and are chosen generally on account of their markings, which in the best sort are regular.

19. **HAMBURG FOWLS.**—There are two distinct varieties of these, which are classed under the headings of Pencilled and Spangled; the former having light hackles, of either fine white or an unmixed clear yellow colour. Those with pure white hackles are

Bolton Greys, Pencilled Dutch, Chitapral, Silver Hamburg, Creole, or Coral; and those with yellow hackles, Bolton Bays and Golden Hamburg.

The spangled variety have darker hackles, and these again are subdivided into those that are either white, striped in the centre with black, or have yellow hackles striped in the centre with black, brown, or green. The former are termed Silver-spangled, Silver Pheasant, Silver Moonys, and Silver Moss; and the latter, Gold-spangled, Gold Pheasant, Gold Moonys, Red Caps, and Copper Moss.

Hamburg fowls are found to be located more in the midland and northern counties of England than in any other part of the country, where they are held in very high estimation, both on ac-



SPECKLED HAMBURGS.

count of the beauty of their appearance and their laying qualities. The Gold and Silver-spangled Hamburgs are more hardy than the pencilled, suffering less from cold, and laying better in winter, and being less subject to disease, while they attain to greater weight and size. They are also very commonly found in some of the northern counties of England. Although styled Hamburg, we believe these are never obtained from Holland, though the pencilled variety are sent over from thence to England in large numbers.

The Golden-spangled bear the character of being most regular layers, the pullets beginning when about six months old, laying about nine eggs in a fortnight, continuing to lay till they moult in the following year, the number telling up to about two hundred eggs per annum, the eggs being of a fair size, and a light pinky-brown colour, and of excellent flavour.

This result is, however, exceeded by the silver variety, which will commence laying, when in good health and under favourable circumstances (that must include a good run, which is indispensable to both kinds), at five months old; laying generally six days out of seven; producing a total in the year of about two hundred and fifty eggs.

They get over their moulting very quickly, and in six weeks' time begin to lay

again, and all through the season till moulting time once more approaches. After the second year good breeders of these birds do not consider it advisable to keep them longer for laying purposes.

Neither the Golden nor the Silver-spangled Hamburg ever want to sit, though now and then there may turn up an exceptional case or two, and no other fowls will produce so many eggs upon so small an amount of food; and as they feather easily and quickly, they may be safely hatched at the commencement of April.

To those who object to straying fowls, Hamburgs will prove somewhat objectionable, for they will fly over almost any inclosure, and being indefatigable foragers, all is fish that comes to their net, and they will eat even flowers as well as fruit and vegetables. As a set-off to this, there is no breed so well able to take care of itself and avoid danger.



PENCILLED HAMBURGS.

20. **SILVER-PENCILLED.**—These take the first rank as layers, and are about the size of the ordinary Game-fowl, and when quite pure are the best laying fowls we have. Their ground colour is pure white, the cock having very little black upon him at all, the whole of the neck and saddle hackles, breast, and back purely white, and not, as is supposed by some, being marked or pencilled upon the breast, the only parts that should have any black upon them being the wings and tail.

To produce a clean white cockerel that is good in ear-lobe, and distinctly laced in the sickle and side-feathers of the tail, it has been recommended by breeders for exhibition to run a first-rate cock with light hens whose colour in the pencillings is too light for show-birds, as dark hues will not breed good cockerels; the hens must, however, be good in the comb, and very white in the ear.

A well-bred hen has a pure white neck, the whole of the body, wings, and tail being delicately but distinctly pencilled with clear black upon a clear white ground, there being in general about five such distinct pencillings or bars across each feather upon the body, the extremes being most distinctly marked.

21. **GOLDEN-PENCILLED.**—The Golden-pencilled are the same in all respects, except colour, as the foregoing, the point most insisted upon relative to pureness of breed being that the cock has not any marking of black upon him except upon his wings; the difficult point to obtain being found by breeders that of ensuring the rich golden ground which is so much admired. For the purpose of breeding good cockerels and pullets, it has been recommended by good breeders to mate a rich dark golden-bay cock, that is dark in the tail, and of good carriage, with heavily and distinctly pencilled hens of as deep and even a ground colour as can be possibly got. Both cock and hens must have very small but good-shaped combs, and blue legs are imperative for exhibition. All Hamburgs possess a neat florid rose or double comb, which must not be too large, terminating in a fine upward-tending point at the back of the head, which imparts a complete finish to their appearance.

22. **SILVER-SPANGLED.**—These are of a larger size than the Silver-pencilled, the ground colour of the cock being clear white, beautifully marked with one spot, or spangle, of clear black on each feather, which presents the most ornamental appearance on the breast, where the spots are most distinctly seen. The hackles of the neck and saddle are striped down the centre with black, clearly margined with white, the tail feathers being mottled with black and white, the former predominating. They have a double comb pointing upwards, as before described, at the back of the head, which, however, in the case of well-bred birds, should not be too large and ponderous, the ear-lobes being quite white, and the legs of a light bluish shade of colour.

The hen is a very beautiful bird, being regularly spotted or spangled in every clear white feather all over her body, from the head to the tail.

The distinctive marks of difference between Silver-pencilled Hamburg hens and Silver-spangled ones, and which apply equally to the Golden variety, is, that the hackles of the former are pure white, while the hackles of the latter are regularly and distinctly marked with black; the other distinction being that the Pencilled Hamburg have five or six bars or pencillings across each feather of the body, while the Spangled Hamburgs have only one distinct spot or spangle upon each of their feathers.

Good breeders recommend for pullet-breeding the selection of a dark-hackled, "Henny"-tailed Moony cock, and four or five Moony hens, as fine as they can be obtained, though the Cockerels from such a pen would be unfit for exhibition, the Spangles obtained by using a "Henny" cock being larger in the progeny so obtained than when a long-tailed cock is used. But again, cocks had from these pullets would neither be useful for stock, nor for exhibiting.

23. **GOLDEN-SPANGLED.**—Again the Golden-spangled differ from the Silver-spangled in nothing except the ground colour of the birds. But in breeding for exhibition, it is more necessary, even with this variety than the other, to use separate pens for breeding pullets and cockerels, so as to bring out, in as strong a manner as possible, the distinguishing points that are sought for.

The best cockerels are said to be procured by mating a pheasant-tailed or hen-tailed cock with Moony hens, which give better size and more definite spangling; pullets being bred from pure Moonys on both sides; and with regard to age, the best birds are thought to be produced by one year old cocks and three year old hens.

24. **SILVER MOONY.**—There is some little confusion existing in the employment of this term, some writers assuming that it is merely a local term or definition, while those who class it as a distinct breed describe the cock as being a rather taller bird, with somewhat coarse head and comb, small, stained ear-lobes, and dark fluff, with generally a darker tail, the hens being better spangled than the cocks, neater in comb, head, and ear-lobe, well barred in the wing, dark in fluff, with white tails distinctly "moonied" on the tip of each feather, with bright spangling throughout the body.

25. **THE SILVER PHEASANT.**—This is a somewhat shorter bird, with neat head and comb, but with unstained, white ear-lobes that are larger than those of the Moony, and free from any green hue; the spangles being neither so round nor so large as those of the Moony; the hens being barred on the wing; both cocks and hens having clear white tails, spangled at the end; the cocks being tipped with black in the hackle, and the hens striped.

26. **THE GOLDEN PHEASANT.**—The Golden-pheasant is a larger bird, coarse in the comb, with large and white ear-lobe, and blacker in the spangling than the Moony. The tail is black and the hackles are striped, the moons being smaller and more crescent-shaped than in the Moony variety.

27. **BLACK HAMBURGS.**—The Black Hamburg is a handsome fowl that many breeders contend is a cross-bred variety, its brilliant metallic plumage contrasting well with its coral-red, spiked comb and white ear-lobes; but many are of a contrary opinion. It is a good summer layer of eggs. To breed good Black Hamburgs, it has been recommended to select good specimens from different strains, and not cross Golden-spangled Hamburg fowls with Black Spanish, as is sometimes done, the produce in this way seldom carrying the single comb.

28. **THE COCHIN.**—There has been no breed of fowls, perhaps, which has created so much enthusiasm upon its first introduction, or so much excitement amongst poultry-breeders, as the Cochin. Their somewhat singular appearance, their large size, their gentle and quiet disposition, and the number of eggs they lay, all brought



COCHIN CHINA FOWLS.

them into very prominent notice; and absurd prices were paid both for the fowls and their eggs, the latter having been sold at a guinea per dozen: the birds finding their way to the poultry-yard at Windsor, being patronised by the Queen.

Their peculiar crow, small wings and tail, and the remarkable development of the fluffy feathers of the thighs and under parts

of the body, were all new features to poultry fanciers; the cocks weighing 10 lbs. and the hens 8 lbs. when fully grown, and occasionally even larger. The Cochin hens lay medium-sized eggs at a period of the year when they are most valuable, and when bred from native birds the chickens are very hardy, their chief recommendation consisting in the great number of winter eggs laid by the pullets; as table fowls their length of leg, small breast, and somewhat "gamey" flavour causing them not to be so desirable as table birds, which, however, is insufficient to counterbalance their good qualities as profitable poultry stock.

The white birds, though exceedingly ornamental as fancy stock, are not equal to the coloured varieties, the preference being given to those of the lightest hues, which include all shades of yellow, buff, and cinnamon. Silver cinnamon is much prized by some poultry-keepers, but it is somewhat pale and washy in hue, and only looks well when the birds are perfectly clean.

The preference mostly shown has been for light-buff birds, which, to be considered perfect, must be without any dark markings on the neck-hackle, or any slaty tinge in the downy under-portions of the fluff or body feathers, points which, it is said, cause them to be prized on account of the difficulty of breeding them, so as to be perfectly free from any admixture of dark colour.

There is no breed which so contentedly resigns itself to the confinement of a small space as the Cochin, the lowest fence almost restraining them within bounds; but, on account of this stay-at-home propensity, they require more food to be supplied to them than most other kinds of fowls who enjoy the opportunity of a good run.

The chickens, although they are backward in fledging, reach maturity easily, pullets sometimes laying before four months old, and getting "broody" within six months of the time of their being hatched. They, of course, should be prevented from sitting at this early age, as it interferes with the stamina of the pullets, and the progeny of immature birds are weaker than those of the more mature ones.

29. **BUFFS.**—As buff is the favourite colour for Cochins, these and pale yellow hens must be matched with a pale gold-coloured cock, and hens of a full-rich cinnamon approaching to yellow with a full-rich cinnamon cock.

Lemon is a colour much affected by some people, and the birds are certainly very handsome. To obtain these, it is considered advisable to put a good, dark, even lemon cock, with lemon hens of the colour that is desired for cockerels. The same cock mated with

bright perfect lemon hens will produce good pullets, it being very difficult to obtain good lemon-coloured birds from the same parents, all buffs breeding lighter than themselves, in the cock there being a tendency to an objectionable light patch on the wing, and good bright pullets often have dark hackles. These end in Silvers.

30. **DARK COCHINS.**—The Grouse, the Partridge, and the Cuckoo, are generally the most admired of the dark kinds; the Grouse being of the same colour as the game from which they take their name; some of which are beautifully marked; but they are by no means common. The Partridge are more mottled in their markings, and not nearly so rich in colour; but their progeny is much more equal when bred from the same parents than many other Cochins. In selecting for breeding, Partridge cocks should be discarded that are black in thigh, breast, and tail, as well as those that are light in colour, and badly striped in hackle or saddle. A good cock should have a black breast, thigh, and tail, with bright red saddle and hackle, not lightly, but darkly, striped; dark red back, and with a clear, well-defined bar on the wing. A short-backed bird should be chosen, slightly arched in the neck, to correspond with the tail, which should rise out of a thick covert.

The hen should be a large, well-feathered bird, with a full, rising cushion, neat head, small comb, with hackle darkly striped on a golden ground, and the body distinctly pencilled, even to the fluff on the thigh, with dark brown on a much lighter-coloured ground. Some of these birds are more elegant in shape, though smaller in size, than the others.

31. **WHITE AND BLACK COCHINS.**—The white and black Cochins are supposed to be sports; in the first place, the white from the coloured, and the black again a sport from the white. By continual attention and breeding, however, they appear to have become sub-varieties, both being attractive-looking fowls, possessing the merits of ordinary Cochins; one unfavourable tendency in rearing white Cochins being their proneness to green legs, whereas yellow is wanted. In white Cochins a good shaped comb is looked for, it being required to be even, and distinctly serrated.

32. **THE BRAHMA.**—The Brahma-pootra fowl was introduced into England from America, somewhere about the year 1850, and very rapidly acquired popularity. Some breeders have asserted that they are not a distinct species, but either grey Cochins, cross-bred Cochins and Dorking, or cross-bred Cochins and Malay, or Chittagong. This, however, is strongly denied by others; but whatever they may be, they have steadily made their way in popular estimation as a most useful fowl to keep, despite this disputed

point, being a hardy breed and good layers of fair-sized eggs. They are better foragers than Cochins, and are good sitters and



BRAHMA POOTRA FOWLS.

mothers. The chickens also fledge better than the Cochins, and both grow fast and are exceedingly hardy; they, as well as the older birds, taking good care of themselves from general dangers,

and do not suffer so much from some of the lesser ailments to which other breeds are subject: the chickens generally being reared with but little trouble and loss.

They require less food than Cochins; but, on the other hand, want a more extended range^d, as is but natural, where they can forage for themselves. Yet, notwithstanding their full appreciation of the delights of liberty, they will sustain confinement as resignedly as any other species. The hens sit less frequently than Cochins, and the chickens vary in colour very much when first hatched, being of all shades of brown, grey, and yellow, which turn eventually to black, white, and grey, which are the more characteristic colours of this breed.

Whether the Brahmans are a distinct breed or a manufactured one, their leading features have now become established by careful breeding, their gait and carriage being alike removed from the waddle of the Cochinchina and the upright carriage of the other breeds accredited with their parentage; being short in the leg and neck, and wide and full in the breast, the point in which the Cochins most conspicuously fall off.

The legs are yellow and well feathered, but not so much covered in feathers as those considered the best specimens in Cochins. A slight fullness of the eye gives a broad appearance to the top of the head, while the tail is short, but full and broad-spreading; that of the cock being fan-shaped. Brahmans should have the pear-comb, and in all the bottom colour of the feathers should be grey. Cochins seldom breed true to colour; but Brahmans invariably keep to the mixture of black, white, and grey, the lightest being almost white, the darkest grey markings on a white ground.

The hardy constitution possessed by the Brahma fowls causes a relationship in breeding to be not so objectionable as is the case with some others, as the Dorking; and in getting up a good stock, early hatched two-year-old cocks should be used, that have well-developed combs, clear ear-lobes, well-shaped heads, full hackles, and bright yellow legs, and good tails, free from any white admixture.

If silver-grey is wanted, the cock should have black breast and thighs, the hackle and saddle being well striped with black, the tail-coverts being merely laced with a narrow white edging. Brown feathers are to be avoided, as well as a tail in which there is a purpleish hue, as these are characteristic of the brown variety, and would not produce silver-grey pullets. The hen should be darker than her anticipated progeny, and clearly and distinctly pencilled.

If brown pullets are wanted, it is recommended by breeders that

the cock have a slightly mottled breast, if the hen is dark, and a moderate supply of brown feathers, and be well pencilled, particularly upon the breast. If the cock is a well-bred bird, these seeming disadvantages of the hen will be counterbalanced by his own good points; it being easier to breed well-marked brown pullets than silver-greys.

In choosing a cock, it is not absolutely necessary that he be of large size, but the hens should be heavy birds, well feathered in thigh, with a full cushion; and should the cock be deficient in feather, so that the hen is well provided in this respect, it will not be very material, as any defect in one bird will be made up by the other.

In the production of light-coloured fowls, as the markings of colour need to be plain and distinct, and these cannot always be ensured from lightly-marked birds, in selecting hens, moderately dark hackled birds may be used; or a cock lightly marked in the hackle may be mated with dark hens, in which case both cockerels and pullets will generally be satisfactory birds.

Although many persons who keep poultry do not care a rush what colour their birds are, so that they are only productive and lay plenty of eggs, yet it is well for those who care to have distinct breeds of fowls to pay a little attention to the points necessary to ensure as good and as perfect a variety as possible, by which means the stock will become more valuable. If these are altogether overlooked, and birds are bred hap-hazard, in time the worst points may be developed in the stock instead of the best, which may easily be obviated by a little attention.

As a useful variety of fowls, the Brahma-pootra is about as good a one as could well be selected by those anxious to obtain good reliable birds, that do not give much trouble, and whose produce may be relied upon with tolerable certainty.

Comparisons are frequently made between Cochins and Brahmas; but there is a wide difference betwixt the two varieties, and some noteworthy variations, as the eggs from Cochins are relatively smaller when their great size is taken into account than many other breeds of considerably lighter weight; being inferior in this respect to Spanish and even many Dorkings; averaging about two ounces each in weight, the newly-hatched chicks appearing very large in size in comparison with the eggs from which they issue.

There are indeed several marked distinctions with respect to Cochins; as the growth of the chickens proceeds they become exceedingly denuded of feathers, which probably arises from their rapid growth, which prevents the development of feathers *pari passu*, nature concentrating its efforts, to all appearance, in the bodily growth of the young birds in the first place. The pullets

are much less backward in feathering than the cockerels, which causes the sex of each to be readily distinguishable at an early age: while the cockerel begins to crow later than most other kinds.

To the great deficiency of tail which is remarkable in the Cochin, must be added conspicuously small wings, incapable of flight, which are almost hidden before under the breast feathers, and behind by the back hackle. The voice of the cock is strikingly loud and prolonged in its notes, so that it has been amusingly said that they roar like lions rather than crow like cocks.

The precocity of the Cochin before noticed in laying and sitting is also very remarkable, and at one of the early shows at Birmingham, Cochin-China chickens were exhibited in the month of December, whose grandparents had been hatched very early in the same year.

33. **GAME-FOWL.**—Game-fowl was at one time considered a useful breed, as well as being largely bred for the cock-pit when that barbarous pastime was allowed and followed in England, but many of the more modern breeds have taken the place they used formerly to hold in public estimation. It is one of the oldest breeds we have in this country, supposed to have been introduced by the Romans into Britain, who were addicted to cock-fighting, and English game birds have been celebrated for centuries, and have been preserved in their ancient purity of lineage by many old breeders, and it is still liked by some on account of its combined beauty and utility.

The hen is almost the same colour as the partridge, with a golden streak in the hackle, and they have white legs, the cock being distinguished by a long head with a strong massive beak, and a single upright comb, the chest being prominent and fleshy, and the whole body flexible and muscular, to which the feathers sit close and firm, having a bold, erect carriage. The hens have a large, erect, fan-shaped tail.

Of all breeds the game-fowl are the most beautiful. The graceful, proud bearing of the cock, and his dauntless courage, which never quits him, even when mortally wounded, and at his last extremity, being especially remarkable, his courage having passed into a popular synonym and emblem of unquenchable bravery.

The hens are unsurpassed as mothers and nurses, usually wanting to sit when they have laid about five-and-twenty eggs, which are of a light buff colour, and both the flesh of the birds and their eggs are of first-rate quality for the table, though neither attain the bulk of some other breeds, the whiteness and juiciness of the flesh causing it to be a good table-food.

it is not a good breed to rear in any great numbers, for the young broods as soon as they are fairly feathered begin to fight desperately amongst themselves, blinding one another, and stripping the skin from each other's heads and necks, their quarrels not unfrequently terminating fatally, or, if not carried out to the bitter end, they so mutilate one another that they have often to be destroyed.

They are excellent foragers, and a good run is therefore indispensable to them, when they will supply themselves with the greater part of the food they consume.

They vary greatly in colour, and are divided into black-breasted



GAME FOWLS.

reds, brown-breasted reds, or gingers, various piles (or pields), duck-wings, blues, or greys, white and black.

The Society for the Prevention of Cruelty to Animals has lately proceeded against various persons for "dubbing" cocks; but it is imperative that birds for exhibition be thus treated according to the doctrine of the judges, and on account of the pugnacious disposition of the cockerels it is generally considered desirable to cut off their combs and wattles at the age of five or six months, otherwise, from fighting amongst themselves, as they are in the habit of doing, a good deal of suffering and loss of blood ensues. This operation is generally done with a pair of sharp scissors, when the comb is sufficiently developed, so that it will not grow again after being dubbed. The fowl is held firmly in the hand, and in cutting the comb the operator has to take care not to go too near the skull; removing as well the deaf ears and wattles. A little green vitriol dissolved in water, when applied, will be found immediately to stop the effusion of blood, and on this account, in the case of the game-cock, the practice—the cruelty of the custom—is generally endeavoured to be excused as a necessary one.

In breeding game-fowls, the points most insisted upon are, first, to use only the strongest and healthiest birds that can be obtained, and choose a cock that is broad in the breast and back, long and curved in the neck, with short and close hackle and close-sitting plumage. Spurred hens are considered best, as being likelier to breed stronger chickens; short heads or neck to be avoided. as

well as ears tinged with white; feet in which the hind toe is short, and not fully developed, as well as birds with soft plumage, or those with squirrel tails. Unlike most other instances, the preference is usually given to an old cock for breeding—from five to seven years, his weight not exceeding 6 lbs., and that of the hens from $4\frac{1}{2}$ to 5 lbs.—good old cocks generally producing a large proportion of cockerels, which is generally taken as an indication of strength in the breeding powers.

34. BLACK-BREASTED REDS.—These are most generally preferred, and, to get good birds, the cock should have a deep orange-red hackle, free from stripes, a deep-toned, velvety-looking back, and willow legs, and a bright red eye. The hens should possess light golden hackle, clearly striped, with salmon-coloured breast and golden-brown back, the wings of medium size, free from pencilings. These should never be crossed with other varieties for the sake of colour.

35. BROWN-BREASTED REDS, OR GINGERS.— These are generally superior to the former in shape and compactness of form, and the great point in breeding is to have a first-rate cock, the eyes being of dark-brown colour and the face purple. The breast is usually preferred of a dull red-brown colour, and free from streaks, though some very handsome streaked birds are produced.

Handsomely-coloured cockerels may be obtained from a thoroughly good black-red cock and brown-red hens, the best streaky-breasted birds being produced from this cross.

36. DUCKWINGS.—Many people consider the Duckwings to be the handsomest of all the game species, the Silver Duckwing cock having a white, or nearly white, hackle and saddle, free from any obtrusive stripes, black breast, silver back and coverts, with willow or olive legs. The yellow cock is of clear straw-colour in hackle and saddle, with bright maroon back and coverts, and willow or yellow legs. The hens are salmon-breasted generally, but are sometimes various, the Silvers having a greyish appearance, while the Yellows incline to a somewhat blue tinge. The best Duckwings have yellow eyes and white legs—occasionally the legs are blue—but red eyes and willow legs are preferred by those who breed for exhibition.

The best cockerels are considered to be bred from well-shaped, strong black-red cocks of a light tinge, and spurred, good-coloured Duckwing hens, which match well in leg and eye; but these cannot always be relied on for cockerels. The best pullets are thought

to be got by a white-hackled Silver Duckwing cock, with black-red hens. The result is generally certain with pure Duckwings, both cock and hens, though the cockerels will be "mealy-breasted," and striped in the hackle, whereas the cross will often throw very handsome cockerels. Some good Duckwings are produced by cocks bred from Duckwing cocks and black-red hens, matched with light black-red hens.

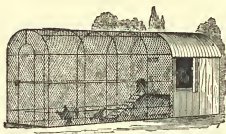
37. **PILES (OR PIEDS).**—The white-breasted cocks are considered the best birds, which resemble the black-reds in their *tout ensemble*, excepting in the particular that the black is exchanged for white, the handsomest birds being got from high-coloured black-red cocks and Pile hens. The objection to breeding from Piles on both sides is that the colour is soon bred out, unless the above cross is resorted to.

A Pile cock, mated with hens produced by a Pile cock and black-red hens, will throw good pullets; and the same hens, crossed by a black-red cock, it is said, will bring first-class cockerels. Piles should always have yellow legs and white tails, and the eye and the plumage should be as red as possible.

38. **WHITE AND BLACK GAME-FOWLS.**—White Game-fowls, to be considered perfect, should have red eyes and white legs; and the black game, black eyes with dark olive legs. Both white and black must be bred from self-coloured birds, though a cross will sometimes produce a sport of these varieties.



FEATHER-LEGGED BANTAMS.



POULTRY-HOUSE WITH RUN.

CHAPTER III.

VARIETIES OF FOWLS (*continued*).

Polands—Black Polands—Silver-spangled Polands—Golden-spangled Polands—The Lark-crested Fowl—The Malay—French Fowls—La Fleche—The Crève-cœurs—Houdans—La Bresse—The Gueldres—The Du Mans—American Fowls—Leghorns—Plymouth Rocks—Dominiques—Rumpless Fowls—The Frizzled or Friesland Fowl—Bantams: Gold and Silver-laced, or Seabright—Black and White Bantams—Game Bantams—Booted Bantams—Japanese Bantams—Silkies—The Russian Fowl—Balkies, or Dumpies—The Rangoon—The Emu, or Silky Cochin—Sultans—The Ptarmigan.

39. **POLANDS.**—Polands are a very ornamental variety, and good layers of eggs, seldom wanting to sit; and as table fowls they are equal to any for plumpness and quality, though their somewhat small size is against them, if poultry to be reared for sale is contemplated. There are many varieties, all of which are very good layers, but the chickens are somewhat difficult to rear, on account of their delicacy; and taken altogether, they will not rank with most profitable kinds of poultry, unless reared upon a dry situation, where the surface water runs quickly off the land, as upon sand, gravel, or chalk.

The great point with these birds is the top-knot, which should be large, compact, well-shaped, and full; a small bright-red comb being placed in front of this appendage, somewhat resembling the appearance of a pair of horns. The breast is prominent, deep, and carried well forward, the ear-lobe being large in the cock, and small in the hen, well rounded, and pure white in colour in the crested variety, which also has long, fine, pendulous wattles. The wings are large, and carried well up to the body, the legs being clear and fine, but inclined to be rather long, and, in the case of the spangled birds, blue in colour; in these the tail is either bay or silver, each feather terminating in a rich metallic black spangle; and the full-grown birds are not considered at their best until they have attained their third year; and it is said the name they have is due to the fact that the birds were first imported into Poland from India. The large top-knot of the cock is composed of feathers resembling those of the hackle, which in the hens forms a dense globular tuft.

The chief varieties are White-crested, Silver-spangled, Golden-spangled—these being sometimes mistaken for Hamburgs—Black, and White Polish. Some of the birds have an immense beard under the chin, and a kind of feathered goitre round the throat.

40. **BLACK POLANDS.**—The Black Poland sometimes produce white chickens that are pure in colour and of great beauty, but they are so tender that it is a work of great difficulty to rear the progeny of these. The Black Poland are invariably plump kind of birds, the cocks generally weighing from five to six pounds and a half, and the hens about one pound under this weight. The White-crested Black Polish is a beautiful bird, of a deep black colour, with a large white tuft on its head. The White Polish with a black top-knot, which has been mentioned by some writers, appears to be almost extinct, for it is now very seldom seen in perfect specimens.



SPANGLED POLANDS.

White-crested Poland, in the case of the cock, are apt to become yellow in the crest, the point being to obtain it as white as possible, both cock and hen being adorned with a black tuft of feathers growing in front of the crest.

41. **SILVER-SPANGLED POLANDS.**—Silver-spangled Poland are larger than the black variety, the ground colour being white, which is spangled with black. The crest of the cock, which hangs in a thick bunch over the head, is tipped with black at the end of each feather. In breeding good specimens of these, the points aimed at are to have the crest, shoulder, back, and breast of the hen, and the breast of the cock, evenly and boldly spangled, and the general plumage may be either laced or spangled.

42. **GOLDEN-SPANGLED POLANDS.**—These resemble the preceding in their general characteristics, differing only in colour, and

when Gold and Silver-spangled Polands are crossed, the chickens will often be as perfect as those bred from parents of the same colour, but it is generally assumed by breeders that the golden lose the richness of colour which it is desirable to produce, and it is in consequence preferred to mate richly-coloured birds that are well spangled throughout, except in hackle and wings, in which good judges prefer to see lacing, as also in the saddle of the cock, the main point being that cocks and hens have full globular crests.

43. **THE LARK-CRESTED FOWL.**—The Lark-crested Fowl, something like the Polands in having feathers upon the head in a distinctly developed form, has but a small tuft at the back of the head, and a sort of half comb in front. It is an old variety, and once was greatly in favour, being various in colour, the favourite kind being pure white, which is of highly ornamental appearance. They are average-sized fowls, both good layers and good sitters, and fairly hardy, while they are also good table fowls, the flesh being delicate and well-flavoured. They are now only commonly met with in certain districts, where a high opinion has existed as to their merits from old times, being much more frequently seen a couple of centuries ago than in recent times.

44. **THE MALAY.**—The Malay is one of the very largest breeds of fowls, the cocks sometimes weighing ten and eleven pounds, and the hens from two to three pounds less, the cocks standing nearly three feet high, having long legs and thighs, the whole figure being somewhat gaunt, though often very handsome specimens are to be seen—altogether tall sinewy birds, and inveterate fighters, the eye being red, and the face cruel-looking and naked, and nearly destitute of wattle. The tail is well-shaped and drooping, and of a rich black colour, and altogether the bird is close and hard-feathered. The head is snake-like, and somewhat flat on top, with great fulness over the eye, the comb being low and thick, somewhat resembling that of the game-cock when dubbed.

The pullets commence laying early, and are sometimes good winter layers; the egg being of a medium size, of a tinted hue, or buff colour. The chickens when first hatched are very strong, and are thickly covered with down, but they grow so rapidly that the progress of their bodies outstrips that of their feathers, and by the time they are about one-third grown, the back and shoulders present a half-naked appearance, which causes them to be extremely sensitive to cold and wet; and those who wish to rear this breed to the best advantage should get the chicks hatched early, so that the

young birds may pass through this unclothed period during May and June, when the weather is sunny, and before the July rains set in, which generally prevail in this country.

The flesh of the Malay fowl is somewhat coarse, with a brownish tinge, and they are not a good breed altogether for the poultry-farmer, but were at one time much resorted to as a cross for improving the size of other species of fowls; they are to be met with in all kinds of colours, as black, white, grey, &c.; but the most common is a kind of cinnamon brown.

In order to breed good specimens of the red variety the cock should be rich-coloured in hackle and saddle, somewhat dark in shade, the back and shoulders being marone-coloured, and the breast black, or black mottled with reddish brown, and well barred wings.

The plumage of the hen should be of a handsome brown-red colour, lustrous in the hackle and back, dull in the breast, but deepening in the tail. The eye should be pearl-colour, the beak strong, with small ears and wattles.

45. **FRENCH FOWLS.**—A certain number of varieties of French fowls have lately become established in England, of which the chief kinds are *La Fleche*, the *Crève-cœur*, *Houdan* fowls, *La Bresse*, the *Guedres*, and the *Du Mans*.

46. **LA FLECHE.**—These are generally considered the best of the French fowls, and are a somewhat striking breed, being handsome and hardy; the chickens easily reared, and growing quickly, while the hens lay large eggs.

They are jet black in colour, with a rich metallic lustre, the ear-lobe being large, and quite white, the face bare, and red in colour, the cocks in the best specimens weighing 9 lbs., and the hens 7 lbs., the general average weight being about 1 lb. less. The nostrils are large and elevated, and the beak also large and dark. The neck is slightly curved, the hackle small but thick, the thighs and legs being long and stout, and altogether possessing a good carriage. This breed in its pure state is mostly found in the north of France, and is better adapted to the climate of England than most other French fowls.

47. **THE CRÈVECŒURS.**—These are handsome black fowls, having a crest or top-knot, which in the cock is very full, furnished with pure black hackle feathers, which should incline backwards, any white being considered a fault, though old cocks have them. In front of the crest stands up a conspicuous comb in the form of two spikes, or horns, the legs being black and free from feathers.

It is a good table-fowl, and the hens lay large white-shelled eggs, and are non-sitters, weighing about 7 lbs., and the cocks 9 lbs., these weights at times being exceeded. A year-old cock and two-year-old hens are said to throw the strongest chickens, but the great drawback in keeping *Crève-cœurs* in this country is their inclination

to be roupy, and all crested fowls are more or less delicate, so that it is not desirable to entertain this breed except in a warm locality.

48. **HOUDANS.**—This breed of late years has advanced very much in public estimation, the hens being good plump birds, weighing from $6\frac{1}{2}$ to $7\frac{1}{2}$ lbs. each, and the cock from 8 lbs. to $9\frac{1}{2}$ lbs., being black-and-white in colour, the black predominating, though the white is very evenly distributed throughout the body.

The crest of the cock is large, well arched, and falling over the sides, the comb coral-like, well serrated, and brilliant in colour, sometimes being spiral, or horned, like the Crève-cœurs, the wattles being moderately long, red and thin, with red face covered by a full beard, which hangs in a bunch under the beak, the thighs being short and stout, with fine white legs. The tail is full, well sickled, and nearly erect, the sickle feathers being sometimes white, sometimes black, the latter being preferred. Though a useful breed, much liked by many people, they are not so attractive-looking as some of the other kinds of French fowls.

49. **LA BRESSE.**—This is not a very good-looking variety, but they are a useful breed of fowls to raise for table use, as the chickens mature early, and can be fattened early, being often put up to fatten shortly after leaving the hen, the flesh of the breed being white fine, and tender, and of a capital flavour. Although not reaching to such a very large size, they come heavy to the scale, at four and a half months old a chicken weighing 6 lbs., and a capon 8 lbs. to 9 lbs., thus well deserving the name of fat poultry.

They are somewhat similar in appearance to the Silver-pencilled Hamburg, the bodies being mostly white and clean in the cock, but moderately splashed in the hen, after the fashion of the Silver-pencilled Hamburg hen, the tail of the cock being black, laced with white, that of the hen being indifferently pencilled. The cock's comb is single and large, and in the hen falls over on one side, the legs being blue. The hens lay a fair number of eggs, but are not good winter layers, the chief advantage of the breed being that the chickens reach maturity and fatten very early.

50. **THE GUELDRES.**—These are remarkable for an absence of both crest and comb, which is made up for by long and pendant wattles, which give it a somewhat singular appearance. There are black, white, and grey Gueldres, but the great majority of the breed are similarly marked, and resemble in colour the Cuckoo Dorking, being close-feathered, good-looking birds, inclined to be large in

size, with prominent breasts, and hardy constitutions. The legs are blue, and feathered somewhat, the tail being large and erect.

The hens lay, throughout the year, large-sized eggs, and, being non-sitters, are a useful breed of fowl to keep where eggs are made the first desideratum.

51. **THE DU MANS.**—The hens of this breed also lay large eggs, and are non-sitters, as well as fattening readily for the table. The plumage is black, of a lustrous hue, the birds having double combs, and being crested; though they are but of medium size, altogether they are a very useful breed to keep.

52. **AMERICAN FOWLS.**—A good many fowls are now sent to us from America, where great attention has been paid to breeding and crossing, amongst which are several useful varieties, as Plymouth Rocks, Dominiques, and Leghorns. For the latter there has been quite a rage in America, though they have not made the same noise in England.

53. **LEGHORNS.**—Leghorns are met with in white and brown colour, the former being by far the handsomer of the two, the Leghorn cock being upright, with an erect tail, the comb being large, very red, and single, placed far back on the head, which is short, the wattles being long, even, and pendant; long neck, curved, with hackle full and flowing.

The hen is rather square in body, with a full round breast, close plumage, large and erect tail, the comb, which is large and red, falling over one side, with legs rather slender, long, and yellow, to match the cock's.

Brown Leghorns resemble very much in appearance, both as regards cocks and hens, dull-coloured, black-red Game-fowls, the hackle and saddle of the cock being of a dull-red brown, the tail a bright black, breast and thighs black, and the legs yellow. The hens, excepting in shape and comb, resemble black-red Game hens, the general body-colour being very similar. The breast is of a deep, dull, salmon-colour, paling off to light brown towards the thighs. The hens lay large white eggs, and the chickens grow rapidly and attain maturity early, while they are also hardy. They are not great eaters, and are a profitable breed to keep for the purpose of egg-production; but they are not good flesh-forming birds.

54. **PLYMOUTH ROCKS.**—The Plymouth Rocks are hardy and docile, and make good table-fowls as well as being good layers, a union of qualities not very often met with, as good layers are not expected to lay on flesh as well as be productive in the egg department, the meat being white and well-flavoured. The

plumage is handsome, somewhat resembling the Cuckoo Dorking, being of a dark-blue or steel-ground, crossed with a darker shade of colour. The comb is single, but not large, with moderate-sized, well-rounded wattles, broad curved back, with deep and broad breast, large tail, moderate-sized wings, with short, stout, yellow legs. The hens weigh 7 or 8 lbs., and the cocks, at times, as much as 10 lbs. The breed is supposed to have been produced by various crosses between Cochins, Dorkings, and Malays, partaking to a certain extent of the qualities of each, the hens being good sitters and mothers, laying a fair-sized yellow egg, having almost the docility of the Cochin, and laying throughout the winter.

55. **DOMINIQUES.**—These can scarcely be said to be established in England, though the breed has been exhibited, and are described as uniting in themselves various good qualities, being excellent layers of eggs, good sitters and mothers, with cuckoo-marked plumage, the ground colour being of a light, slatey hue, marked with a darker shade. They have large rose combs, medium-sized, well-rounded wattles, yellow legs and beaks, and red ear-lobes.

56. **RUMPLESS FOWLS.**—Also called the Persian and Rumpkin, is remarkable as being without a tail. There are several varieties, which differ in size, including Hamburg, Game and Bantams, the kind best known in England being a double-combed fowl of medium size, being a fair layer of eggs, and also a good table-fowl. Some of the best-looking are pure white, but they are not favourites as a rule, except with those who like to have oddities about them.

Some of this tribe have been imported from the East, of a black colour, with a tuft on the head, five toes, and feathered legs—the carriage of these birds being rather more upright than usual, coming from either Turkey or Egypt.

57. **THE FRIZZLED OR FRIESLAND FOWL.**—This also is a grotesque variety, said to have originally proceeded from Eastern Asia, being often found in the East Indies and the islands of the Indian Ocean, where the climate is more adapted for them than that of England. Being a small, delicate fowl, it is not well suited for our humid climate.

The feathers of this species are curled the reverse way to ordinary (to which fact it owes its soubriquet of frizzled), excepting those of the wings and tail, which gives it a somewhat curious look. They are mostly white, and are only desirable as novel additions to the poultry-yard, being of very small value on the score of productiveness.

58. **BANTAMS.**—The various breeds of Bantam fowls are more prized as pets than kept for profit, though their small eggs are by no means to be despised, and are relished by invalids, whom their bold carriage and aggressive behaviour towards other fowls have frequently diverted.

The varieties best known are the classes of Gold-laced, Silver-laced, White, Black, and Game, and the fancy for these has much changed of late years, in old times being preferred feather-legged and booted. They render good service as destroyers of grubs and insects, the most preferred sorts being perhaps the Black, White, and Seabright.

59. **GOLD AND SILVER-LACED, OR SEABRIGHT.**—The Silvers should be a clear silvery white, and not, as is sometimes



SEABRIGHT BANTAMS.

seen, of a yellowish white, the Golden being generally brought to greater perfection. The feathers are laced, or surrounded with a rim of black, perfect marking being the principal feature aimed at; the ground colour of the Gold-laced being of a fine gold, flecks of black, or unequal lacing being considered a grave fault in the eyes of breeders. The cocks are hen-feathered as well as hen-tailed, having no hackles; the wings are tolerably large, and carried very low, the birds having a jaunty appearance. The hen resembles the cock in general appearance, excepting that her head-gear is smaller, and her head not so coarse.

60. **BLACK AND WHITE BANTAMS.**—Black and White Bantams are attractive birds, with full tails and double combs, the wattles being broad, short, and thin, the breast being full and carried well forward, diminutive size being one of the chief points aimed at, and of unmixed colour, either black or white, the blacks being distinguished by their lustrous plumage.

61. **GAME BANTAMS.**—Game Bantams are Game-fowls in miniature, after the various Game species, as Duckwings, Black-

breasted Reds, &c., the Duckwing Bantams being very beautiful little birds. Some of the Bantams are very small, ranging from 1 lb. to 22 oz. in the cocks, and the hens less.

62. **BOOTED BANTAMS.**—The most beautiful specimens of these are the pure white, which are completely feathered on the legs, and not on one side only, with quill feathers to the extremity of the toes. Some of these are seen bearded, but the breed is very scarce. Most of the Bantams, unless in the case of a race well established, are difficult to breed, for many years the Seabright being the kind most affected by fanciers, and these, it is surmised, were produced by careful breeding and crossing by Sir John Seabright, from whom they take their name.

63. **JAPANESE BANTAMS.**—These are somewhat odd-looking birds, with deep, short bodies, large combs, and flowing tails, which give them a rather exaggerated appearance when taken in conjunction with their small size. They are mostly pure white, with black tails laced with white or grey colour throughout, the breast being carried prominently forward, with altogether a bold, erect carriage. The cocks of this breed usually weigh about 28 oz., and the hens 22.

In the Seabright variety the scale of weight has been fixed for the hens at 16 oz. and the cock 20 oz. It is almost needless to say that Bantams are kept more as pets, than with any view to usefulness or profit, though, as before stated, they are capital exterminators of vermin.

64. **SILKIES.**—This is a curious breed of fowls, that is covered with white, dishevelled feathers, and is of small size, the weight of the cock seldom exceeding $3\frac{1}{2}$ lbs. and the hen $2\frac{1}{2}$ lbs. The webs of the feathers of the Silkies are not connected together with the barb-like filament that is common to other fowls, but are unconnected, which thus gives it the soft, silky appearance to which it owes its name. The hen lays a good many small round eggs, and is a capital mother, often found very useful to rear small, tender game birds, as partridges. They are not very hardy, and require a dry, well-drained situation.

Silkies are sometimes called "Negroes" and "Silky Niggers," on account of their skin being of a somewhat violet colour, which also extends itself to the bones as well. The legs are very short, and they have five toes, their plumage being of spotless white, presenting altogether a very ornamental appearance.

65. **THE RUSSIAN FOWL.**—These birds are of various colours, some being white, some blue, others black, while some are coloured

like Game-fowl. They are good table-fowls, the flesh being white and juicy, and the hens are good layers, the breed being hardy, and easily fed. They have tufts of dark-coloured feathers springing from each jaw, and others of greater length, and fuller, issuing from the lower mandible, in the form of a beard.

They are more commonly met with in Scotland than in England, perhaps, being sometimes gold or silver-spangled, somewhat resembling the Spangled Hamburgs in marking, which enhances their value in the eyes of fanciers.

66. **BAKIES OR DUMPIES.**—These are chiefly met with in Scotland, where they are highly appreciated, being plump fowls with very short legs, the plumage being mostly a mixture of black and white, or brown and white, and are good layers, as well as being



THE PTARMIGAN.

capital sitters and mothers, and have lately found their way to England, where they are rising in the estimation of those desirous of obtaining somewhat different varieties to the old-established breeds.

67. **THE RANGOON.**—This is a bold, handsome breed of fowls, partaking somewhat of the characteristics of the Malay, being heavy birds, of an upright carriage, with a drooping tail, and rich, handsome plumage, with a comb like that of the Malay.

68. **THE EMU, OR SILKY COCHIN.**—This is merely a sport from the Cochin, being a fowl of entirely modern creation, and not a definite breed, though it is sometimes assumed to be one, the plumage of birds which are derived from the Cochin when crossed by a different strain sometimes assuming a silky appearance.

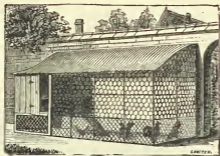
69. **SULTANS.**—These are a pretty variety of fowl, that are considered by some to belong to the species of Polands, while others consider they ought not to be so ranked, on account of their feathered legs, small size, and from their having five toes. They are described as being brisk and lively in their movements, the hens

being good layers of white eggs, and being non-sitters. The crest of the cock is large, and composed of hackle feathers; while, in the hen, it is full, close, and globular, the plumage being of brilliant white throughout. They are described as being square-built, intelligent birds, but low in carriage, the cocks weighing about $4\frac{1}{2}$ lbs., and the hens about 1 lb. less.

70. **THE PTARMIGAN.**—Some breeders consider this species to be a crossbred bird of some kind or other, while others regard it as being a breed that has degenerated, and fallen from an originally higher state. It is somewhat small in size, of white plumage, with a tuft on the head, which stands perpendicularly in some cases, with ample tail, cup-comb, and booted legs, being a somewhat small-sized fowl.



BLACK BANTAMS.



LEAN-TO POULTRY-HOUSE.

CHAPTER IV.

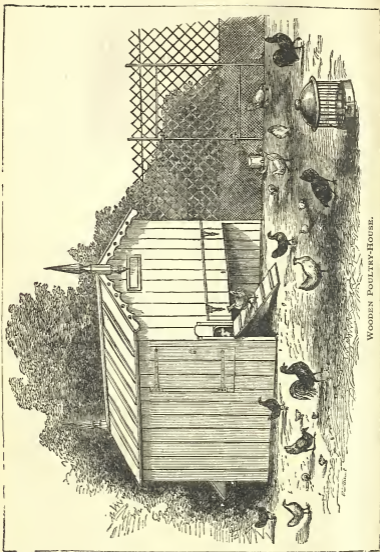
ACCOMMODATION FOR POULTRY.

The Hen-house—Situation—Materials for the construction of the Hen-house—Drainage—Ventilation—Size in proportion to number of inmates—Arrangement of Perches—Fittings—Cleanliness—Runs for Fowls—Covered Runs for rainy weather—Poultry-houses for keeping Poultry upon a large scale—Nests (fixed)—Movable Nests—Hen-ladders—Coops for fattening—Dangers to Poultry: Cats, Rats, Foxes—Marking Fowls.

71. **THE HEN-HOUSE.**—Having settled upon the best breed of fowls that it is considered likely will suit the capabilities of the poultrykeeper with respect to space and situation, before these are brought home, the hen-house must be first well considered, the chief necessary points in connection with which should be that it is at once warm, airy, and well ventilated.

The flooring should be of some material that can be readily and thoroughly cleansed. Stone is too cold as a flooring, while bricks, although much warmer, are open to the objection that the dirt and droppings get fixed in course of time between their interstices at the places where they are joined; and although these may be thoroughly scraped and washed, owing to the porous nature of bricks, the floor will in time become thoroughly impregnated with objectionable matter. A flooring of wood, on the same account, is equally objectionable, and the best that can be devised is made in the following manner.

Dig out the site of the future hen-house to the depth of about a foot, and fill up the space so excavated with burnt clay, or coarse gravel, and have the whole well rammed down. Upon this should



WOODEN POULTRY-HOUSE.

be spread a compost of gravel, cinder-ashes, quick-lime, and water. This will make a capital dry floor, upon which no surface water will stand, as it will drain quickly away. The surface should then be constantly kept strewed with sand, earth, or cinder-ashes, the latter of which is readily procurable in every household; and this should be scraped away daily if possible. The scrapings will make capital manure for the garden, and should be placed in a corner under cover, and used when wanted. With this object in view, the most likely stuff should be sprinkled over the floor that can be made useful. Sand mixed with the ordure of the fowls would be found to come in very handy for potting plants for the greenhouse after being properly dealt with, and fine earth so mingled will also make a capital top-dressing at all times of the year. If the soil of the garden happen to be composed of clay, the cinder-ashes will be found very useful in lightening it, and getting it into drier and better working order.

If the future hen-house is to stand on a wet, clay soil, the stuff excavated can be easily burnt into a kind of brick-earth, by the admixture of a few hundredweights of small-coal, and this will cause the bottom to be sound, firm, and dry, the latter being particularly necessary, nothing being more fatal to poultry than damp, especially that of a permanent kind, as on clayey soil, or in wet situations.

72. **SITUATION.**—The aspect of the hen-house is of some importance, and, if possible, the windows or openings should face the south, which ensures a greater degree of warmth throughout the winter; but this cannot always be obtained, as sometimes there may be only one particular spot upon which it may be convenient to place the hen-house; but any difficulty of this kind may be partially overcome by shutting out piercing east or north winds, by planting a few shrubs judiciously, or trees, to break the wind, which will also form a good shelter from heat or rain, to which the fowls may run at all times.

73. **MATERIALS FOR THE CONSTRUCTION OF THE HEN-HOUSE.**—Houses are built of all sorts of materials, some of an expensive character, according to the taste and design of their owners; but this is not at all necessary, as a lean-to built against a brick wall, with feather-edged boards, lapped throughout, having a southern or western aspect, will be found to answer very well. The roof should be formed of inch boards, projecting over the sides of the house, so as to throw off the rain. The patent asphalt cloth

forms a cheap, warm roofing, which should have a coating of gas-tar spread over it to resist the rain.

In some poultry-houses, which have already tiled roofs, the fowls, as they roost on their perches, are often subject to a down-draught, and this has often been remedied in country places by lining the roof thickly with straw. This, indeed, makes the house much warmer, but it encourages vermin, which should be sedulously kept out; and a little cheap brown calico, or even brown paper, fastened to laths and nailed to the rafters, and oiled over or painted, will be much cleaner, and be found to increase the warmth of the house very materially during the winter months, and thus increase the production of eggs.

The height of the house will be found sufficient if 7 feet at back, and 5 feet in the front, which will allow of a fall of 2 feet to carry off the rain-water; the depth about 6 feet, and the length according to the number of fowls kept. A house 10 or 12 feet long, divided into two, will be sufficiently large to accommodate half a dozen hens and a cock. If a door is hinged to the centre of each division, one for each compartment, and a window made in each, latticed, it will relieve the monotonous look of the little structure, and also afford ventilation to the house. Proportionate dimensions will suit any greater number of fowls that may be desired to be kept.

74. **DRAINAGE.**—Under ordinary conditions, if the floor of the hen-house is constructed in the manner we have indicated, it will generally be found well drained; but it may so happen that, upon occasions of heavy rain, the water may pour down very fast from neighbouring buildings, in which case it would be desirable to dig drains round the fowl-house, which can be easily done, and fill them up to within a few inches of the surface with broken brickbats, or any coarse rubbish that may be at hand, and spread over the surface a coating of gravel, or porous material, that is not fine enough to form a smooth, hard surface; and this arrangement will be found to carry off the water thoroughly, without necessity for any more complicated arrangements.

75. **VENTILATION.**—It is incumbent in all hen-houses that there should be good ventilation without draught; and as windows and openings are necessary for this purpose, they should be so placed as to allow of the entrance of plenty of air, but so that no draught can come upon the fowls while they sit at roost. If the poultry-keeper has to take to a building ready-made to his hand, where a defective arrangement of this sort exists, the difficulty may be overcome by covering over the objectionable window with perforated zinc, or wire gauze, which will shut out the draught, and yet

allow of a certain amount of ventilation; and a little attention to such particulars will be found to amply repay any trouble that may be occasioned thereby.

A close, confined atmosphere is very unfavourable to fowls, and often produces disease; so that good ventilation in the fowl-house is strictly necessary for their health and well-being.

Fowls do better when divided into separate families, and this is especially important where the propagation of distinct breeds is aimed at, and better domestic harmony is secured by this arrangement. Where a great number of fowls are kept upon an unlimited range, this sort of arrangement cannot be well carried out, unless altogether separated from each other, upon the plan suggested elsewhere; but where there are but a small number kept, and the accommodation is but limited, this can be easily managed, as the confined space, which, in a certain sense, is objectionable, is under the control of easy and definite arrangement.

76. SIZE IN PROPORTION TO NUMBER OF INMATES.—

Thus, in the small-sized house we have indicated, fowls can be nicely kept in a space 10 feet in length, which, divided into two houses, will give an area 6 feet by 5 feet, enough for a cock and five or six hens, to which the "run" will be attached; and upon this scale fowls can be easily accommodated in those situations where room is an object, as in suburban or town residences. So that there is thorough ventilation, comparatively low-pitched fowl-houses are warmer, and better suited to draughty and exposed situations, than more roomy and lofty buildings, where fowls roost sometimes on perches at different altitudes, those on the lower ones receiving on their bodies the droppings from those above, in badly constructed places, where any kind of accommodation is considered good enough for fowls, which have to take their chance in the best way they can.

Where fowls have the run of a farmyard or unlimited range, space is of no consequence, and these are happily situated; but this unlimited range, although highly desirable, is not strictly necessary for domestic fowls if the disadvantages of a confined space are counterbalanced by extreme cleanliness and efficient superintendence.

However large the space may be, or however roomy a barn or shed may be, in which fowls are allowed to roost and occupy possession, it will be found best not to have more than fifty fowls together in one place, in those cases where poultry-farming is aimed at on a large scale. Fifty fowls will doubtless seem a great number to those who only have limited accommodation, but this

number will only have formed five or six broods of chickens originally, in those cases where poultry is hatched successfully, which is often done in favourable situations, under the best circumstances, where great care and attention is bestowed upon the poultry by some good hen-wife, who takes a pride in getting all, or nearly all, the eggs hatched she sets the hens upon, and rearing all, or nearly all, the chickens when hatched. These fifty fowls soon stow themselves away in places where there is abundance of room, in lofty sheds and outbuildings, yet, as they all get collected together at morning and evening, when a few handfuls of corn are thrown down to them, the presence of a very large number in one place is not conducive to their health, and the ground will in time get more or less tainted by their droppings; for it must be remembered, where the space is almost boundless, the ground is not considered to require cleansing, the necessity of which is always present to the minds of those good managers who can only give their fowls a limited space in which to disport themselves.

Where large numbers of fowls are kept, it will, therefore, be the best plan to divide them, assigning to each breed a separate locality, which will be found to answer much better than keeping a large number together.

The writer once kept one hundred and fifty full-grown fowls in one place, that had an unlimited range over various meadows; a long range of low, boarded fowl-houses being constructed for their accommodation against the wall of a garden. These houses were all divided into different compartments, and various fowls that had been hatched in the same broods mostly kept together, and went to separate places to roost for the night; but experience showed that this large number in the aggregate were not nearly so productive as when they were separated into different divisions somewhat wide apart, this being specially noticeable in the case of the young chickens, at times, whose wings would begin to droop, and show signs of feeble health, after so great a number had been kept on the same ground for any length of time. The first year they will do very well, as the ground is fresh, but afterwards it becomes impregnated, or "tainted," as it is commonly called, and the usual healthy condition of the soil becomes deteriorated by the presence of too great a number of birds upon it, which, at certain times, are in the habit of congregating in the same place, when soft food is sometimes thrown down to them, and decayed matter of one sort or another is added to the excrement of the fowls deposited upon the surface of the land, which, not in sufficient quantity to be palpably offensive to the human senses, is yet in a condition sufficiently objectionable to exercise an unfavourable influence upon the health of the fowls.

77. ARRANGEMENT OF PERCHES.—A common fault in the arrangement of perches in most houses is that they are placed too high. Two feet and a half from the ground is quite high enough, and, in the case of heavy birds like Cochins, they should be placed considerably lower still—about one foot from the ground.

When perches are placed too high, the violence with which heavy birds descend to the ground, especially those of the species incapable of any lengthened flight, as the Cochin above named, frequently causes lameness, and, in some cases, fracture of the breast-bone. Those species which only possess imperfect powers of flight, of course suffer more than the better-winged varieties.

A perch should run across the fowl-house about a foot and a half to two feet from the wall, and a good-sized, round fir-pole, about four or five inches in diameter, makes as good a perch as could well be chosen. Some very good managers of fowls use a perch formed of a split fir-pole, about three inches in diameter, having the flat side downwards, and along the top side of the perch they lay wisps of straw lengthwise, fastening it to the perch firmly by binding it round with string, which prevents the breast-bones of the fowls becoming crooked, by which they are very much injured in appearance, that will sometimes happen when they rest upon a slender stick, on which they balance themselves with, perhaps, a certain pressure of the body, as well as grasping with the claws—perches of the thickness of a hedge-stake, which may be frequently seen used by some people, being by far too slender for the purpose.

The straw, too, is considered a good adjunct in the case of heavy birds, that are often subject to a kind of inflammatory tenderness of the feet, which this arrangement is likely to diminish the risk of; and there is a good deal in these little contrivances as a general means of averting the liability to accidents, and keeping the fowls in a satisfactory condition, which amply repays the little trouble that is occasioned in making them.

78. **FITTINGS.**—Besides the perches, the usual fittings for the hen-house include movable or fixed nests, coops for young broods, fattening-house, &c.; but there is one very necessary adjunct that is often either overlooked or forgotten, and that is a box, which should be kept filled with dry dust, for the fowls to enjoy the luxury of a dust-bath. This is needed more especially where fowls are kept in a state of confinement, for in one of liberty they will procure the dust for themselves, save in very exceptional cases, where there may be a difficulty in finding any.

79. **CLEANLINESS.**—This is a point of the very highest importance, for if it be neglected the fowls will never do well in a dirty fowl-house, and the difference betwixt two sets of fowls—the one cleanly and warmly housed, and the other poor creatures obliged to roost in damp and dirty situations—is very apparent. In the latter case, the inmates are generally first attacked by catarrh, which often ends in roup, one of the most destructive diseases to fowls,

while young chickens confined in damp, cold, and dark places are very subject to scrofula.

The droppings should be removed daily, and, in order to keep away vermin, the fowl-house should be lime-washed twice a year. A little size mixed with the lime-wash will prevent its coming off upon the clothes of those who enter the hen-house for the purpose of collecting the eggs, &c.

80. RUNS FOR FOWLS.—Runs for fowls may be constructed with advantage so as to follow the entire length of the wall, and they should be at least 16 feet in depth. A good method of arrangement will be found to have a gravel path leading from the door of the run up to the door of the fowl-house, and to divide the rest of the space equally betwixt a gravel yard and a patch of grass, the grass being nearest to the houses, the rain water off the roof of which will benefit the grass-plot, and cause the grass to grow freely; or, what some consider a better arrangement where the space is only limited, is to have half grass, and the remaining portion of the allotment dug over, so as to give the fowls an opportunity of diverting themselves by scratching about, which they will enjoy exceedingly, and be constantly deriving amusement from the exercise so obtained.

When a good large space cannot be afforded, the poultry-keeper must assign as much as he can for the use of his fowls; but it must be ever borne in mind that a good "run" is one of the most indispensable conditions for the health and well-being of fowls.

81. COVERED RUNS FOR RAINY WEATHER.—There is nothing, perhaps, so advantageous to the general health of fowls as to have a dry shed, or some outbuilding to which they can resort for shelter from cold winds, wet weather, or heat. Fowls are very sensitive to cold winds, which may be seen by their huddling themselves up into corners when piercing winds prevail. Added to the discomfort which must ensue from wet and bedraggled plumage in rainy weather, the fowls are apt to catch cold, while in very hot weather shade is extremely grateful to them.

If such a convenient outbuilding cannot be had, one may easily be constructed out of a few rough poles to support a roof of wooden planks, patent felt, or thatch. It may be made of any length, to fit some odd corner or other, as from 4 to 5 feet long up to 20 feet, and of any height, from 4 feet at the back and 3 in the front, to any desired elevation.

Not only will the fowls derive much additional comfort from such an erection, but it will also serve to protect heaps of dry dust, mortar rubbish, and dry gravel, the former for the fowls to dust their feathers in, the mortar rubbish to give shell-forming materials, and the gravel to act as a digestive assistant,

which fowls stand in need of occasionally, and which instinct teaches them to take up and appropriate for this purpose.

82. POULTRY-HOUSES FOR KEEPING FOWLS UPON A LARGE SCALE.—The preceding remarks apply to fowl-houses where only a few fowls are kept, and the amount of accommodation for them is but limited. Where fowls are kept upon a large scale at a farmhouse, no such question as that of providing them with a "run" is, of course, necessary, and there are generally plenty of outbuildings and nooks and corners for them to shelter themselves in; and the main point is the accommodation given to the poultry-stock to roost in at night, nests, &c., arrangements that are often too limited in extent and indifferent in character.

The fowls should have a lofty, spacious house, with a yard attached, and also a shed, if they are at all confined, the previous remarks we have made relative to the warmth and dryness of the house being applicable under all circumstances. Warmth can sometimes be obtained in the winter months if the house is placed near the steam-boiler or some flue in constant use, and these opportunities ought to be taken advantage of, for although artificial heat is not so good as natural, it is far better to make use of it than allow the fowls to roost in the cold.

83. NESTS, FIXED.—Where a large number of fowls have to be provided for it is customary to form the nests against the walls, where they are fixed, the best of which are often thought to be constructed of polished flag-stones or slates. The best way of arranging the nests is considered to have a lower tier of nests for the larger fowls, consisting of rows of boxes 2 feet high, 2 deep, and 2 feet wide, next to the floor, but raised above it about 6 inches by a step, and on the top of these larger boxes to have rows of smaller boxes about 15 inches in height, width, and depth each way.

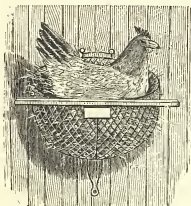
Thus the tops of the lowest boxes, which will project 9 inches or so beyond the tiers above, will furnish a pathway and resting-place for the fowls to rise by on their road to the others immediately above, and the same gangway may be formed in part of a second row of higher nests by making the flat division wider, or by adding a shelf supported by brackets.

In order to prevent the straw from being dragged out of the boxes, it will be found advisable to have a narrow strip of wood, 3 inches high by 2 inches thick, rounded at the upper edge, laid along the front of the boxes, to form a step; but this should be only loosely fixed, so as to permit of its being removed now and then, to allow of the boxes being washed out.

A better plan still is, not to place the nests against the wall, but to leave a

passage between it and the nests sufficiently wide for a person to walk down it, and to form the sides of the nests, next to the passage, of lattice-work, or wire-netting, made to open like a door. Anyone may then walk down this passage to gather the eggs from the boxes, and they are kept cleaner and sweeter this way, and never get overlooked, and it allows of hens to be set and the eggs to be withdrawn, without having occasion to go into the house and stoop about under the perches, by which one's clothes often get very much dirtied. The passage above the nests should be separated from the poultry-house by some wire-netting, or otherwise some fowls will make a practice of establishing themselves there for the night to roost, and in course of time there will be an offensive collection of excrement in one part or another, which will be avoided if some lattice-work or wire-netting is carried up to the roof flush with the edge of the topmost boxes or nests.

84. MOVABLE NESTS.—In some first-class poultry-houses



PORTABLE SANITARY NEST.

where a great number of fowls are kept, instead of having fixed nests, the walls are fitted up with low shelves upon which are placed baskets or boxes to serve as nests. This arrangement has its advantages, as the shelves are easily brushed down and kept clean, and the boxes or baskets taken out of the fowl-house, and washed, aired, and sweetened, or renewed as often as may be deemed necessary, and the shelves may be white-washed with the walls of the building as often as it is done.

With some of the larger kinds of poultry, either turkeys or breeds of very large, heavy fowls, an osier or wicker-basket placed on the ground will often be found to make a useful and convenient nest, that can be placed in any corner or situation that may be considered most desirable, and quiet ensured for the sitting hen when brooding time comes round.

In places that are somewhat difficult of approach movable nests possess an advantage over those that are fixtures. In many hen-houses various expensive complications may be seen, that are not at all necessary; fowls much preferring any rough, extemporised nest, such as an old basket, or a little straw laid on the ground behind a sloping board, to many elaborate contrivances that are occasionally submitted to their approbation by their anxious

owners; but in all these details the poultry-farmer must be guided by circumstances, and take his steps accordingly.

85. **HEN-LADDERS.**—Where fowls are kept upon a large scale, and the building in which they are housed is a somewhat lofty one, where some perches are thought desirable to be placed at a greater height than that we have indicated, hen-ladders are indispensable, so as to prevent the fowls from hurting themselves when they go to roost.

Some fowls of a wandering disposition will not return to their domicile till the shades of evening set in, and these, upon entering the somewhat dim fowl-house, where they have to fly up to their perches, sometimes miss their aim, and come fluttering down.

A hen-ladder will prevent such mischances as that of the fowls striking themselves against the roosts, and other projections, and a ladder made of broad flat pieces of wood to afford an easy foothold to the fowls, or a plank sparred across at intervals, to prevent their slipping, will be found a useful appendage. This should never be a fixture inside the hen-house, but be portable, as it will often be found in the way of ready access to one part or another; but where a fowl-house is made at some height from the ground, as in a loft over a low shed, the hen-ladder ought to be permanently fixed, and nailed to the entrance hole, or otherwise it may fall down, or, if movable and occasionally taken away, be sometimes forgotten to be replaced.

86. **COOPS FOR FATTENING.**—The best fattening-coops are those which are made to stand upon four legs, made out of pieces of quartering with a double shelving roof like the roof of a house, being about 6 feet long, 6 feet high to the ridge of the roof, and 2 feet 8 inches wide, with a partition in the middle, so as to make two compartments, and receive a succession of occupants.

The feeding-trough is in front, outside, having a slanting movable lid, both to keep the food from the wet and dust, and also to prevent the fowls from pushing it over, when they put their heads through the front bars of the coop to get at it. A coop of this kind can be moved about and placed in any desirable situation; in summer, when the weather is hot, it can be put in a dry, shady spot in the open air, while in the winter it may be lifted to the shelter of an outhouse, or put into a corner of some other warm building, warmth being very essential to fattening fowls in cold weather.

A false bottom like that in some bird-cages, which will admit

of being drawn out in two pieces to match each division, will allow of its being rapidly swept and cleansed, upon which fine gravel, sand, or ashes should be sprinkled afterwards. A space sufficient to allow of these trays or false bottoms to be drawn out must be left, which will be provided for by inserting the bars in a cross piece of wood at the bottom, of adequate size for the purpose. The door should be at the back, so as to enable the fowls to be readily put up, or taken out.

Almost any man who is handy with tools could construct such a fattening-coop out of a few boards and the necessary quartering for uprights, which are readily procurable at those timber-yards where planks and cut wood of various sizes are sold.

87. **DANGERS TO POULTRY.**—Poultry are often threatened with different dangers, that have to be guarded against in the best way that is possible, and these vary considerably in their different degrees, one of the most provoking of which is the visits of prowling cats.

88. **CATS.**—The cats of one's household can be easily educated not to make raids upon the young chickens, if they are closely looked after when the chickens are first hatched. Pussy, if unaccustomed to the sight of these, will soon be detected watching them with a very lively interest, which is only a cat's nature to do, and may spring upon them at a convenient opportunity. But if upon these occasions she is taken up, and beaten slightly, and scolded at the same time, if she is a well-conditioned cat, she will soon understand that she is not to make raids upon them, and will learn to shun this temptation to feline organization. But the case is somewhat different with the cats of one's neighbours, in towns, or suburban situations; but as these are only to be dreaded, either towards nightfall, or early in the morning, at these times the chickens ought to be snugly enclosed in the coops, for stray cats seldom venture into a place where people are stirring about in the daytime, and to guard against this danger, the coop containing the hen should be brought up close to the house and placed on a lawn, or yard, either beneath the eyes of the owner, or where the servants are passing to and fro. When they have attained a certain size, they will have grown out of reach of liability to accident from prowling cats, which, as before stated, is one most liable in towns, or suburbs of towns.

In the country, stray cats are generally shot down without mercy by the gamekeeper of the district, and those of a prowling tendency generally resort to the woods, or farther afield, and seek their sport amongst the wild, and not the domesticated feathered tribes.

A much more wily and difficult enemy to deal with is the rat, which often infests poultry-houses.

89. **RATS.**—It is very difficult to prevent rats making their appearance in poultry-houses, especially in winter-time, even in the country, when these vermin are unable to find their provender in the fields, in consequence of the large amount of food that in one form or another attracts their visits. They are so bold in their depredations at times as even to abstract eggs from beneath a sitting hen, or turkey, the latter having their nests often on the ground,

which they will remove at night, while whole broods of ducklings and young chickens are sometimes carried off by them, one or two at a time.

When a place is infested by rats, it is the best plan to call in the services of a regular rat-catcher, whose business it is to extirpate them, it being of little use to stop up their holes, which is sometimes done by pouring tar down them, to which they have a great antipathy, and after-



POULTRY PENS.

wards closing the entrance, ramming in bits of broken glass with the earth. These methods will certainly stop their advances for a time, but only to re-appear after a little while in fresh places.

Many persons object to use poison, or they may be got rid of by using Battle's Vermin Killer. The safest way of having resort to this is, to impregnate a piece of meat with the ingredient in several places, and tie it firmly to a piece of stick that has been well rubbed with oil of valerian.

This should be inserted crosswise in the hole, so that the rats have to tug away at it, and cannot carry it off; and in order to prevent any other creature getting at it for which it is not intended, an inverted box or basket should be put over the hole, with some stones or other heavy weight laid on the top. As accidents,

however, sometimes happen wherever poison is used, it always ought to be taken up in the daytime, and never be suffered to lie about.

90. **FOXES.**—Where fowls, or poultry of any kind, are carelessly housed for the night—or, perhaps, we should rather say, not housed at all—there is danger of their being carried off by foxes, which commit sad havoc in a poultry-yard when once they gain access to it. Many fowl-fanciers who live in the country would exterminate these vermin root and branch; but where the fox is hunted, the crime of vulpecide is regarded as a serious one; and the best safeguard against their devastations is to have a good and comprehensive plan of providing comfortable houses for poultry of all kinds, which can be shut up at nights, and opened in the morning, which is done without a moment's delay by closing the little sliding door in the evening, which is the place of ingress and egress to the fowl-houses, and raising it the first thing in the morning.

If this is done regularly there is little to fear from either cats or foxes, that wily depredator the rat being the one most to be feared at night within the fowl-houses; for, although the full-grown fowls are beyond his reach, he may get at the young chickens, and, in order to prevent this, it is the safest plan, where rats abound, to have a board, that will fit the front of the hen-coop, put before it, that can be fastened on with a hook and eye, leaving sufficient space at the top for ventilation; or a piece of perforated zinc, which can be easily placed over the front by being made to work in a groove, which can be formed by nailing two or three slips of wood, one projecting over the other, so as to form a ridge or slide on each side of the front of the hen-coop. The zinc is at once clean, light, and portable, and adds nothing to the bulk, and with such a safeguard, the coops might be left out all night in an orchard or in a meadow, and no harm can come to the inmates in the ordinary way.

91. **MARKING FOWLS.**—In some country places there are, unfortunately, people who steal fowls where they can get the opportunity, and in these cases it is generally extremely difficult to obtain a conviction, unless the thieves are taken in the very act with their spoil upon them, and many persons may often be heard to express a regret that there is no well-devised plan of marking fowls so as to be able to prove their identification without mutilating their feathers. For although the owners of lost fowls can generally recognise their own, and are willing to swear to them in a court of justice, an astute counsel invariably puts the awkward question

whether the witness could conscientiously swear there were no other fowls like the ones in question, and as prisoners always rightly have the benefit of the doubt, they are very often wrongly acquitted from the consequences of their evil deeds.

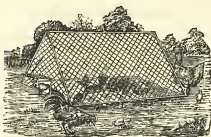
The writer is indebted to a very successful old woman in managing fowls, once his neighbour, for an easy method of identification, which he learned in the following manner:—Living at one time in Hertfordshire, in quite a rural district, about a couple of miles off there was a kind of hamlet, in which a number of questionable people resided, some of whom kept fowls, and bought and sold them, as well as stealing them, when they could get the chance. In the case of one man this was well known, for he would put other people's fowls down amidst his own mixed stock, of every possible kind, and boldly argue the point that it was quite ridiculous for anyone to claim his fowls because they happened to have some very much like them. He had been brought up before the magistrates two or three times, but it was impossible to get him convicted. No doubt he quietly put out of sight and plucked those fowls of strongly marked characteristics which he obtained surreptitiously, and which he either stole himself, or bought for a trifle of those who had purloined or become wrongfully possessed of them.

Upon one occasion, the old woman referred to lost nearly all her stock, her hen-roost having been broken into during the night and nearly every one of her fowls stolen. Her breed of poultry was only of the most ordinary kind, cross-bred fowls common to the district, which resembled closely in appearance nearly every other person's fowls in the neighbourhood; but her suspicions alighting upon the man referred to, she made a visit to his premises, and with great difficulty managed to get a look at the stock of fowls, amongst which she recognised several of her own.

She then procured the assistance of the police, and a sergeant and a constable proceeded with her to the abode of this man, upon her stating that she could positively swear to her fowls. She pointed them out in the man's yard, and they were taken away by the police, and the depredator given into custody.

When the case came on for hearing, the fowls were produced in court; but, on the prisoner's behalf, a number of other fowls, of exactly the same appearance, were also exhibited, and the old woman was subjected to a rigid cross-examination as to how she could swear to the identity of the particular fowls which she repeatedly claimed as her own, seeing there were so many others just like them. Being pressed at considerable length in the instance of one speckled fowl, which so closely resembled another that was brought forward which she did not claim, and which were as near alike as two peas or two pins, as it is vulgarly said, the old woman candidly acknowledged that they were so much alike that it would be scarcely possible to tell them apart; but then, added she, "You will find under the right wing of the fowl I claim as mine, a dab of red paint, which I do not suppose the other fowl has got."

An inspection of the two fowls immediately proved the incontestible fact, and this old woman's precaution was the means of obtaining the conviction of the thief, and breaking up the gang of depredators, who before had levied black mail to a considerable extent from all the poultry-farmers for miles round; and the incident was not lost upon the narrator, who was thus let into a secret for marking fowls.



CHICKEN FOOD PROTECTOR.

CHAPTER V.

FEEDING AND LAYING.

Feeding Fowls—Different Offices performed by Different Food to the system—Per-centages of Nutriment—Cooked Vegetables—Meat and other Animal Food—Food in Summer—Food in Winter—Feeding at Moulting-time—Feeding Poultry on a Farm—Feeding Poultry in Confinement—Number of Meals per day—Water, Lime, &c.—Mode of catching Poultry—Pairing—Choice of a Cock—Choice of Hens—Number of Hens to a Cock—Artificial modes of promoting Laying.

92. **FEEDING FOWLS.**—Experience has abundantly proved that it is a very wasteful process to underfeed poultry, paradoxical as it may sound. A certain amount must first be appropriated to the proper nourishment and support of the body, and it stands to reason that if this amount of food only can be obtained and appropriated by the hen, nature first satisfies her own pressing demands, and egg production becomes a secondary affair.

The store-hens should be got into laying condition as soon as it is possible to do so, while those that are intended for table-fowls, on a similar account, should be kept in such a forward condition as to fatten quickly, and be ready for the market or use when wanted. It is up-hill work to have to fatten lean stock of any kind that have been half-starved; the large consumption of food that a poor condition necessitates to make up for lost progress is something remarkable.

Fowls should have good sound corn given to them, of whatever nature the grain may be upon which they are fed, and not mere refuse; especially in those instances where the habits of the birds cause them to be good foragers, and they need only a comparatively small supply morning and night thrown down to them.

Of course, when farmers have indifferent grain that they want to get rid of, such as a quantity of "tail" wheat, they must perforce make use of it, rather than sustain the outlay of buying, or using the best; but we are now speaking of those cases where poultry-farmers have occasion to purchase their food, and have to elect between buying good, sound, wholesome grain, and damaged or inferior food.

At the same time, there are opportunities of buying good grain for fowls very cheaply, such as the sweepings of corn-markets, where, indeed, the grain is mixed, but is generally all of good quality, consisting of the samples that are flung upon the ground.

Fowls may be advantageously kept upon a great variety of food, each of which kind may possess peculiar and desirable qualities distinct from the other, that may be resorted to with advantage upon different occasions.

The best food, perhaps, that can be given to fowls is wheat, barley, oats, buck-wheat, oatmeal made into cakes, and barley-meal made stiff. These are all good kinds of food to form the staple.

Some poultry-keepers feed their stock upon rye, while many boil the grain before feeding. As it swells in the process, they get full crops, and possibly in this way is looked upon in an economical light, and the plan is followed a great deal amongst the small peasant proprietors of France, by whom poultry-keeping is a somewhat studied matter, and the plan at first sight seems a feasible and desirable one; but, in some cases, it is positively objectionable, as for example in the case of sitting hens, where good, wholesome, solid grain in its raw condition should be given, so that the fowl may retain the food as long as possible. The digestive power of birds is remarkably powerful, with a capacity for grinding up almost anything short of the density of iron, which the ostrich has been fabled to be capable of assimilating.

93. OFFICES PERFORMED BY FOOD TO THE SYSTEM.—

The offices performed by various kinds of food to the system of fowls varies with its nature, and different substances produce different results. One kind is heat-giving, that is required to keep up the natural heat of the body; another class of food supplies the best forms of nourishment to minister to the growth of the frame, and replaces its daily waste; another is eminently bone-forming; while a different kind induces the production of fat, which is commonly found in oily kinds of food, as Indian corn, oatmeal, middlings, or even bran.

Those foods which abound the most in starch are warmth-giving, amongst which must be included rice and potatoes, and saccharine substances. The flesh-forming qualities are found in wheat, oatmeal, middlings, &c., but to a less extent in Indian corn, or barley. The bone-making properties of food are found in the outer parts of the grain, and therefore a stiff paste of oatmeal, or barley-meal, is the best kind of food to give to growing chickens whose bones and frames require to be built up.

From these cursory observations it may be seen that, a mixture of food is better for fowls than one monotonous course of feeding that is often followed by some poultry-keepers, who throw nothing down to their poultry but barley from one year's end to the other.

94. **PERCENTAGES OF NUTRIMENT.**—Barley is relished, on the whole, better by fowls than oats, on account of the large proportion of husk included in the latter, but it only contains from ten to eleven per cent. of flesh-forming substances, against eighteen in oats, and though, as a rule, except for the sake of a change, which fowls enjoy the same as human beings, they will eat the barley in preference to oats, yet they will prefer the latter if given ground, in the shape of oatmeal paste worked up to a stiff consistence.

Barley contains 60 per cent. (speaking roughly) of starchy substances, and 2 or 3 of oil, or fat, per cent.; while oats have 63 of starchy substances, and 6 of oily, or fatty, substances per cent. Given, therefore, in the form of meal, there is no food upon which growing chickens will make such rapid progress as upon oatmeal, some kinds showing this result very plainly, notably Cochin chickens, which will both grow quicker, and feather more rapidly upon this, than any other kind of food.

Wheat, although it is popularly supposed to contain more nutritious qualities than oatmeal, does not in reality; containing about twelve per cent. of flesh-forming properties, about seventy of starchy, and two or three of fat-forming substances per cent.

Buckwheat flour is supposed to be about equal to wheat, and some consider it stimulates the egg-producing powers of hens, but its chemical analysis does not particularly bear out this assumption. In the best varieties of yellow Indian corn, there is a large amount of fat-making ingredients, which reach an average of eight per cent., but its flesh-making property is not greater than that of barley, of which it contains about eleven per cent., and sixty-six of starchy ingredients. Some fowls are very partial to Indian corn, as Cochins, while Spanish and Dorking fowls do not care much for it.

Rice is frequently given to young chickens by hen-wives as being peculiarly suited to their tender organisations, especially when

boiled, but it is about the worst that can be given to young growing birds, whose frames require to be built up, containing but slender store of fat or bone-making properties, and about seven per cent. of flesh-forming food, or less than half of that of oatmeal. Yet rice may be occasionally given with advantage to make a change with other food, but its qualities must not be estimated at more than they are worth, but set down at their true value.

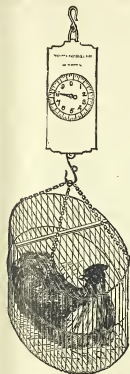
Pollard, bran, middlings, &c., besides being cheap, are capital food to give in addition with other varieties, as they contain about eighteen per cent. of flesh-forming substances, which, as will be seen, is a very high per-centage in comparison with the others, while their fat-forming qualities will average about six per cent., and their bone-making materials are also correspondingly abundant.

Malt-dust, which consists of the broken points of the germinating or sprouting barley that has been wetted, and forms a coarse powder, is also a capital addition when mixed up with cooked vegetable food of any kind, containing three times as much flesh-forming qualities as wheat. For many years in various malting districts the malt-dust was used as manure; but agriculturists are now awaking to its value, and it is given in conjunction with steamed roots, and cattle relish it very much.

Where only a few fowls are kept, the cost of the grain they consume is not a matter of much consideration, but where

poultry-farming is carried on to a considerable extent, it will be found that many cheap substances of a highly useful nature like malt-dust can be very successfully, and profitably, made use of.

Peas and beans contain a large amount of flesh-forming food, even more than grain, but pulse is not well adapted for the use of fowls, though many poultry-farmers use it, both whole or ground



POULTRY WEIGHING
MACHINE.

into flour. Peas and beans are heating, and too stimulating to be resorted to as standing dishes, and should only be given occasionally when such a class of food is likely to prove useful, where fowls are somewhat low in constitution, and require a fillip, as it were. They are not easily digested, and, although they suit pigeons well enough, which are especially partial to peas, they are not to be considered good food for fowls in the regular way. Inflammation of the stomach and egg-passage, has been known to result from the use of these, and, if given as food, they require to be administered with great discretion.

Potatoes form a capital article of diet, when boiled, and given in a nice, dry condition to fowls; on account of the large quantity of starch, &c. they contain, or warmth-giving food, which will be about 19 per cent. of their gross weight, three-quarters of which is water, and they will perform the same office in the bodily economy of the fowl as rice, for which they are an excellent substitute.

Fresh green vegetables in one form or another are indispensable to fowls. They procure these readily enough for themselves when they range about in free quarters in the country, and it is not needful to furnish them with these when they are thus happily situated; but when kept in confinement, or partial confinement, they should be supplied every day with cabbage, lettuce, or turnip-leaves, or, if these are not always procurable, a fresh green turf, if there is no grass to be had in their runs.

95. **COOKED VEGETABLES.**—As before remarked, fowls like a variation in their food, and a little change of diet is often desirable and necessary. For this purpose cooked vegetables play a very useful part. Where there is plenty of garden produce, boiled parsnips, carrots, turnips, and other roots make excellent food, especially when sprinkled over with a little malt-dust, or meal of some kind or other, or given simply by themselves when meal is not handy. Where there is abundance of these, they may frequently be used both to advantage as regards the health of the fowls, and also on the score of economy, as it will ease the corn merchant's bill.

96. **MEAT AND OTHER ANIMAL FOOD.**—The natural animal food of fowls is the worms and insects they pick up, snails, &c., and in the pursuit of these in gardens they do a great deal more good than harm at certain times of the year, when they ought to be freely admitted rather than stoned out, as may be frequently seen done by some irate gardeners. In the depth of winter, in very cold weather when the ground is bound in the icy bands of frost, a little cooked

or raw meat may, with advantage, be occasionally given, if cut up into small pieces, as well as bits of suet, fat, &c. (but not bacon-rinds). Greaves, or tallow-chandler's refuse should, however, on no account ever be given, for though recommended by some as a capital stimulant to cause hens to lay, it is by no means a healthy kind of food, and tends to impart a rankness to the system that is anything but desirable.

Improper food is a most fruitful source of disease in fowls; but, when the poultry-farmer is acquainted with the nature and different qualities of the various kinds, the fault will rest with himself if he feeds them upon hurtful aliment.

97. **FOOD IN SUMMER.**—The quantity and kind of food required by fowls at different seasons of the year varies considerably, as well as for different-aged fowls of the same species even, but in summer when the weather is hot, and the ground often dry and dusty, a good supply of green food is very necessary to fowls that are confined; and where they have not an opportunity of obtaining this indispensable adjunct they need to be supplied daily with lettuce, cabbage, turnip-leaves, or grass, the latter of which is best given in the form of a turf; cooked vegetables, such as carrots, parsnips, boiled potatoes, and turnips, are also particularly appropriate at this season of the year, as well as boiled rice, in addition to the usual feed of corn given.

98. **FOOD IN WINTER.**—In severe weather, in addition to the usual feeds of corn, a little chopped meat may be given with advantage occasionally, as well as the warmth-giving kinds of food, which have been before mentioned: these should be resorted to in preference to the colder kinds of aliment. In place of green vegetables, a little moistened corn that has been allowed to sprout will be found advantageous. Whatever kind of food is given, it will always be found the better plan to cast it far and wide, and let the fowls run after it, rather than place moist food in feeding troughs of any kind; and, in the case of meal-dough, it only requires to be of an adequate stiffness to permit of this being done. When they do not care to run after it, no more should be given. When fowls are neither moulting nor laying in the winter time, too good feeding may cause excessive fatness, and over-feeding is a very common failing with inexperienced poultry-farmers, in whose keeping more fowls get out of health from this than any other cause; at the same time, abundance of good, sound, warmth-giving food is necessary during the winter months.

99. **FEEDING AT MOULTING-TIME.**—Plentiful and abundant

food does more good at moulting-time than at any other, when the fowl, during this trying season to its stamina, is in a somewhat moping condition, and indisposed to search for food, in the same degree as when in health. The system being severely taxed in the acquisition of new feathers, needs considerably more support than at any other period.

Although moulting is a natural action, its consummation is often delayed when it is apparent the birds are suffering from the occasion, and where this proves to be the case, it is the safer plan to treat them with a few delicacies that may be grateful to such invalids, and give them a little finely-chopped meat, either cooked or uncooked, and keep them in a warm place where they will not be disturbed, and a supply of clean water by them that is readily accessible. Some people put a rusty nail, or rusty bit of iron into their water; but pure water of itself is, indeed, the universal medicine of nature.

100. **FEEDING POULTRY ON A FARM.**—Upon a farm, there is usually so many pickings lying about in the shape of spilled grain, and other food which is dropped at the feeding-time of the various quadrupeds upon it, that the fowls pick up,—as well as insects, worms, &c., combined with plenty of green food, that is to be had in unlimited quantity—nearly all that they require, and need but very little feeding beyond a few handfuls of grain thrown to them at night and morning; but, whatever food is given, it should be of that nature which will form the best supplement to that which they are enabled to obtain for themselves. Even where there is abundance of food lying about, and in such cases where it may be considered even unnecessary to feed them at night and morning, it is wise to throw down a few handfuls of grain. It attaches them to their home and dwelling-place, and keeps them together, while there is an advantage in giving laying hens some solid grain at evening time, especially, to keep in their crops while they are roosting at night, until it becomes assimilated in the course of time, and digestion does its work uninterruptedly in the quiet hours of repose.

101. **FEEDING POULTRY IN CONFINEMENT.**—As poultry when confined are unable to procure for themselves the best food suited to their wants, which nature when they are at liberty teaches them to search for and procure; they should be supplied with all those accessories which they need. A moderate supply of food well scattered about, is much better than allowing it to lie about in large quantities, and when any is not eaten, but left lying about for the fowls to walk over, and contaminate, when they afterwards pick it up and consume it, the foul food is a fruitful source of disease. No soft messes should ever be left about, for this objectionable quality

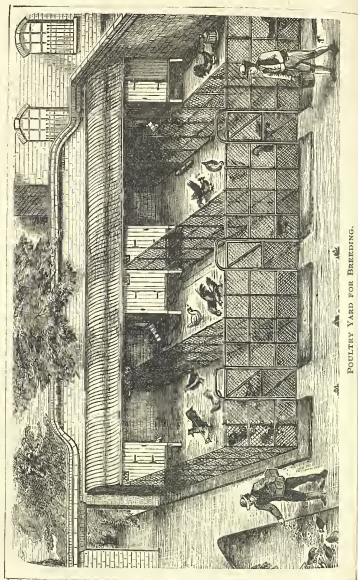
(that of softness) can always be modified and overcome by mixing a little dry meal with it, whatever the nature of the food may be.

Of the kinds of grain, and mixed food, we have spoken before, and that which is most appropriate; but what the fowls are likely to lack most in a condition of confinement, is green food, and its substitutes; and these must not, on any account, be overlooked, nor the fine gravel, to assist digestion, which many poor fowls are debarred from obtaining for themselves, when shut up in a limited space.

102. **NUMBER OF MEALS PER DAY.**—While hens are laying well, they ought to have two or three good meals per day, the quantity given being in accordance with the amount of food they are enabled to pick up for themselves. Old fowls fed in this manner will do very well, but the case is quite different with young chickens, which at first require feeding *every hour*, gradually reducing the number of feeds to four or five, by slow degrees, as they approach their full growth. While young fowls continue to grow, their food can scarcely be too abundant, as long as their appetite keeps pace with what is given, and none is left to lay about, or be spoiled and wasted; but we shall devote a fresh paragraph to the feeding of young chickens, and need not further enlarge upon the subject in this place.

103. **WATER.**—An abundant supply of clean water is very necessary to keep fowls in perfect health, many diseases being caused by their drinking from stagnant ditches, and the drainings of manure heaps. The water pans, which should be of the common glazed earthenware kind, should be kept scrupulously clean, and emptied and filled at least once a-day at all times, but more frequently in hot weather, and very often for young broods; and the vessels should be placed against the wall, or coop, or whatever may be near at hand, in order to prevent them from walking over it, and upsetting the pans if they are open ones; but there are some capital drinking vessels that are sold for a trifle, which only offer a narrow surface upon the fountain principle, which are very convenient for young broods, and prevent them from wetting the ground, and making it in a muddy condition.

104. **LIME, &c.**—Hens should always be supplied with lime in some form or other, in order to furnish material with which to form the egg-shell, and perhaps the best shape in which this can be given will be in that of old mortar rubbish. Without a supply of lime, firm-shelled eggs will not be laid. In addition to this, a small heap of gravel, before alluded to, ought not to be forgotten, the small stones of which are efficacious in aiding the fowl's digestion.



POULTRY YARD FOR BREEDING.

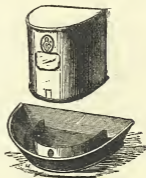
105. **MODE OF CATCHING POULTRY.**—Several ingenious devices have been arranged for catching poultry when they are wanted, but, instead of hunting the fowls about, nothing can be simpler than to take them off the perches when they have gone to roost for the night, when they can be put into a hamper, or any other place where they will be safe until required. By this means none of the other fowls are disturbed, and if it is a question of size or choice, they can be gently lifted and weighed in the hands, without any very great disturbance, beyond a querulous note or two of disapprobation at the liberty that is being taken.

106. **PAIRING.**—In pairing fowls, both cocks and hens selected should be the best of their kind, and perfectly healthy. It is a bad plan to breed from any fowls that have suffered from disease, for although apparently quite well, and thoroughly recovered, the remains of the disease may still linger in the fowl's system, and its progeny not be so healthy as it ought to be in consequence.

There is a great art in pairing fowls so as to throw chickens marked after a certain particular manner, which becomes the business of the breeder who breeds for shows or prize stock. Slight allusion has been made to this under the head of the different varieties of fowls, from which sufficient hints may be taken to induce further experiment on the part of those who have a definite object in view in the fowls they breed.

107. **CHOICE OF A COCK.**—The generally received theory as to the best age of a cock is, that he should not be less than one year old, nor more than two years of age, for although many birds retain all their energy up to six years, they are mostly beyond their prime after the third year.

There are, however, exceptions to this rule, especially in the case of game fowls, when old cocks are generally preferred for breeding, even up to six years of age, and in that of Spanish, a two-year-old cock is thought the most appropriate. Also with respect to Polands, as the chickens are tender, it is considered the best course to breed from old birds only, and in this way there are sometimes exceptions and variations to be made, but to whatever breed the cock may belong, he should be a bold, lively, handsome bird, possessing



POULTRY FOUNTAIN.

the best points of his species, with bright, clear eye, and glossy plumage, and his comb and wattles of bright, rich, red colour, carrying himself well, and armed with well-developed spurs.

Some old cocks behave in a very objectionable manner, when they have passed their middle age, and instead of displaying the gallantry which marked their youth in their behaviour to the hens in vociferously calling to them in each case when he had discovered a tender morsel, gets greedy, vicious, and tyrannical, and often beats them without any occasion by pecking at their combs with an ill-natured degree of temper that is not pleasant to behold. A fresh bird should be substituted when the cock thus misbehaves himself, as the family will not live happily together under such circumstances.

Sometimes even a young cock will take a dislike to some particular hen, and persecute her, in which case the hen should be taken away, for no good will ever be done with her.

108. CHOICE OF HENS.—The same principle should guide the selection of hens, as for cocks; that is, to have the best of their kind, and always select large-framed birds even at the expense of some point, such as inferior comb, which can be counterbalanced in the cock. But a large-framed, awkward, or ill-conditioned bird must on no account be chosen; better that the hens be of medium size, not too old, and with good plumage, and short legs—the latter being a point of considerable importance. A large, ugly, long-legged hen should be avoided, and only those of solid, compact form be chosen. Especially with the Dorkings, which are good table-birds, the hen selected for breeding should be large, though not fat, squarely built, broad in back and breast, neat head, neat erect comb, if single (or rose-combed), and possessed of five perfect claws, and other breeds according to their respective points.

109. ARTIFICIAL MODES OF PROMOTING LAYING.—Several methods of exciting hens to lay eggs have been resorted to at various times by different poultry-keepers, by administering artificial stimulants; and substances such as greaves, or tallow-chandlers' refuse have been resorted to for this purpose; but there is no question about the fact that, it is a dangerous course to tamper with their laying qualities, the best means for attaining the desired end being, to give them a plentiful supply of the right kind of food which keeps them in robust health, and then the fowls cannot well help laying.

The natural meat-diet of fowls consists of the worms and insects they pick up for themselves, which is one of the chief advantages they enjoy when they have abundant liberty. Deprived of this, however, and kept in confinement, a little raw, or cooked meat cut up into small pieces may be occasionally given.

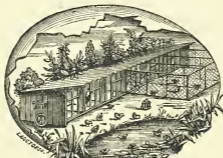
Perhaps the most innocent stimulant that can be furnished with this object in view, is some harley fried in a frying-pan in some kind of fat, but not bacon fat; for pieces of hacon, and hacon-rinds have been found to be injurious, and produce the opposite to the wished-for result.

Steamed potatoes broken up fine, and mixed with oatmeal given warm, is an encouraging mixture for egg-laying, the food being sound and nutritious. Buck-wheat flour, mixed up into a stiff paste, is supposed by some to have extra egg-producing qualities over other kinds of food. Hemp-seed is sometimes given by poultry-keepers to increase the quantity of eggs laid; but it is an injurious food, and if this result is temporarily obtained, it must be at the cost of the eventual impaired health of the fowls to which it is given. Over-feeding, and over-stimulating laying-hens, is the most frequent cause of apoplexy, while inflammation of the egg-passage is common; and half putrifed meat, such as chandlers' greaves, is just the kind of food to bring about such a result.

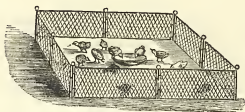
Inflammation of the digestive stomach, which is placed between the crop and the gizzard, often takes place when fowls are too much forced with food, which is given with such lavishness as to be productive of disease; and while a full and liberal diet is necessary for laying hens, it is not well to force too much.

110. NUMBER OF HENS TO A COCK.—The number of hens assigned to a cock varies with the objects desired. If strong chickens are wanted, five or six hens to one cock are enough. If there are too many hens, the chickens produced are not strong, healthy birds, but feeble; and the breed, whatever it may be, will soon degenerate.

If, however, the production of eggs is the chief consideration, one cock will be enough for a dozen hens. The old breeders of game-fowls used only to allow three hens to one cock, the object being to get chickens with as strong stamina as possible, and of course the principle is the same now as ever,



PORTABLE SHEDS WITH COOPS COMBINED.



CHICKEN FENCE.

CHAPTER VI.

LAYING AND SITTING.

Eggs—Collection of Eggs—The Structure of Eggs—Choice of Eggs for Sitting—Nutriment in Eggs—To Ascertain the Freshness of Eggs—Various Modes of Preserving Eggs—Sitting—Number of Eggs allowed to Sitting Hens—Sitting Two Hens on the Same Day—Nests—Hens wanting to Sit—Best Situation for Sitting Shed—Separate Runs and Sheds for Sitting Hens—Choice of a Sitting Hen.

III. EGGS.—Eggs are really an important item of commerce, immense numbers being imported into this country annually, chiefly from France; and it is to be regretted that their production is not carried out upon a more extensive scale in England than at present prevails. The subject is generally looked upon as one of national importance, and the poultry-shows which have been held of late years, have exercised a considerable influence upon the different breeds of poultry, many of which have become greatly improved. But though they have exercised this favourable influence, it is to be regretted that the production of eggs has not been extended to the poultry-keepers amongst the million.

A certain amount of care and attention is necessary in the management of poultry, and this ought not to be a work of any great difficulty in the hands of the wives and children of our agricultural labourers, whose limited income would be increased by the sale of the eggs they could raise from a small stock of poultry, or be a welcome addition to their own scantily-supplied larders. In the hands of the small peasant proprietors of France, eggs are no inconsiderable item of profit, in conjunction with the poultry they rear for market, and even in some districts in Ireland, the peasants who are generally accredited with a shiftless, unthrifty character, often are considerable rearers of poultry, which thrive remarkably well in such hands, for they not unfrequently share the warmth of the cabin, and warmth is a main element in the production of eggs at a season when they are most valuable. Although this latter course, on the score of cleanliness, is certainly not to be recommended as an example worthy of imitation by our own labouring poor, yet without any violation of domestic comfort, and order, the management of a few fowls might be undertaken by them very often to advantage, and profit; and the food supply of the nation increased in this really valuable item of sustenance.

Most of the country cottages can furnish a "run" for a few fowls, if it is only upon the high road, and neighbouring lanes adjacent to the dwelling, where fowls of the right breed would almost entirely procure their own living, and the sense of proprietorship enjoyed by their owners, especially when the fowls are managed upon an intelligent principle, and are made remunerative, would have a very favourable influence upon their owners, and afford amusement and recreation, which are now often sought for in more objectionable directions.

In many districts of England, especially in some parts of Nottinghamshire and the northern counties, kitchen gardening has been encouraged amongst the working population, and enormous gooseberries, mammoth cabbages, and gigantic heads of celery are produced every year, giving rise to a healthy spirit of emulation, and affording a great deal of innocent gratification and amusement to those who interest themselves in such pursuits; and if, in many rural districts where poultry-keeping is entirely ignored amongst the peasantry and lower orders, a taste in this direction could be stimulated by the better classes residing in their immediate neighbourhood, it would doubtless be found productive of great benefits, not only to those immediately concerned, but to others as well, for there are many persons to whom the luxury of a new-laid egg is almost getting above their means of attaining, as they are now very often sold at threepence a-piece.

112. COLLECTION OF EGGS.—Eggs are most easily collected from the nests when the principle we have before explained is adopted, of having the nests a certain distance from the wall, so as to leave a passage between them and the wall up which a person can walk, and, by opening the lattice-door at the back, remove the eggs at will, without disturbing any sitting fowls that might be on their nests, or without dirtying one's clothes by having to stoop under perches to get at the nest-boxes.

There is generally very little difficulty or trouble in collecting hens' eggs, as the hens will mostly lay in the places assigned for them, though, sometimes, an odd hen or two will manifest straying propensities, and deposit her eggs in out-of-the-way situations.

The worst of all domestic poultry in this respect is the guinea-fowl, which, liking to wander by the sides of hedge-rows often a long distance a-field, or amidst copses, and sheltered dells, often make a nest in quiet sequestered places, where they lay their eggs.

This straying propensity sometimes causes them to stop away from home altogether, and at times where a large number of these birds have been kept, and not missed upon such occasions, what has been going on has been made manifest by a guinea-hen returning home with a young brood around her, which she carefully pilots up to her old quarters, as if aware that the responsibility of providing for so large a family was beyond the extent of her own powers.

113. THE STRUCTURE OF EGGS.—The egg in the case of the domestic fowl, as in that of all other birds, is first formed in the ovary, which is single, on the left side of the spine; for although there are two egg-producers in the animal economy, that on the right generally remains undeveloped, so that, as it were, there is a fertile and a barren ovary. The former, attached by folds of peritoneal membrane to the spine, resemble in appearance somewhat a cluster of grapes, only of different sizes, according to their stage of development, that are united by narrow pedicles. This fertile ovary, or *ovarium*, consists of a number of pedunculated *ovisacs*, each producing its own egg. Each *ovisac* consists of two membranes, the external one being vascular, and surrounded by the *stigma*, which is a pale zone that may be seen in those that are most developed, the lining membrane of the *ovisac* being thin and pellucid, studded on its inner surface with granules, which are conjectured to be of a glandular nature, and within these *ovisacs* the *ovula*, or eggs, are formed.

In a sufficiently advanced stage each ovulum is composed of the deep yellow oleaginous matter called the *yolk*, which is contained in a delicate membrane. Upon one part of the surface of the yolk a slightly elevated particle is to be found, known as the *vitricula*, which holds the reproductive, but up to the present unvivified germ, resembling a minute, transparent globule, which is the germinal vesicle. Thus constituted, the ovulum attains its full development, and, after fecundation takes place, the *ovisac*, weakened and thinned by previous absorption, becomes ruptured at the *stigma*, and the ovulum, which at this stage is only covered by its slight membrane, is received into the expanded oviduct, during which operation the germinal vesicle, being probably ruptured, disappears, and its enclosed germ takes up its position in the *cicatricular*, which, wearing a somewhat different aspect, becomes the germinal membrane or skin-covering of the germ. From this envelope, termed *blastoderma*, a narrow passage leads to a chamber in the centre of the yolk, which is filled with a granular substance of a whitish colour.

The yolk becomes gradually covered with albumen after having been received into the oviduct, which is secreted by the mucous membrane which lines the upper part of that canal, and, as well as the white, or albumen, surrounding the yolk, which has been built up gradually around it in the course of the development of the egg formation, transparent strings are created which balance,

or suspend the yolk in the white, so that in whatever position the egg may be held or placed, the yolk is kept in its place.

While this process is going on, the yolk, covered with its envelopes of albumen, advances further into the oviduct, and gains a more compact covering in the shape of two layers of fine, but tough, parchment-like tissue. One layer is established first, the last being at the larger end of the egg, and is separated from the former, leaving a space which is the air-cell, the double membrane forming what is called the *shell-skin*.

The egg is now completely formed, and only lacks the shell, and passing further onward in the latter portion of the oviduct, becomes coated with calcareous particles which form it; and hence it will be seen that, in those cases where the hen is debarred from appropriating particles of lime, necessary to form the egg-shell, soft eggs, as they are termed, or eggs without shells, must inevitably be laid. The formation and the construction of the egg is now complete, and passes from the oviduct into the *cloaca*, which forms its last receptacle previous to its being laid in the nest. The exquisitely-constructed shell is pierced by fine pores, and becomes thinner during the process of incubation, so that more air is admitted within it as the chicken inside advances in growth.

114. CHOICE OF EGGS FOR SITTING, AND THE BEST MODE OF KEEPING THEM.—The eggs that are chosen for sitting upon by the hens should be kept in position with the largest end uppermost, and for this purpose a few shelves should be put up, with holes bored in them by a large auger, so as to allow them to stand upright, with the small ends downwards, in a dark closet, away from the light, where the same temperature is always ensured. An ordinary store closet will answer the purpose well enough, and the shelves should be placed close together, leaving only space enough between for the hands to pass readily along them.

Dirty, or greasy eggs should be rejected, as these prevent the entrance of air through the shell, which is porous, and lined with a membrane, between which and a second one, as previously stated, is situated the air-cavity, air being necessary to the life of the undeveloped chicken, which, as it grows, causes the air-cavity to expand by the evaporation of the moisture within the egg, and the concentration of its substance into the embryo form within.

Some pretend to foretell the sex of the future chicken by the shape of the egg, but there is not the slightest warrant for any supposition of this nature, the germinal vesicle having been determined before it became enveloped in the shell, in accordance with the usual laws of nature, with which the ultimate form of the egg-shell has no possible connection.

Mis-shapen eggs are on this account often rejected on the *rs-*

sumption that mis-shapen chickens will be produced; positively distorted eggs should not be used, but if only slightly out of the usual form they will invariably prove as good as any of the others, but very small eggs should not be used. Large rounded eggs, with double yolks, are also to be avoided, as they are apt to produce deformed chickens in some way or other.

The newest eggs should be selected for hatching, and ought not to be more than a fortnight or three weeks old; a week old being better still, for the fresher the better. If the eggs are all of the same age, laid upon the same day, the result is more likely to be an uniform hatching than when the eggs vary in age.

Sometimes eggs are laid with double yolks, when they are of large size, while at others small eggs are laid which contain no yolk at all. The explanation of these results appears to be that, when the oviduct is more than usually excited, the yolks are immature, or have not ripened, so that the superabundant albumen, or white, passes through the duct, minus the yolk, and gets duly covered with a shell to fit the smaller size than ordinary. While in the opposite direction of double yolks, two of them being in a mature or ripened state simultaneously, both are disengaged at the same time, and get duly enveloped in albumen and shell in the same way as ordinary. In other cases, the mature yolk passes through the oviduct before the albumen has been supplied, the result being a small egg, containing yolk only.

These examples are sufficient to prove that it is not safe to tamper with the egg-producing powers of fowls, by giving stimulants too lavishly, though under certain conditions, and circumstances, they may be occasionally resorted to, as in cold weather, or when the hen's hoidly condition may be assumed to be below par.

115. NUTRIMENT IN EGGS.—With regard to the approximate value of eggs as food, when compared with other kinds of aliment, a wide-spread belief prevails that an egg contains as much nutriment as a quarter-of-a-pound of butcher's meat. To do this the egg would have to weigh four ounces; the fact being that eggs really do contain about as much nourishment as the same weight of butcher's meat.

Eggs contain all the necessary constituents of food. Professor Church says:—

A bird's egg consists of several parts, which may be briefly comprised under the three terms of *shell*, *white*, and *yolk*. The shell consists mainly of earthy or mineral matter; when free from moisture it contains in 100 parts about 91 parts of carbonate of lime, 6 of phosphate of lime, and 3 of nitrogenous organic matter. Inside the shell there is a delicate membrane, which forms a kind of sac for the white of the egg. This part consists of a thick ropy liquid, nearly transparent, and of a very pale straw tint, or almost colourless, when fresh, but becomes quite white, opaque, and nearly solid when sufficiently heated. These changes are due to the coagulation of the substance called albumen, which is contained in a soluble state in the unchanged white of the egg, but becomes insoluble on being boiled. The dissolved albumen occurs in large, thin, membranous cells in the white. Within the white lies the yolk, enclosed

in a thin membrane, and tethered by two cords (*chalasa*) to the membranes of the white. The yolk is yellow, and nearly opaque.

In a very large hen's egg, weighing 1,000 grains (rather over 2½ oz.), the shell and membranes will weigh about 100 grs., the white about 610 grs., and the yolk about 290 grs. The average weight of a hen's egg, shell and contents, is about 1½ oz. It becomes rather lighter by being boiled, losing a little water. The white of a hen's egg has about the following composition—in 100 parts: Water 84·8; albumen 12·0; fat, sugar, extractives and membranes, 2·0; mineral matter, 1·8.

The yolk of a hen's egg shows a much greater degree of richness than the white. It contains, in 100 parts:—Water, 51·5; casein and albumen, 15·0; oil and fat, 30·0; pigment, extractives, &c., 2·1; mineral matter, 1·4.

The mineral matter of the contents of hens' eggs, though small in quantity, is rich in quality, consisting, as it does, mainly of phosphates of lime, potash, soda, magnesia, and iron.

The mixed whites and yolks of hens' eggs (the shells being excluded) contain—in 100 parts: Water, 71·7; albumen and casein, 14·0; oil and fat, 11·0; membranes and extractives, 2·0; mineral matter, 1·3. In 1 lb.: Water, 11 oz. 207 grs.; albumen and casein, 2 oz. 10·5 grs.; oil and fat, 1 oz. 33·2 grs.; membranes and extractives, 14·0 grs.; mineral matter, 91 grs.

Eggs are very nutritious articles of food. They contain about as much heat-giving and flesh-forming substances as an equal weight of butcher's meat. For one part of flesh-formers present in them there are nearly two parts of heat-givers, reckoned as starch. One pound of the mixed yolks and whites can produce at the most a little more than 2 oz. of the dry nitrogenous substance of muscle or flesh.

One pound of hard-boiled eggs, if completely oxidized, could set free a force equal to 1,415 tons raised 1 foot high. The greatest amount of work outside the body which it would enable a man to perform is 283 tons raised 1 foot high. The remainder of the stored-up force in this amount of food will be in part unexpended, but much of it will be used in keeping up the heat and internal activity of the body, and in the repair of its tissues.

One pound of white of egg can set free force equal to no more than 357 tons raised 1 foot high, and can enable a man to perform external work equal to only 71 tons raised 1 foot high, whilst 1 lb. of yolk of egg can set free force equal to 2,051 tons raised 1 foot high, and could enable a man to perform external work equal to the raising of 410 tons of 1 foot high.

The number of eggs imported into Great Britain is enormous. During the first quarter of 1876 it was something like 17½ millions. It has been calculated that 18 eggs would contain an amount of flesh-forming substance and of other nutrients sufficient for the various needs of life in an adult man for one day. It would be necessary, in order to provide the same amount of albumen from such a fruit as the pear, to consume no less than 70 lbs. It would be difficult to find a more striking illustration than this of the concentrated character, so far as nitrogenous or flesh-forming substance is concerned, of the egg.

116. TO ASCERTAIN THE FRESHNESS OF EGGS.—Poultry-keepers ought not to be ever in doubt as to the freshness and condition of their own eggs, as a little system in their arrangement in the order in which they are laid, where a great number of poultry are kept, will always prevent doubts on this head. Whatever receptacles are provided for them, they should be placed in rotation, one day's produce following the other, in separate baskets or boxes, or in whatever form provision is made for their reception. The

first box, or basket, should thus be emptied first, whether for sale or use, and the emptied basket placed the last in the row, to receive the next eggs that are gathered. By this means no mistakes can well occur, however large the quantity of eggs may be that are daily produced.

If any doubts should arise as to the freshness of an egg, they may be determined by holding the egg up to the light, and looking through it from the thick end. A fresh egg will appear to the eye to be clear and transparent.

117. **VARIOUS MODES OF PRESERVING EGGS.**—As before explained, the egg-shell being porous, and thus liable to be affected by the action of the air, staleness, and evaporation which causes shrinkage and waste, are thus readily accounted for.

A temporary expedient for retaining freshness is sometimes resorted to, by hanging a number of eggs up in a net, the mouth or aperture of the net being tied up like the mouth of a corn sack, and suspended on a tenter-hook, or hooks, if the net should contain a great number of eggs, and hooking the net up in a different mesh each day, using the one either immediately above or below the one the net was previously suspended by; in the event of the net being a heavy one, and supported on more than one hook, the same line of mesh must be kept in either case. This will gently change their position, and slightly roll the eggs forwards, or backwards, and thus somewhat retard the action of the air.

To keep eggs sweet and good for a long time, however, there is no effectual plan that can be pursued which has not for its principle the entire exclusion of all air, the action of which upon the porous egg-shell must be prevented.

This may be effectually done by making a thin gruel-like substance of lime slaked in water; and choosing a vessel of sufficient capacity, to hold the number of eggs that are to be preserved, from the size of a butter-firkin to a barrel, with its head knocked out. A thin layer of this, just sufficient to cover the bottom, when it is quite cold and the strength of the lime has expended itself, should be poured into the vessel, and the bottom covered with eggs closely laid together. Enough of the thin lime-paste should then be poured over them to just cover the eggs, and another layer of eggs placed on the top of these and the lime poured on them again, and this repeated till the vessel is filled. All air will thus be thoroughly excluded, and the eggs will keep fresh all through the winter, until the next season comes round, and fresh-laid eggs are again plentiful.

After being kept some months in this way, though they will lose, to a certain extent, the milky fulness which characterises a new-laid egg, they will be perfectly sound and sweet, but the lime will exercise a certain influence upon the shell, and cause it to be more brittle, which will be evidenced in the boiling of the eggs, and cracked shells will be more common and frequent than with new-laid eggs, so that a little extra care should be used in their cooking.

A good many of the bought French eggs, the shells of which are apt to crack very much in the boiling, have been preserved in this way, which is due to the action of the lime upon the shell. There are other expedients for preserving eggs, such as greasing them outside, by which the air may be excluded. Eggs over which a little butter has been smeared have been kept sweet for a good length of time, and of course any fat would answer the same purpose as butter; but as these kind of applications dirty and disfigure the appearance of the eggs, which do not look very inviting when they come to table, the method recommended of keeping them in lime will be found the best, because even if there be a little of the mixture adhering to the egg-shell, being of the same colour, and indeed the same material, under different modifications, its presence will not be detected or noticed.

118. **SITTING.**—In the ordinary way, and left to themselves, the domestic hen exhibits a desire to incubate during the period which extends from March till June, but this instinctive desire comes on much sooner in the case of highly-fed hens, and as the pullets that are hatched early begin to lay much sooner than those which come later, it is an object of considerable importance to have some early "broody" hens, and by good management chickens may be hatched in January, and be ready for market towards the end of March, and through the succeeding months of April, May, and June.

The Dorking hens are the best sitters of all, and if some of these moult early, they may be induced to sit in October, and with this object in view, some poultry-keepers give them stimulating food, such as a little raw liver cut up in small pieces, bread steeped in ale, potatoes mashed warm with milk, with which oatmeal is mixed, or a little raw or cooked meat cut up fine. When hens take to their nest so early as this, it is possible to have young chickens ready for the table by Christmas Day, but of course there will be a considerable amount of trouble to be incurred in rearing them.

119. **NUMBER OF EGGS ALLOTTED TO SITTING HENS.**—The number of eggs allotted to a sitting hen should be regulated according to her size and the time of year, no more being given to her than she can well cover, as during incubation the hen separates her feathers to a great extent, and the eggs come in contact with the warmth of her naked breast, and if too many are given she cannot effectually cover them. Experience shows that more

chickens are successfully hatched from a moderate number than a relatively larger quantity of eggs, and the health and vigour of the chickens is unquestionably much greater.

The number of eggs given to hens to sit upon, varies from nine to fifteen, thirteen being a favourite number, but the time of year will have much to do with this, and in cold weather not more than nine should be given, save in exceptional circumstances, as in the case of the Cochin, where the hens are large and the eggs small, in which case the hen can comfortably cover a greater number than a smaller-sized fowl could do with the same-sized eggs; but when the case is altogether reversed, and the smaller fowl has larger eggs to sit upon, the numbers must be arranged accordingly.

A large-sized hen of the Dorking breed should not have more than thirteen eggs given to her, but in the case of Cochins fifteen may be allotted.

The advisability of not having so many eggs beneath a hen may be readily seen, for if too many are given, and the outside ones are merely covered with the hen's feathers and not by her body, they become cooled during the sitting and the chickens will become weakly or deformed; as instinct teaches the hen to constantly shift the position of her eggs, pushing those that are at one time in the centre outside, and *vice versa*, they all become chilled in turn, and a weak and sickly brood is the result.

120. **SITTING TWO HENS ON THE SAME DAY.**—It will be found a good plan to sit two hens on the same day if possible, especially during cold weather, when there is a chance of there being small broods, as when they come forth the two broods may be given to one hen. Some breeders in this case remove one hen to a fresh sitting of eggs, which she will hatch if a steady sitter, but this is a somewhat cruel practice, and should in no wise be indulged in except under pressing circumstances, and where the hen has not become too feeble, and had too great a strain put upon her constitution. Some are such close sitters that they will neglect to take food freely, while others eat more heartily than others; but the poor creatures well deserve the reward of their pains and self-sacrifice in having the possession of their chickens, and gratifying their maternal propensities.

Those who do not possess sufficient consideration on this score deserve to lose their hens, which often become emaciated, and are restored with difficulty after too protracted sitting, and will perhaps die just about the time when the second lot of chickens are ready to hatch.

121. **NESTS.**—Different plans of management as regards the nests are followed by some breeders; those who have poultry.

houses which are arranged as they consider upon the best principle, where tiers and rows of nests are placed one above another, placing the sitting hen in one of these; but this plan is best avoided if possible, for hens like to sit where they have been in the habit of laying their eggs, and there is usually a good deal of trouble in getting a hen to take to a new nest, except in the case of Cochins, which resign themselves very contentedly to the place allotted to them. But where a number of fowls are crowded together, and hens are constantly upon a nest for a length of time, as during the period of incubation, vermin are apt to be harboured, and a moveable nest is better than a fixed one, as it can be taken away and thoroughly cleaned after incubation has been carried out.

Where there are tiers of nests in addition, it will be found useful to have an odd basket or two, with an eye to their future application as nests for sitting hens, which manifest a strong desire to sit where there are other eggs, and a hen may be tempted to a nest in which she sees a good number of eggs, which she will often complacently take possession of. Nest eggs will perform this office as well as real ones, and these are best when made of light wood, turned by the turner, and painted white, for chalk eggs being hard are apt to break the others that may be laid amongst them.

It will thus be found the best plan to use separate baskets, that may be removed away after the chickens are hatched, and these (either shallow boxes, or baskets) should be partially filled with fine coal ashes, and upon the top of this a little short straw should be placed. The ashes will keep the nest in form, as well as prevent the harbouring vermin, and the hen will hollow out a cavity sufficient to hold the eggs conveniently, which will retain its shape in a better form for sitting upon than when a large amount of straw only is employed; for, whatever material the nest is composed of, it ought to be filled nearly up to the top, so that the hen has not to spring up a long distance from her nest when she goes to take her food and water, or have a long way to descend upon her return; in either case there being a risk of her breaking her eggs.

When an accident of this nature takes place, the broken eggs should be at once removed, as well as the soiled straw, and any dirtied eggs should be carefully washed in warm water, otherwise the objectionable matter by adhering to the outside of the other shells, will fill up the pores and plaster them over, so as to injure and impede the business in hand.

Eggs will be found to hatch much better when the straw is

placed above ashes, than when straw alone is used; and to ensure privacy, as hens sometimes object to sit in an open basket, one with a lid, the latter being propped with two sticks at the required declination, one on each end of the basket, the open space being next the wall, or if without a lid, a board placed slantwise over the basket, the upper end leaning against the wall, will ensure the necessary privacy.

We ought to remark that eggs ought never to be used as nest-eggs, as they get broken occasionally, and the stench and filth caused under the circumstances are very objectionable.

122. HENS WANTING TO SIT.—A hen when she wants to sit gives signs of her indication beforehand by remaining a longer time on her nest than usual, and by the peculiar clucking sound she utters, ruffling her feathers, wandering about, inspecting odd nooks and corners, and betraying an anxious restlessness which shows she is ill at ease. Perhaps she will all at once joyfully take possession of a number of eggs that other hens may have laid in one nest, but it is best to test her steadiness for a day or two by giving her three or four nest-eggs to sit on, when, if her steadiness is confirmed, the necessary number of eggs may be given to her. This is best done in the dusk of evening, for if removed in the day-time, at first she is somewhat wild and energetic, and flies back hastily at the risk of breaking her eggs. When taken off in the dark she will remain quietly on the ground till the necessary number are placed in the nest, when she may be gently lifted back again. Some young hens are very wild when first taking to a nest, and it has been found to answer to put down the lid of the basket for the first day or so, till she has become used to her nest.

123. BEST SITUATION FOR SITTING-SHED.—Warmth is an important element for success in hatching, and a south aspect is the best for a sitting-shed. Moisture is also favourable, if a *warm moisture*, but a cold one is fatal to success in hatching. In warm wet weather the hatching is sure to progress well; but when the air is very dry, resort is sometimes had to sprinkling the nest with warm water, when the hen is away feeding, or by watering the ground well round about the nest with hot water, so as to cause a steam. With this end in view, some poultry-keepers make a practice of dipping the eggs in warm water when they are expected to chip; but this is not very efficacious, for although the shell may be softened somewhat by this means at the moment, it gets as hard as before when dried in the air.

124. SEPARATE RUNS AND SHEDS FOR SITTING HENS.

—Although it is not absolutely essential to have separate runs and sheds for sitting hens, it is desirable to give them as much quiet as possible in a situation where they can remain undisturbed, and free from the visits of other hens which may evince a desire to lay in the same nest, which they will often do; to guard against this, where separate and distinct accommodation cannot be given, it is the safest plan to mark the eggs that have been given to a hen to sit upon. By this means an opportunity will be given to remove any stray eggs when the hen is off her nest, that have no business to be there, and on this account moveable boxes or baskets that may be placed in situations of more seclusion than the nests of common resort, are found advantageous.

Eggs are often very roughly treated; and were it not for the safeguards which are so admirably conferred by nature, frequent accidents would occur. The white, which acts as a defence to the yolk, allows the latter to float at liberty, though suspended, as before described, in such a manner as to cause the germ to be always uppermost, however much the egg may be turned about. The albumen, or white, being also a feeble conductor of caloric, regulates the temperature of the yolk, both retarding the escape of heat and guarding it against any sudden change of temperature which otherwise might be fatal to the vitality of the germ, as well as guarding it against the effects of any sudden shocks. The hen should be encouraged to leave her nest every morning for the purpose of feeding, and a heap of ashes should be placed near her, so that she may enjoy the luxury of a dust-bath, which doubtless somewhat allays the irritation of the skin, that constant sitting is apt to engender, as well as parasites, to whose attacks she is more subject during the period of incubation. Water also should always be in readiness, as well as a little gravel, that she may help herself to if disposed, and these should be placed in readiness for her, as unobtrusively as possible, and with as little interference with her privacy as can be. When these details are neglected, the hens may be seen running off with dishevelled feathers to a long distance away from their nests in search of something, and finding at last a heap of dust or loose earth in which to disport herself, a hen may possibly, at times, stop so long off her nest, in her unwonted enjoyment, that her eggs may get cold, and the hatching turn out not so favourable as it otherwise might have been.

Some people lift the sitting-hens off the nests to feed them, but

this is injudicious, as when wanting food and water they will leave their nests for the purpose of procuring their necessary sustenance, and then they should be most liberally fed.

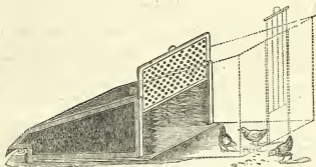
125. **CHOICE OF A SITTING-HEN.**—In choosing a sitting-hen, she should be of medium size, not too old, possessing a full share of plumage, and having short legs. At an early period of the year when a "broody" hen is valuable, people are too happy generally, to make use of the services of the first hen that comes to hand, but with the aid of a little good management, the hens possessing the most desirable qualities may be made subservient to breed from, it not being found so desirable to breed from those in their first as in their second or third years. The chickens produced from first-year-old fowls are accredited with being more "leggy," smaller in size, and less hardy and vigorous than those which are reared from the older birds. Should, however, young hens be employed for breeding, the pullets should be matched with cocks that are two or three years old, but cockerels should be mated with old hens.

To have strong, full-sized chickens, it is absolutely necessary that no relationship should exist between the parents, this being a point that is often very much neglected, the continual breeding in and in resulting in weakly and often diseased offspring; and this may easily be avoided by having fresh male birds every two or three years.

To ensure not only strong birds but the exact breed that is best liked, and may be required, where a large number of fowls are kept, it will be found the best plan to have a cock and half-a-dozen hens kept separate from the others, and hatch the eggs laid by these separate hens alone, which may be given to those hens which want to sit. By this method any breed may be perpetuated at pleasure, and under the best circumstances; for, of course, it is immaterial what breed of hen hatches the chickens. Thus, if a good breed of black Spanish is wanted, the eggs of these hens can be given to a Dorking hen, which is both a good sitter and good mother, while the practice of allowing the hens to run with several cocks, is the sure way to get a mongrel breed.

This idea is carried out to such an extent by some people, that they will not allow the eggs of old birds to be hatched by young ones, considering their steadiness of sitting not to be sufficiently reliable. This, however, will not be found to be the case as respects Dorkings and Cochins, as pullets of eight months old will turn out to be good sitters and nurses, and instances are recorded of Dorking pullets of fourteen months of age, having hatched three broods of chickens, the hatchings having taken place in the months of January, May, and July respectively.





ARTIFICIAL MOTHER.

CHAPTER VII.

HATCHING, REARING, AND FATTENING.

Hatching—To test the Fertility of Eggs—Process of Hatching and the attention it requires—The Chick—Food of newly-hatched Chick—Artificial Hatching—Artificial Mothers—Care of young Chicks—Fattening Chickens and Fowls for Market—Expense of Fattening—Methods of Killing—The Nutritive Value of the Flesh of Poultry—Feathers and their Uses—Dressing Feathers.

126. **HATCHING.**—After the hen has taken thoroughly to her nest, about the twentieth day, some of the chickens usually begin to chip the shell, and if the eggs have been selected properly, they will all be hatched on the twenty-first day, or on the same day of the week three weeks afterwards from their being first put under the hen, but before this result is brought about, the fertility of the eggs should be tested.

127. **TO TEST THE FERTILITY OF EGGS.**—A good deal of disappointment as to the final result of the hatching, may often be spared by testing the fertility of the eggs upon which the hen is sitting, which may be done after the tenth day.

Each egg in turn should be held up before the flame of a lamp between the finger and thumb of one hand, while the other shades the large end of the egg. The air chamber will then be seen presenting an apparently opaque appearance, the remainder looking dark and sombre, the two divisions being separated by a clear black line in the case of a fertile egg,—the more defined and darker the line, the stronger the future chicken will turn out to be.

But if the egg looks clear, and resembles in appearance that presented by a new-laid egg, it will turn out to be unfertile, and these should be removed, as they will otherwise be only wasted. By using this simple test, when several hens are put down to sit on the same day, the fertile eggs separated from the unfertile ones may be all put together and given to some hens, and fresh eggs to make a new sitting be given to another.

A writer in *The Country*, under date March 1st, 1879, says, in "Notes for the Breeding Season:" "How many little matters there are connected with eggs and hatching which are only discovered by long practice and experience among the pets themselves, and how many little attentions there are which a true fancier and lover of live stock can pay to his birds, with advantage to them and advantage and profit to himself. I was reminded of many of these little things upon the hatching of my first brood of the present season. The first hen that sat was one of those most objectionable black hens, with Spanish bodies and mongrel faces, probably the daughter of non-sitters on both sides, and, as a consequence, though a sitter, as all cross-breeds are, a most uncertain and indifferent one.

In the first week she spoilt the nest every day, making it filthy, and, moreover, breaking in the time seven or eight eggs; but in the early season one is glad to obtain a broody hen, at any risk and almost any cost. A second lot of eggs was given her, leaving her three of her first clutch, which were fertile, but she continued to object in the same spirit, and, leaving nine in the nest, seemed to do very well; for, after a few days, and apparently considering this the proper quantity, she sat out her time.

In the meantime, a farm-yard Dorking, the best of sitters and mothers, was procured, and sat out her time as well as any hen possibly could; she was, in fact, a model sitter. At the end of ten days her eleven eggs were tested in the evening by the light of a lamp. Holding the egg betwixt the thumb and finger of the right hand in front of the flame, and shading the large end with the base of the left hand, the air-chamber is discovered; this is apparently opaque, the rest of the egg being dark and heavy, the two portions being divided by a clear black line, that is, if the egg is fertile. The sharper and blacker the line the nearer the hatching, and, as a rule, the stronger the chicken. If, on the other hand, the egg is light and opaque throughout, or, in other words, exactly like a new-laid egg when held before the same light, it is not fertile. This little test is so simple that every one should adopt it, and abandon the absurd prejudice which I have found, and continue to find, in favour of leaving the eggs to nature.

These unfertile eggs, usually termed *clear eggs*, should be removed and used in the kitchen. They are just as edible, just as fresh, and just as wholesome as eggs laid on the same day, but placed under a hen for ten days. This is another prejudice, and in proof thereof I hope any doubtful reader will try the experiment for himself. I remember being at the cottage of a poor woman who reared chickens for the market, and sat a large number of eggs in the spring. At the time of my visit, I was shown the hens sitting in the hen-house in the range of boxes usually found in farm roost-houses. They were placed systematically and in order of date. I asked her when she tested the eggs, but my question was entirely novel to her, and an explanation was necessary. She was very much surprised at what I told her, but I convinced her at last that she could readily detect the unfertile eggs, and that they were not rotten. Certainly her faith in my argument was for a time subject to proving by results, but upon taking one or two clear eggs and breaking them in a cup, she was both astonished and satisfied. She then actually assisted me in testing the whole of

her eggs under the hens, and the result was that she was able to put on one side nearly one hundred clear eggs for her own use and her chickens. I persuaded her to keep the stalest for the latter.

Another great advantage was that she was able to sit several hens again, after amalgamating the eggs, whereas she was badly wanting sitters, and would have had to purchase them. Where several hens are sitting at once this is a great saving, and can be carried out easily if every egg is marked in ink on the small end, giving the date when set, and, if necessary, the breed, which may be represented thus: D. B. for Dark Brahma. Pencil marks wear or rub off, ink seldom. It then often happens that several are clear, and, as it would be careless to allow the hen to be sitting the whole time on five or six eggs, a fresh lot should be given her, making up her original number; and if another hen or two be tested at the same time and similarly treated, they would all be tested together and hatch together."

[The writer does not state here that the broods, as they come off the different nests, must be given in charge of individual hens, and the unhatched eggs to a hen or hens that still remain sitting, but his meaning must be inferred.]

There is another condition in which eggs will sometimes be discovered when testing, and that is, a rotten condition. If, therefore, an egg is found neither clear nor fertile, with the dark line at the top, but without the dark line and dull throughout, especially in the centre, the whole mass within the shell in a moveable state, its condition may be suspected, and it should be thrown away. This arises from two or more causes—first, it is believed that the fertilisation was incomplete or weak, wanting strength to break into actual life, but strong enough to affect the rest of the egg, which, in all cases where any life has existed, decomposes, and in time engenders gas, therefore at once being a rotten egg.

One word more with regard to fertile eggs, and that by way of caution. I have often heard of stale eggs being sent to market; have they ever had the benefit (?) of a hen's warmth for a week? Certainly they are no worse than any other egg, but then they are at least eight or ten days old, and when people buy fresh eggs at new-laid price, they don't expect to clear off the results of "testing day."

I have often heard it termed cruel to sit a hen a second time, but this I cannot agree with; providing a hen is properly fed, and is in good health and condition, there is nothing cruel, unless it be cruel to defer the realisation of her maternal instincts, but then people don't keep hens for any purpose of that kind, any more than horses, beasts, or anything else. They do not scruple to rob the hen of her eggs, nor to prevent her sitting at all if she is not wished to do so. Then, again, this instinct is itself somewhat uncertain, for some hens never sit, others have an instinct to forsake their nests, some to break eggs and kill their chickens. A more philosophical

argument would be, that whereas there is more pleasure in the anticipation than the reality, so the hen's double term of sitting must be a double allowance of maternal pleasure. However, I would always avail myself of a hen, if strong and well, who could sit twice, and two broods can often be put together, and this plan carried out.

I will now return to the hen I commenced with—"my first hatch" with the model farm-yard Dorking. She was due to hatch on a Monday morning, but there were three strong live chicks on the Sunday morning, and she was not taken off to feed by the poultry-man. I visited her in the afternoon and found five chipped eggs containing live chicks; three hatched, two dead in shells, and one uncertain. She was taken off and fed, the broken shells removed, the nest shaken up a little, the chicks taken out and placed under her after she had been carefully placed on the nest again. When chicks are hatching it is always best to take eggs and all out of the nest and give to the hen after she is in, or she may break some. She was then left until the next morning, when, upon examination, the three first-hatched chicks were found dead—crushed—and the other five alive and well. This would suggest where any length of time elapses between the hatching of a brood, the early ones should be removed; but I say without hesitation, supposing you have no other trustworthy hen to receive them, put them with an artificial mother, such as Christy's. In my case, the hen was all I could wish as a sitter, but I lost three valuable chicks out of eight when I could least spare them."

128. PROCESS OF HATCHING AND THE ATTENTION IT REQUIRES.—Many persons make a practice of removing the first hatched chicks, and placing them by a fire in a basket lined with flannel, and—although this may be perhaps desirable in the case of some chickens being hatched considerably before the others, as in the case recorded above—as a rule, it is considered the better practice to allow them to remain under the mother, but also gently and carefully to remove the empty egg-shells, which are prone otherwise to fit themselves on to the unhatched eggs, and so give a supplementary shell for the imprisoned chick to break through, which is a task beyond its strength.

The advantage of interfering as little as possible with the hatching has often been pointed out as being exemplified in the case of those hens which steal a nest for themselves, where they remain unmolested, the result being that they invariably bring a more numerous and stronger brood than when reared under the care of the henwife.

129. **THE CHICK.**—An intelligent writer has pointed out that the labour carried on by the chick within the shell in its endeavour to free itself, varies from an hour or two, or a few hours, to four-and-twenty; some working incessantly, while others rest at intervals. Some, indeed, break their shell too soon, for, before they make their exit, they ought to contain within them the means of supporting life for twenty-four hours, without food being necessary; and for this purpose nature has made provision for the unconsumed portion of the yolk to enter through the navel, so that the chick that issues from its shell before taking up all the yolk left within it, is sure to droop and die, a few days after being hatched.

This principle being recognised, it will be seen that it is injudicious to hasten the liberation of the chicken by picking off the shell, as is sometimes done. There may be occasions when assistance is necessary, and the chick unable to extricate itself from the shell, but the time when it may be safely set free will be indicated by there being no appearance of blood in the minute blood-vessels with which the interior of the shell is lined.

Should there be indications of the presence of blood, it is a sign that matters are premature; but if these small vessels are dried up, a little assistance may be given from time to time, say every two or three hours, as its deliverance ought not to be effected all at once, the object being more to prevent suffocation, than to hurry the chick out of its shell, and where the idea may exist that it is unable to extricate itself, one of the cracks may be extended, so as to aid its efforts.

130. **FOOD OF THE NEWLY-HATCHED CHICK.**—It is injurious to feed chickens on the day they are hatched, as anything that may be given to them interferes with the natural digestion of the yolk absorbed, as before-mentioned, at the time of hatching. Peppercorns are commonly forced down chickens' throats by ignorant people, but the practice is both unnatural and injurious.

On the day after they are hatched, a mixture of oat-meal and barley-meal, in the proportion of two-thirds of the former to one-third of the latter, mixed up with water or milk, is, perhaps, as good food as can be given, and one upon which the chicken will thrive well; but if milk is used, as it soon gets sour when exposed to air, and is then very injurious, no more food should be mixed than can be consumed in a couple of hours.

Some feed with hard-bolled eggs, cut up fine, shell included; which with milk to drink, is given for the first few days. Bread soaked in water, or sop, is a bad

kind of food to give, being destitute of the requisite solidity to afford exercise for the grinding powers of the gizzard, and is apt to cause the chickens to be weakly, and subject to diarrhœa. Some very finely-cut tops of chalots, chives, or onions, are thought a wholesome addition, and are considered by some to lessen the susceptibility to roup.

Young chickens should be fed very often, every hour not being too frequent, and a shallow pan of pure water, often renewed, should be within their reach, as they will require to drink freely, it being especially important that they be well fed. A barrowful of mould, if possible containing an ant's nest, will furnish the young brood with satisfactory amusement, and be found better than giving pieces of chopped meat, which some writers recommend.

131. **ARTIFICIAL HATCHING.**—We must say a few words here about the system of artificial incubation, which, although feasible enough from a theoretical point of view, is a somewhat difficult one from a practical, requiring continual attendance in order to regulate the heat of the incubators, though there are self-regulating ones which are said to be effective, and of undoubted excellence.

Artificial hatching is carried on to a great extent both in China and Egypt, but it is done in underground chambers, or ovens, connected with a kind of den, which a man never leaves during the period of incubation, the temperature being kept up alike.

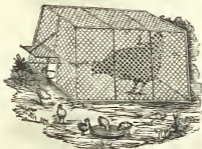
In the best self-regulating hatching machines, the eggs are placed in a tray between two tanks of water, one cold at the bottom and the other hot above; above this being an air-chamber, and at top a drying nursery when the chicks are hatched. An oil reservoir is placed at one end of the incubator, and above the lamp, over which the boiler is suspended, which communicates by tubes with the hot tank. Beneath this tank are a couple of glass tubes, to hold alcohol, which communicate outside with a cylinder. This cylinder, which holds mercury, is supplied with a piston, and the valve being adjusted to a certain temperature, when the tank rises a degree too high, so as to expand the alcohol, it acts upon the mercury and forces up the piston-rod. This in turn acting upon an ingeniously-contrived lever and spring, lowers the flame of the lamp, opening at the same time a valve at the top of the machine, which allows the warm air to escape.

There are various elaborate systems of artificial incubation, but success depends upon very nicely-balanced results, and it is far less trouble to let hens do the work themselves, for although chicks may be hatched, the small proportion that are produced, and the

ultimate trouble of rearing them, causes the operation to be not very satisfactory.

132. **ARTIFICIAL MOTHERS.**—Artificial mothers, of course, have to be provided for chickens raised by artificial incubation, but such an affair would be found useful at times, when a hen dies and her young brood is left without maternal superintendence. They are wooden frames, lined with fleece, which hangs down something after the fashion of a hen's feathers, and an appliance of this sort may be constructed at a cost of a few shillings, though very elaborate affairs are sold, heated with warm water.

All that is necessary is, to form a kind of frame or box, from 3 to 5 inches in height at the back, and from $4\frac{1}{2}$ to 7 inches in front, and from 15 to 20 inches in width, by 18 to 24 inches in length.

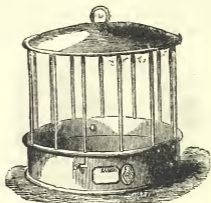


COOP FOR HEN AND CHICKENS.

This should be thickly lined with strips of flannel, or a long-wooled sheepskin mat tacked to the roof, the sides and end being lined with carpet drugget, or any material suitable for the purpose. The chickens may soon be trained to use this contrivance, and they will thrive with it if it be kept scrupulously clean; but if the wool is allowed to become matted with dirt, it will act injuriously upon the chickens.

At night, this artificial mother should be placed upon a board, covered half-an-inch deep with sand or dry mould, mixed with sulphur, to destroy vermin; and, with a perforated door to shut them in, cats and rats may be thoroughly excluded. Thus, an artificial mother will be found useful to orphan chickens left without their natural protector, though some breeders take the chickens from the hens, and make the mothers sit again, when sitting hens are scarce, availing themselves of this contrivance instead.

133. **CARE OF YOUNG CHICKS.**—The hen is apt to wander too far at times when uncontrolled liberty is given to her and her brood, the latter becoming over-fatigued, and meeting with accidents from falling into ditches and holes, or their delicate plumage becoming bedraggled and saturated with wet; so that it is necessary to place the hen under a coop, which should be put in a suitable place, as on a grass-plot with a sunny aspect, or some dry sandy situation. The young will not forsake the hen, but run immediately to her call, and take shelter beneath her feathers upon any sudden change of weather, or the approach of a shower of rain.



FATTENING COOP.

The coop should be moved to a fresh situation every day, to ensure cleanliness, but where there is any space or enclosure, where the hen can have her freedom without wandering too far off, the chickens will do better with her at liberty, as she will scratch for them and find insects and worms, which are their proper food. The hen also better recovers from the confinement she has gone through during the period of incubation, when she is blessed with liberty, and can obtain the green or other food that is most necessary for her recovery.

134. **FATTENING CHICKENS AND FOWLS FOR MARKET.**—Dorking chickens are sometimes cooped for fattening at the age of from three to four months in summer, and five to six in winter, being mostly fed upon oatmeal, mixed with water or milk, by the

best hands at this business, which must be given fresh, three times a-day; the first meal quite early in the morning, so as to shorten as much as possible the long interval of night.

In addition to this, the birds should have as well, whole corn (especially at night, to remain long in their crops), gravel to assist digestion, clean water, and a turf of grass for them to peck at, and be kept always scrupulously clean.

If fowls have been previously well fed, they will be fat enough in a fortnight or three weeks. The parings of mutton joints or suet, chopped up in their food, assists the fattening process. Cramming poultry, although frequently resorted to, is unnecessary, and it must be remembered that fowls cannot support a condition of fatness for any great length of time without becoming diseased.

The poultry-feeders in most of the home counties who fatten fowls for market, generally manage to do this in a fortnight, the fowls weighing from five to seven, and even eight pounds; a full-sized fat capon will weigh from seven to ten pounds.

135. **EXPENSE OF FATTENING.**—By fattening them effectually by the best means in as short a space of time as possible, the expense of fattening is also considerably reduced, for, after a certain time has expired, the fowls will go back, instead of improving; so that, if the object can be attained in a fortnight, the expense of fattening, which must be estimated upon the cost of the food supplied, will only amount to two-thirds of the expense incurred when the fattening process takes three weeks.

136. **METHODS OF KILLING.**—Fowls should not be bled to death like turkeys and geese, for then the flesh becomes dry and insipid. A somewhat barbarous method of killing prevails amongst many of the poultry-higglers, who strain the neck of the fowl till dislocation ensues, or follow the more merciful plan of giving the neck a sudden twist. But this latter method requires considerable dexterity, and not unfrequently inflicts a good deal of torture, without at once effecting the desired object.

The best method of killing a fowl is to strike its neck at the back, about the third joint down from the head, with a thick, heavy stick, one of which should be made of the requisite size and length, and kept handy for the purpose.

The neck of a fowl may also be broken by a quick momentary jerk of the fingers, when death follows instantly; but as many persons have a great objection to thus inflicting death with their hands, and feeling the quivering motion of the last agonies of

their victims, however brief they may be, the smart blow inflicted by a weighty stick, as before recommended, will be found as good a method as any of killing a fowl.

137. **THE NUTRITIVE VALUE OF THE FLESH OF POULTRY.** The nutritive value of the flesh of poultry is generally so well known that it is unnecessary to speak at any great length upon it, but being easy of digestion it is invaluable to the invalid, and those possessed of delicate appetites can often be tempted to partake of a nicely-cooked chicken when their stomachs would reject stronger food, and thus be encouraged towards the practice of a more robust appetite.

138. **PLUCKING POULTRY.**—Poultry should be plucked immediately after it is killed, when the feathers can be removed with ease, and afterwards the skin will settle down with a compact surface. If left unplucked for any length of time, the feathers get more intimately identified with the cold body of the fowl, and the skin is apt to be torn in their removal.

If plucked while warm, the fowl can be put into a better shape as respects its marketable appearance, than when the operation is delayed too long; the skin presenting an unbroken and even surface, and wearing a more tempting look than the fowls which have been plucked later, so that their apparent value is greater as regards their saleability, when fowls are prepared for market.

139. **FEATHERS AND THEIR USES.**—Feathers are chiefly used for making beds, bolsters and pillows; and where poultry is kept upon a large scale, it is well worth while having a feather-room. Any old loft will answer the purpose, and they will well repay the trouble of collecting, even when fowls are kept only upon a small scale, for they should never be left to lay about in odd baskets, occasionally scattered by the wind, and making a litter from time to time. Although, where only a few fowls are kept, it would take a long time to collect enough to make a feather *bed*, yet enough can be accumulated to form a *pillow*, and these may afterwards be put together when enough have been got to form a *bolster*, and so on till there be a sufficient number accumulated to fill a tick for a bed. For cushions and pillows the feathers will be found to come in very useful where there is a family.

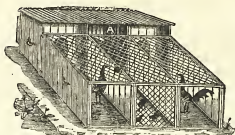
140. **DRESSING FEATHERS.**—There are definite trade processes followed for dressing feathers upon a large scale, a description of which would scarcely come within the compass of a work of this sort, or be applicable to the circumstances of the majority of

poultry-keepers, yet there is a certain amount of care and management requisite in dressing feathers to fit them for use.

Where the quill portions at their butt-ends are surcharged with blood, it is best not to use these, but to strip off the feather portion well from the quill, which is also done in the case of the larger wing-feathers, and these should be classed and set aside, as being of somewhat inferior value. The feathers, where there is a brick baking-oven, should be put into it, after the bread-baking is done, in country-places, and afterwards be enclosed in muslin bags, lightly filled, and put out in the open air to sweeten upon a breezy day. Should there be any dirty feathers, these should be first washed, and then spread out on a flat board and put in an oven to dry, so thinly spread out as to prevent their getting matted together, and afterwards passed through the hands. These should be hung up in bags as before recommended, lightly filled, in the open air, till they are thoroughly sweetened and dry, when they will be fit for use.

If collected with a view of their being sold, the white feathers should be kept distinct from the coloured ones, as they fetch more money, and the ducks' feathers be kept separate from the fowls', and so on, so as to class them thoroughly, according to their commercial value. By a little attention to these subsidiary matters, the profits of poultry-keeping are often considerably increased.





COCKEREL HOUSE AND CHICKEN COOP.

CHAPTER VIII.

DISEASES OF POULTRY.

Diseases of Poultry—Skin Diseases—Lice—Diseases of the Lungs and Air Passages—Roup—Croup—Inflammation of the Lungs—Consumption—Pir—The Gapes—Diseases of the Digestive Organs—Crop-bound—Diarrhea—Diseases of the Egg Organs—Soft Eggs—Diseases of the Limbs—Leg-weakness—Bumblefoot—Broken Wings and Legs—Inflammation of the Feet—Apoplexy—Catarrh—Moulting—Inflammation and Swelling of the Rump Gland.

141. **DISEASES OF POULTRY.**—Poultry are subject to various diseases, and, in severe cases, as a matter of economy, perhaps it is better to kill them off at once in preference to attempting a cure, for it is a bad plan to breed from fowls that have ever been diseased, but many diseases are preventible by care and attention, particularly skin diseases, which often arise from fowls being kept in dirty, confined situations.

142. **SKIN DISEASES.**—Where fowls are kept in close, confined quarters, and are obliged to roost in dark, badly-ventilated places, coupled with deprivation from insect and vegetable food, the feathers will sometimes fall from the head and neck. The only cure is to alter the unnatural conditions under which the fowls live, and, the cause removed, the fowls will regain their feathers at the next moulting season.

With Cochin fowls the disease called "white-comb" is often seen, when the birds take but little exercise, and are highly fed upon improper food, of which tallow-chandlers' greaves, and peas, may form part. A five-grain Plummer's pill, given now and then, at intervals of three days, is a cure for skin disease, coupled, of course, with removal of cause, and an application is recommended in mild

cases, of turmeric acid, mixed with cocoa-nut oil, in the proportion of one part of turmeric to eight of oil.

143. LICE.—Fowls sometimes swarm with lice called *Goniocoles hologaster*, *Goniodes dissimilis*, *Lipeurus caponis*, or *variabilis* and *menopon pallidum*, which are most commonly found upon pullets.

These cause a great amount of irritation, which may be allayed by giving them abundant dust-baths to dust their feathers in; and, when very numerous, flour of brimstone powdered, applied under their feathers from a flour-dredger, will be found a certain remedy; or the powdered brimstone may be used tied up in a piece of coarse muslin, like a washerwoman's "blue-bag," and dabbed on the skin, the feathers being parted for the purpose. *Goniodes stylifer*, and *Lipeurus meleagridis*, or *polytrapezius* are found chiefly upon turkeys. Keeping their houses clean, and having them well whitewashed, is the best safeguard against the visits of these pests.

144. DISEASES OF THE LUNGS AND AIR-PASSAGES.—Diseases of the lungs and air-passages are amongst the most common ailments of poultry—and these often arise from the fowls being kept in damp, undrained situations—amongst the most serious of which is roup.

145. ROUP.—Roup is the most virulent and fatal of all diseases to which poultry are subject, and a fowl infected with this disorder should be separated from the others at once, as large numbers get affected at one time, and it is very contagious. It is often at first confounded with a simple cold, or catarrh, but is indeed, the result of aggravated and successive colds.

The disorder begins with a sticky discharge from the nostrils, that is at first comparatively clear, but soon becomes fetid and offensive. The nostrils become partially, or entirely closed, which causes a difficulty in breathing. Froth makes its appearance at the inner corners of the eyes, the lids of which swell, and, in bad cases, the face also swells very much, so as to cause the patient to become blind. The bird then begins to sink rapidly, drooping its head and wings, and, from its peculiar symptoms, this disease has been compared to the glanders in horses.

The passages connecting the nostrils and eyes are the parts most seriously affected, and if the progress of the complaint is not arrested, it reaches the lungs. If it is desired to apply medical treatment to a roup-y fowl, it should be at once removed from the poultry-yard, placed in a warm, dry room, and the nostrils and eyes sponged well with warm water, and a solution of ten grains of blue vitriol to an ounce of water dropped into the nostrils, either from the

front, or through the slit in the roof of the mouth. Warm stimulating food should be given, and half a grain of blue vitriol given in meal once a-day, has been successfully used. The following recipe has also been prescribed:—

Sweet oil.....	1 oz.
Camphor.....	1 drachm.
Carbolic acid.....	12 drops.

The camphor should be pulverised in a mortar with a little ether, and this mixture should be injected into the nostrils, mouth, and through the roof twice a-day by means of a glass tube.

146. **CROUP.**—This is a perfectly distinct disease from the above, though often confounded with it, on account of the similarity of its name. Croup is an inflammation of the windpipe, the symptoms being a difficulty in breathing, accompanied with a rattling noise in the throat, sometimes a thick glairy mucus is coughed up, the disease most commonly occurring in wet weather. It, however, yields quickly to warm dry housing, and the application of one-twelfth of a grain of tartar emetic.

147. **INFLAMMATION OF THE LUNGS.**—Inflammation of the lungs indicates its presence by quick breathings, often accompanied with an audible rattle, dulness of habit, disordered plumage, indisposition to move about, and vacancy of eye. The same treatment as above with tartar emetic is considered advisable.

148. **CONSUMPTION.**—Consumption is given birth to by cold and damp; and is also hereditary disease inherited from parents. In these cases a cure will not repay the trouble, for the chickens are almost certain to be affected by the disease more or less, and it should be the aim to rear none but healthy fowls.

149. **PIP.**—Pip can scarcely be regarded as a disease itself, but rather a sign of internal fever, which shows its presence by a dry, horny scale which makes its appearance upon the tongue, which shows the fowl to be in a feverish condition. The remedy consisting of a removal of the occasion of the disease, by placing the patient in a dry warm apartment, and giving it suitable food.

150. **THE GAPES.**—The gapes are caused by the presence of a worm (*Fasciola trachealis*) which, if not attended to quickly, proves fatal to young chickens, which gape, droop, and die, the parasite adhering so closely to the walls of the windpipe that by no efforts of its own can the chicken eject it.

The singular worm *Distomalineare*, really consists of two worms, male and female united together, the long body being the female, and the short the male, though being permanently united together, are yet two distinct insects. They can be removed from the throat by using a pinion feather stripped to about an inch and a

half of its extremity of the feather portion, which is thrust gently down the bird's throat, and then turned round so as to extract all the worms by drawing them out. Some gamekeepers are very expert at this operation, which they practise upon young pheasants hatched under hens.

Upon its first appearance, Epsom salts mixed with the food, or in doses by itself of two scruples, will be found efficacious; if the barley or oats upon which they are fed are mixed with urine, instead of water, it will be found to cure them.

Some dip the feather, before recommended, in spirits of turpentine, and insert it in the windpipe, but this remedy is apt to cause inflammation which ends fatally. Others put the birds into a box or other receptacle, and subject them to the fumes of carbolic acid; but this is an operation requiring great nicety, for although a certain cure when properly managed, if the birds are kept in the box too long it will kill *them*, while, on the other hand, if enclosed for too short a time it will fail to kill the worms. It is also said that, if the affected chickens are placed in a close coop with a boarded bottom over which a cupful of quicklime has been strewn, with ventilation at top only, that the worms will be destroyed, and the chickens unharmed, though they may possibly suffer from the effects of the treatment for a day or two.

The following recipe as a preventive of gapes has been published, it having been stated that, in those cases where the ointment is used, the birds are not attacked:—

Mercurial ointment.....	1 oz.
Lard	1 oz.
Flowers of sulphur	$\frac{1}{2}$ oz.
Crude petroleum	$\frac{1}{2}$ oz.

Mixed up together, and applied to the heads of the chickens as soon as they are taken from the nest, and repeated once or twice at intervals. Washing the mouth and beak with a weak solution of chloride of lime, the bird being in the meantime kept in a warm shed or room, is practised by some.

The disease is caused for the most part by wet, bad feeding, and dirty food, badly-ventilated fowl-houses, and from tainted ground where fowls are kept year after year in the same place, without a proper allowance of ashes and green food. Half-a-teaspoonful of spirits of turpentine, mixed up in a handful of grain, given to two dozen chickens per diem, is a certain cure.

151. **DISEASES OF THE DIGESTIVE ORGANS.**—Inflammation of the stomach, which is situated between the crop and the gizzard, is a complaint to which highly-fed fowls are subject. The disease is very difficult to cure, but it may easily be prevented by keeping them away from improper food, such as tallow-chandlers' greaves, peas and hemp-seed, which are often given to induce laying, but which often ultimately cause the fowls to refuse to eat altogether, and pine away and die.

152. **CROP-BOUND.**—A fowl sometimes becomes crop-bound, from over-distention of that organ, and a stoppage may be occasioned in several ways, as some object which cannot pass into the stomach remains in the crop, and forms an obstacle above which

everything the fowl eats accumulates. The bird, whose hunger is not appeased by what it eats, eats on till the crop gets an enormous size.

Warm water forced down the throat, and afterwards gently squeezed, will often loosen the mass, but if not, an incision must be made in a perpendicular direction sufficiently large to admit of the food being extracted at the upper end of the swelling. It will close again without difficulty, though some sew it up, and the fowl should have a little bread soaked in ale, and be kept on soft food for several days after. Some administer quinine capsules to hasten the bird's recovery.

153. **DIARRHŒA.**—This very common complaint in fowls, arising from various causes, may be easily checked in the early stages of its appearance, but if left too long, it is very difficult to cope with.

The following recipe will generally be found efficacious:—

Chalk	5 grains.
Cayenne	2 grains.
Powdered rhubarb	5 grains.

If this should not succeed in stopping it, one grain of opium, and one of ipecacuanha should be given every four or six hours.

Another prescription is:—

Hydr. cum cretâ	2 gr.
Rhubarb	2 „
Laudanum	2 drops,

made up into six pills, and given daily.

154. **DISEASES OF THE EGG ORGANS. SOFT EGGS.**—Soft eggs are mostly caused by an irregularity of the oviduct, or egg-passage, which generally arises from inflammation, though sometimes the passage becomes ulcerated, or a tumour forms. Inflammation may be cured by giving one grain of calomel and one-twelfth of a grain of tartar emetic, made into a pill with meal. Sometimes eggs without shells are laid, owing to a deficiency of lime which the bird is unable to appropriate, and this may readily be obviated by giving a supply of old mortar rubbish.

Sometimes when there is disease of the ovary, the comb and wattles assume a similar appearance to those of a cock, and the hen also crows frequently, and becomes the object of rude mirth, as taking functions upon herself which do not properly belong to her.

155. **DISEASES OF THE LIMBS.**—Young chickens often suffer from exposure to cold and damp, which is often fatal to the early broods. This can only be prevented by keeping them warm and dry.

156. **LEG-WEAKNESS.**—Leg-weakness is most common to young, growing cockerels and rapidly-growing birds, particularly Cochins and Brahmas, from the disproportion between the weight and the strength of the bird; the legs not being strong enough to support the frame. A daily dose of four or five grains of citrate of iron given in meal, will be advantageous, coupled with strengthening food. Some give a little meat in these cases, chopped up fine.

157. **BUMBLEFOOT.**—This disease is one to which heavy birds, such as Dorkings and Houdans, are subject, and may be prevented by making use of low perches. A swelling arises in the ball of the foot, that is not attended with heat, but followed by ulceration and diseased growth, mostly occasioned by the violence with which they descend to the ground from their perches. The swelling may be opened with a sharp knife, and the congealed matter removed, and afterwards canterised, or dressed with Condyl's fluid, or diluted carbolic acid.

158. **BROKEN WINGS AND LEGS.**—In cases of broken wings, the best treatment is to tie up the points of the quill feathers in a natural position, and keep the bird in an empty enclosure where there is no perch for it to fly up to.

Broken legs can be bandaged round by strips of thick brown paper soaked in the white of an egg. The leg should be supported between two splints of wood until time has elapsed in which to allow the brown paper to become dry, when there will be found sufficient support in it for the purpose, and to keep it secure, a bit of sewing-cotton or thread should be wound around it.

159. **INFLAMMATION OF THE FEET.**—Some breeds of fowls, particularly Cochins, are liable to inflammation of the feet, which in appearance closely resembles gout, the feet swelling and becoming very hot. One grain of calomel at night, and three drops of colchicum wine twice a-day, has been prescribed as a remedy.

160. **APOPLEXY.**—Diseases of the brain chiefly visit overfed fowls, of which apoplexy is the most frequent. The attacks are so sudden that, the birds are carried off at once, falling dead from their perches. Although it is scarcely possible to suggest a cure, the prevention of the disease may be ensured by attention to a proper course of feeding.

If the bird can be attended to before death, bleeding, by opening a vein on the under side of the wing, may possibly save it, but its chances of recovery are but small.

Paralysis springs from the same cause. In vertigo the fowls run

about in circles, or stagger about, which is caused by a determination of blood to the brain. The latter is relieved by pouring cold water on the head of the patient. This treatment should be followed by administering one grain of calomel, or ten of jalap, but in severe cases it may be necessary to open a vein.

161. CATARRH.—When fowls are kept in cold or damp places, they are liable to catarrh, and occasionally, under the best conditions, fowls may take cold. The birds so affected should be at once removed to a dry house, and fed upon warm, stimulating food.

The following is considered a good recipe:—

Iron	1 oz.
Aniseed	1 "
Pimento	2 "
Cayenne pepper	2 "

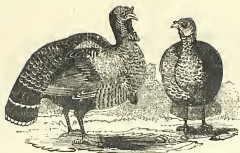
mixed into pills and given twice a-day.

Three drops of tincture of aconite, in half-a-pint of water, given to the affected fowl to drink, will act upon the mucous membrane and reduce inflammation.

162. MOULTING.—Moulting being a natural operation, can scarcely be classed as a disease, yet at times domestic fowls have not sufficient bodily strength to throw off their old feathers in exchange for new ones, without becoming seriously indisposed. This will happen when their roosting-places are not properly sheltered and ventilated. At these times a better diet should be given to them, pure water, and warm, well-ventilated lodging. A grain or two of cayenne pepper, made up into a pill with meal, should be given daily, which will act as a warming stimulant to the system. A nail, or rusty bit of iron, in their water, is recommended as a tonic.

163. INFLAMMATION AND SWELLING OF THE RUMP GLAND.—When this disease occurs, it is indicative of a febrile condition of the fowl. The swelling should be opened by a lancet, and the matter within it gently squeezed out, and the place afterwards well fomented with warm water. A diet of oatmeal and green vegetables will be found to improve the general condition of the bird, and the roosting-place should be clean and well-ventilated. A teaspoonful of castor-oil may also be given with advantage.

Where a great number of fowls are kept, a few stock medicines should be always on hand, so that they may be had recourse to promptly, such as a little jalap, cod-liver oil, tartar emetic, flour of brimstone, hydr. cum cretâ, &c. A good many handy medicines in the form of pills, and capsules, have been made up, of late years, for the use of poultry fanciers, such as Baily's roup pills, &c., which are convenient to resort to upon emergencies.



TURKEYS.

CHAPTER IX.

TURKEYS.

Turkeys—Honduras Turkey Varieties—Norfolk Turkey—The Cambridge White Turkeys—American Turkeys—Choice of a Cock Turkey—Choice of a Hen Turkey—Laying—Sitting—Care of Young Turkeys—Food of newly-hatched Turkey Chicks—Turkey Poults—Fattening—Produce of Turkeys.

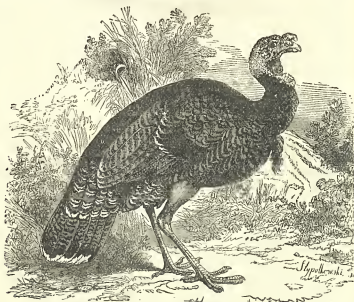
164. **TURKEYS.**—The turkey takes its name from the Turkey merchants, who were the first adventurous traders to the West; being introduced into England about the year 1521. From continual breeding in and in, the size and bodily vigour of the English breed of turkeys at one time had become greatly deteriorated, but, by the importation of fresh stock from America, whose progenitors not so very long time back from the date of their importation, were the wild turkeys of the American continent, the standard of excellence has again been considerably raised, and this, the largest, noblest, and most delicious of all gallinaceous birds, has been considerably improved in its domestic condition during the present century, owing to the fresh blood imported from the primeval American forests.

The late Lord Leicester and the Earl of Powis, both imported separate species, which were accredited with being the descendants of the true wild breed brought immediately from America. There are two species of turkeys, the Honduras (*Meleagris ocellata*), and the common turkey (*Meleagris gallopavo*).

Honduras Turkey.—The Honduras turkey is inferior in size to the common turkey, but the brilliancy of its plumage is far superior. It is, however, extremely rare, and very difficult to acclimatise in European countries, being only met with in Central America. These birds are very rarely seen, but if they could be successfully established by a judicious cross (if not done in this country, on the American continent), it would add a breed to the already existing one of great beauty, though the size would be inferior.

165. **THE COMMON TURKEY** (*Meleagris gallopavo*).—The various breeds of turkeys, though spoken of as distinct varieties, are not, like the common fowl, divided into different families, for turkeys, though differing in colour and size, resemble one another in form and points.

166. **VARIETIES**.—Although thus differing in colour and size somewhat, each breed now recognised as a distinct one may



THE TURKEY.

merely be regarded as sports, or varieties from the original wild American birds; but such as they are, they may now be classed under five heads, or divisions, viz.: the Norfolk, the Cambridge, the Copper-coloured, the White, and the American.

167. **NORFOLK TURKEY**.—The breed that used to be called the genuine old Norfolk Turkey, is now seldom to be met with. They are only of moderate size, and the desire of having large birds, which fetch high prices at Christmas-time, has caused them to be superseded even in Norfolk by the larger breed—the Cambridge.

The true Norfolk is of only moderate size, plumed with black feathers, and they are an excellent breed to keep by private families who do not want birds of unusually large size; and they are reared tolerably easily after they have passed the early dangers incident to young turkeys.

A young, well-fatted Norfolk turkey-hen is considered by far the best eating of any.

168. **THE CAMBRIDGE.**—The Cambridge breed bears the strongest likeness to the wild turkey with respect to its plumage, which is identical often with the markings of the wild birds, but inferior in the iridescence of its metallic hues. Size being the first object with most turkey breeders, and Norfolk turkeys bearing a high name, persons who send to Norfolk for their turkeys so as to be sure to have a genuine breed, often get the Cambridge instead. This breed includes parti-coloured black and white, or grayish-hued birds, and these, when mixed with brown and copper-coloured tints, are sometimes called the "bustard breed," the copper-colour being held in favour by many.

The chicks of the Cambridge breed are more delicate to rear during the first two months of their lives than the Norfolk breed, the eggs being proportionately larger, and the chicks, from their birth, have a loftier stature, and are more slender, and consequently not so hardy and compact as the smaller Norfolk breed; a long-legged chicken, of slender habit, not standing so good a chance in weathering the numerous accidents liable to chickenhood as the more robust and smaller specimens.

169. **WHITE TURKEYS.**—Pure white turkeys present a very elegant appearance, and, as pet or fancy stock, they are often considered a desirable breed to keep; but they are the most tender of all to rear. It is a well-known fact with most birds that, at times, pure white are thrown from coloured breeds, whose constitutions are more delicate than those of their parents.

When, however, a breed of white turkeys has been established, they will now and then produce speckled birds, and thus show an inclination to return to their normal colouring of plumage; but where the breed is pure white, and the tuft on the breast remains coal-black, presenting an appearance resembling ermine, the *tout ensemble* is highly ornamental. This breed is, however, only fitted when there is a range of clean, short pastures for them to roam about in, or a dry sandy soil; not being at all suited for miry, clayey situations.

The white cock-turkey, when his head and caruncles are excited, presenting blue and scarlet hues, contrasting with his snowy plumage and black tuft, is really a beautiful creature, which excites general admiration.

170. **AMERICAN TURKEYS.**—The American turkeys can only be considered a distinct breed, inasmuch as they consist of the most recent importations from the great Western continent; the most striking points of difference, and which cause them to excel the Cambridge breed, consisting chiefly in the extreme brilliancy of their changeable metallic tints, and their more self-reliant disposition, which causes them to forage for themselves, and are altogether hardier and more game-like, resembling birds in a state of nature more than domesticated fowls. This, of all others, perhaps, is the best breed to keep.

Some writers who have written upon turkeys assume that nothing will beat the old Norfolk turkey, and speak of it as being of the largest size. For delicacy of flavour, nothing will excel the Norfolk turkey, as before stated; but the breed when fine is a small one, the birds being very inferior in size both to the Cambridge and American breeds.

171. **CHOICE OF A COCK-TURKEY.**—A good specimen of a cock-turkey will have a broad, full breast, with short, clean legs; plenty of bone, which is necessary for the young progeny to inherit, in order to be fine, heavy birds; a bright eye, with ample wings; and his plumage correct, in accordance with the breed to which he belongs. The carunculated skin of the neck should be ample, and display those rapid changes of colour for which the bird, in good health, is remarkable.

Though capable of being used to breed by when a year old, the cock-turkey does not arrive at perfection till he has fully attained his third year, and his prime continues for three or four years longer.

172. **CHOICE OF A HEN-TURKEY.**—The hen should, like the cock, be correct in plumage, short-legged, and of good figure, with lively and animated carriage, and compact, square frame. The hen-turkey breeds in the spring succeeding the year in which she is born; but she does not attain her prime until two years at least—three years usually—and her prime vigour will continue for two or three years more.

173. **LAYING.**—The hen usually commences to lay about the middle of March, but often makes two, and sometimes three series of layings in the year. The last-laid eggs, coming between the end of September and Christmas, can only be consumed at table; those laid in early spring producing the finest birds, which are both the

strongest for stock, and make the handsomest specimens for the Christmas demand.

The second laying takes place in June or July, and from these eggs are obtained what are termed the *latter-hatched* birds. These come in very useful, like the guinea-fowl, for the table about Lent, when the game season has ended; and they are occasionally sold in the market during the succeeding summer as turkey-poults, to which name they have no real pretension. These, however, should never be used to breed from, and it is from carelessness in this respect shown by some people to whom a turkey is a turkey, notwithstanding its natural disabilities, that the deterioration which has taken place in the breed of turkeys in some country districts is due, and their standard of size so considerably lowered.

174. **SITTING.**—In order to turn the eggs of the turkey to the most profitable account, it is best to give those first laid to a hen to hatch, so that the second laying may be soon recommenced, upon which the hen-turkey should be allowed to sit.

It will also be found a good plan when two turkey-hens commence sitting about the same time (which they will often do on the same day even), to give all the chicks that are hatched to one hen to take care of, and let the other range freely at will. In two or three weeks she will commence to lay again, and this time should be allowed to bring off her brood.

When the hen-turkey first begins to show a disposition to lay, she may be seen prying into out-of-the-way holes and corners, evidently in search of a quiet place in which to lay her eggs. She may be tempted, perhaps, to lay in a nest prepared for her upon the ground, by having a chalk egg put into it, generally laying her eggs in the morning, and mostly every other day, though some lay daily until the number of eggs amount to fifteen or twenty.

The turkey-hen sits steadily, and never deserts her nest; so closely, indeed, at times, that she needs to be removed to be fed. If allowed to lay in a nest of her own choosing, in some undesirable place, although the eggs are taken away from her from time to time—which they should be, and duly marked with ink—she will not desert it.

When the desire to sit is confirmed by her remaining all day and night in her nest, then she should be removed to a convenient place, and a nest be made for her on the ground. When there are several sitting turkeys, it is best to keep them separate, so as not to cause confusion and mistake their proper nests.

The period of incubation is four weeks, and it is found, at the

end of a week, a good plan to add a few hen's eggs to the sitting of turkey's eggs for the chickens to come at the same time as the turkeys, with a view of exciting them to eat more readily; the chicken being brighter and livelier than the turkey, and altogether of a brisker and more cheerful disposition: the young turkeys being of a more melancholy and lackadaisical order.

Thirteen eggs is a fair number to give a turkey-hen to sit upon, though some people give as many as fifteen or twenty; the latter being too many in our opinion. These should be inspected daily, to see that none are broken, while the hen is feeding, and the fragments removed, together with the fouled straw, but they do not want any touching or arranging, which the hen will do herself.

175. **HATCHING.**—At the end of four weeks, not precisely to the day at all times, the turkey-chicks leave the eggs, and it is well to interfere with them as little as possible while matters go on well, the chicks which are long in hatching and require a good deal of assistance in emerging from their shells, seldom being of much good afterwards. There may, however, be instances where a little judicious assistance may be given, unnecessary interference being a matter we deprecate.

They will require nothing to eat, and, as in the case of fowls, it is very injudicious to cram a pepper-corn down their throats; they should be left to themselves till the next day, all that is required being that the empty egg-shells are removed from the nest, as well as any unhatched, bad eggs.

176. **CARE OF YOUNG TURKEYS.**—The day after the chicks are hatched, when the sun is well up and the dews are dispersed, the young chicks should be gently removed from under the mother one by one, carefully by the hand, and placed in a basket lined with flannel. The mother should then be lifted off by the wings, taken to a roomy coop, prepared beforehand for her, and placed in a dry, warm spot. Turkeys do best on a warm, sandy soil. An orchard, where the grass has been cut short, is a good place in which to put the turkey-coop. Long, wet, rank grass is, however, apt to bedraggle the plumage of young turkeys, and do them serious injury, and it is indispensable that they be kept perfectly dry, or they will not thrive. The turkey's coop should be a roomy one, because, being a somewhat heavy bird, although a most gentle mother, when confined in close quarters with her young brood, she is apt to place her feet upon them, which will at times result in lameness to the young chicks.

A capacious, roomy coop is made by tying four wicker hurdles upright together in the form of a square, and laying two more on the top as a roof. One of these should be thickly thatched with straw, so that half the house will have a good roof or cover. The other should be tied to one end with withes, so as to form hinges, to lift up, either for the purpose of putting anything inside the enclosure thus made, or by turning it back and leaving it open, give the hen-turkey an opportunity of flying up and coming out when the time arrives when it may be considered expedient to allow her a little liberty.

The hurdles should be moved a distance equal to their own length each day, so as to occupy a fresh square of ground, which will always thus be kept sweet and clean—a great point with all poultry. By raising the wicker-work of which the hurdles are composed, and pushing the ash or hazel twigs upwards, at one or more corners, places of egress and ingress will be provided for the chicks.

177. FOOD OF NEWLY-HATCHED TURKEY CHICKS.—The first food given to the chicks should consist of hard-boiled eggs, mixed with bread-crumbs and the tops of chalots, chives, or onions, cut up very fine, and mixed up altogether so as to form a fine crumbly mass. Oatmeal and barley-meal, or a mixture of both, also combined with finely-shred chalot, or onion-tops, should follow the hard-boiled eggs and the onion-tops; or an equivalent should never be omitted from the food, which should not be made too soft, but formed into a stiff paste. As they grow older, grain should be given, but the onion-tops *never* discontinued.

Young turkeys require to be fed every hour, and, as they are somewhat stupid, a few chickens amongst the brood are found to encourage them very much in eating. At first one or two will be found to hang back, and those should be tempted to eat by a morsel being placed before them by hand, which they will often survey at first with a *nonchalant* air, but, after they have once tasted, look for more.

It is necessary to give young turkeys green food in abundance—green onions and lettuces chopped up together being, perhaps, the best green food that can be given to them, and if there are any ant-hills to be had, one put into a barrow and set down within easy reach of the coop will be highly relished by the young chicks; or, if ant-hills are not plentiful, a trowelful or two from one, fetched to them in a flower-pot, with the hole stopped up at bottom should be given to them; and, in the same way, should there be a spent hot-bed, full of grubs, red-worms, wood-lice, &c.,—all these are highly delectable to young turkeys whose appetites require constant pampering; feeding them every *half-hour* not being too frequent, and better than once in the hour, as prescribed.

The food must not only be put down for them, but their care-

taker must see they eat it, and that each chick takes its share, for some will be found to prefer to nestle beneath the mother-turkey, and if these are overlooked for a few hours, there will be great difficulty in getting them to eat at all afterwards; and those which eat the most are the liveliest, and make the most rapid progress, and get to be the strongest birds, and those which fast long turn out the weakest.

In the latter case, and they refuse to eat, they should be gently crammed, which is the only case in which the practice is justifiable, but they should never be allowed to get into this dull, mopish state. It is from want of this amount of watchful attention that many people are so unsuccessful in rearing turkeys, the growth of the young chicks requiring to be unceasingly maintained, which is best done by frequent feeding, and not allowing the food to lie about for them to walk over, and make foul.

Clean water should be constantly supplied in very shallow pans, that are not easily overturned; all wet and damp being highly injurious to young turkeys. A *change* of food is also highly desirable. Rice, boiled in a granular, but not sloppy condition, groats, and oat-meal in stiff paste, in little lumps, will all be relished, as well as Indian-corn meal, treated in the same manner. By avoiding too soft or sloppy food, the young chicks are prevented from clogging their feathers with the food, which gets stale, sour, and dirty after a short time, and proves injurious, and nothing pays so well as turkeys for the constant attention that is given to them; in fact, they *must* have it, or disappointment will ensue.

The turkey, after it has attained a certain age, is a hardy bird, that can shift very well for itself; but the critical time with them is from their birth till they get their *red heads*. The head, which, up to a certain period, has only been clothed with down, will gradually begin to be covered with fleshy tubercles. The larger feathers, and those of the tail especially, will also begin to make rapid growth; and all this is a great strain upon the strength of the young birds. If, presuming upon their apparent progress, the mother has too much liberty accorded to her, she may lead her young brood at this trying season amongst long, wet grass, or take them too far from home, where they may be exposed to a sudden shower, and get a bad wetting, which should be guarded against; wet and cold being very fatal to young turkeys, cramp carrying off a good many of them in wet weather.

178. TURKEY POULTS.—As the chicks advance in growth, they will begin to forage for themselves, and they will not require such frequent attention; but they should always be plentifully and even

profusely fed, and an abundant supply of green meat furnished to them. As the season advances, a good-hearted lettuce, shredded fine—never omitting the onion-tops as well—should be often given, and they will soon after this have acquired strength, and commence to know how to take care of themselves. About the age of two months, the males and females will begin to display their different characteristics, and, in the case of the young cocks, the carunculated skin of the neck and throat, and the horn-like contractile comb on the forehead will begin to assume a definite appearance. After this, the time of danger is past, and each day will find them stronger and hardier.

After harvest-time they will do well on the stubbles, upon which they are turned out in Norfolk in great numbers by those who aim at rearing a goodly quantity of turkeys, and, later on, they will feed freely on oak and beech mast. Where there are a considerable number of oak trees, the acorns will form no inconsiderable amount of food for them, and the writer has many times, when keeping a large number of turkeys, found the young cocks that were hatched early in the season nearly half-fattened by the end of autumn from the great number of acorns they have fed upon.

In country places, it pays well to give a shilling a-bushel to the wives and children of the labourers for collecting the acorns.

179. **FATTENING.**—The turkeys, when they have attained a sufficient size and age, should be shut up to fatten according to the time when they will be wanted. Hens, which are considered the best eating, will be ready in three weeks or a month, but the large cock-birds will require two months. The time of fattening should be calculated to a nicety, because, after they have attained a maximum condition, they will begin to go back; and it has not been at all an uncommon experience with bad managers who have not attended properly to them, to find the birds, after having been shut up for a long time, to be in no better condition than when they were first put up for fattening, so that they must be taken when at their best. Barley-meal, and oatmeal mixed up into a stiff paste with milk, is the best food that can be given to them, with the addition of a little corn. When corn only is given to fatten them, it takes a longer time, and the flesh is not so delicate. A supply of water, gravel, &c., the same as recommended for fattening fowls, must not be overlooked, and a solid-hearted cabbage for them to peck at, or a few turnips with the tops on, lettuces, &c., so as to afford variety, should be given.

It is scarcely necessary to mention that, being large birds, the place where they are confined should be roomy and airy, for if kept in too close quarters and crowded together, they will become heated and uncomfortable, and the object in view necessarily defeated. They should also be kept secluded and quiet, away from the other poultry, whose presence is apt to unsettle them.

As before mentioned, after they have passed through the dangers of infancy, turkeys are very hardy birds, and give but little trouble, and can be made very profitable stock under good management, for the old ones will forage for themselves, and, where there is plenty of room, as upon a farm, require but little feeding except a few handfuls of corn thrown down to them morning and evening.

180. **PRODUCE OF TURKEYS.**—A turkey-cock and three hen-turkeys ought to produce annually from forty to fifty young ones, and a pound is no uncommon price for a good turkey to fetch at Christmas time when the breed is large, considerably more being got for handsome specimens, which are much in request at that season, the larger they are their value rising in proportion above the market price per lb., *fancy* prices for the best birds being always easily realisable.





GUINEA FOWLS.

CHAPTER X.

GUINEA-FOWL, DUCKS, AND GESE.

The Guinea-fowl—Pairs—Varieties—To raise a stock of Guinea-fowl—Eggs—Hatching—Care of young Chick—Fattening—Killing—Feathers of Guinea-fowl—Ducks—Lodgings for Ducks—Laying—Hatching—Care of young Ducklings—Vermin—Varieties—Geese—Varieties—Laying—Hatching—Care of Goslings—Fattening—A Day's Work on a Poultry-Farm.

181. **THE GUINEA-FOWL.**—The guinea-fowl is often rejected by poultry-keepers on account of its wandering habits, which is the cause of a good deal of trouble in the collection of their eggs, and on account of the unamiable, pugnacious disposition of the male birds, which often inflict considerable damage upon other poultry with their short, hard beaks, which, although their only weapon, they use so effectually that they will often drive bold, mature cocks before them. These vicious birds will strip off the top-knots from the heads of Polish hens, or demolish at a stroke half the tail of a choice cock, or strip the feathers off the backbones of prized bantams, and make them fly in clouds, and spoil the appearance of half the poultry-yard. When, however, the cocks get used to the novel mode of attack followed by these birds, the tables are often turned upon them, and they get a severe threshing, and the bully is cowed.

182. **PAIRS.**—The hens and cocks of this species resemble each other very closely in outward appearance, though not in behaviour, and experienced persons even, sometimes have a difficulty in determining the sexes. There is, however, an unfailing test, the female

having a call-note, the expression of which somewhat resembles the words, "come back," the greatest stress being laid on the second syllable, which has earned for them the name of "come-backs" in Norfolk.

183. **VARIETIES.**—The varieties of guinea-fowl are not very numerous that are bred in this country, the handsomest being those which are nearly identical with the plumage of the wild species, that are speckled all over with spots, more or less minute, having no white feathers except the first few quills of the wing, which, however, are seldom seen except in flight. There are sports from these at times, of a lighter shade of colour, approaching a lavender hue, but these may not be relied upon as a distinct variety.

The white guinea-fowls are very pretty, and are said not to be more delicate than the other kinds, but if so, they are an exception to the common rule, which accredits the white varieties of almost all fowls with a more tender constitution than their darker-hued relatives. There is another pied variety, as well as others of a much darker hue than ordinary, where the white spots appear to be nearly obliterated.

184. **TO RAISE A STOCK OF GUINEA-FOWL.**—It will be found the best plan by those who purpose to keep guinea-fowl for the first time, to procure the birds in the month of January or February, where they are easily procurable, before they are killed for market, where they are mostly wanted after the game season as substitutes for game, when they fetch a good price in the London market.

Guinea-fowls mate in pairs, the male guinea-fowl not being at all of a polygamous disposition, and preferring a single mate. If more than one hen is allotted to each cock there will be a doubt as to the fertility of the eggs, which is of vital consequence to those who wish to rear chicks. If eggs alone are wanted, it is immaterial how many hens are allowed to run with one cock.

185. **EGGS.**—The eggs of the guinea-fowl, though smaller in size than those of the common domestic hen, are excellent in quality and numerous, the hens commencing to lay about May, and continuing throughout the summer. They are very cunning in searching for out-of-the-way spots in which to lay their eggs, liking to wander by hedge-rows, in coppices, and secluded places, which, however, may often be discovered by the presence of the cock, which keeps near while the hen is laying, and betrays, by his anxiety, the place that has eluded the searching eyes of the boys sent out to watch, and the henwife,

Sometimes they may be decoyed to make choice of a nest by a few roots of trees being placed carelessly in a heap. After the eggs are taken, the nest will be abandoned, unless there happen to be some stray eggs in the immediate neighbourhood, when they will roll these into it. They lay daily, nearly throughout the summer, and the hens will make use of one common nest till the eggs are removed, when they will shift to another.

There is a disadvantage in this late laying, as the hens will not want to sit until the season is so far advanced that it is a work of great difficulty to rear the chicks, which are extremely tender.

186. **HATCHING.**—The best way to get up a stock of guinea-fowl where fertile eggs can be depended on, is to give about twenty of the earliest eggs to a hen to sit upon, by which means a brood may be ensured in June, the time of incubation being twenty-six days, or four weeks. The game-hen is, perhaps, the best breed of fowl that could be selected for the purpose, as the hens are capital mothers, and will cover from fifteen to twenty eggs, though bantams are sometimes employed.

187. **CARE OF THE YOUNG CHICK.**—The rearing of guinea-fowl may be considered a test of the abilities of the poultry-farmer. All the half-hourly care so necessary for the well-being of young turkeys is doubly necessary for guinea-chicks, to whom the least neglect is fatal.

All the little accessories recommended for turkey-chicks, such as ants' eggs and insects, are strictly indispensable for these, which in a state of nature are so amply provided for in their native African deserts, where they frequent the open glades and borders of forests and the banks of rivers, where grain, seeds, and insects abound, and lie in profusion at their feet without the trouble of seeking for them.

Scraps of meat are useful to the young guinea-chicks, as well as curds, worms, and anything of the insect tribe. In order to obtain as large a supply as possible of these, it is a good plan to put the coop of the hen, their nurse, into a vegetable garden, where they will exercise themselves in hunting for their minute prey, and do good rather than harm to the garden.

Like turkey-chicks, guinea-chicks are always in a somewhat critical condition till the horn on their heads is fully grown. With these, this period matches with the acquirement of the red head, or "shooting the red" as it is sometimes called, and the starting of the tail-feathers, which is *the* trying time for turkeys. Up to this time they must receive the most careful and assiduous attention, but afterwards they will be found as hardy as any other kind of poultry, and

forage for themselves far better than most inmates of the poultry-yard. They will desert the foster-mother, and will keep together in a body, prowling about in every nook and corner in search of insects, with much greater perseverance than the common barn-door fowl.

In their natural state they are gregarious in their habits, associating in considerable flocks, which wander about incessantly all day, and collect together in great numbers towards evening, where they roost on the low branches of trees, uttering their discordant cries till they finally settle down for the night.

On the African continent there are several distinct species of guinea-fowl, one of them having a handsome crest or top-knot. The guinea-fowl has also been thought by some to be indigenous to the American continent, being found there, as well as in the West Indian islands, in large numbers; but their presence is accounted for by the fact that, during the slave trade, the vessels which went regularly to and fro from the African continent to America, carried some of the guinea-fowls on shipboard, which, getting turned out into the wild savannahs, bred there in such great numbers as to cause the belief of their being indigenous to that continent also, as well as to the West Indian islands.

Such, in brief, being the circumstances and natural habits of the guinea-fowl, in the care of the young birds, the nearer their condition can be made to approximate to their natural one while being reared up, the better, so far as liberty, a good range, and abundance of insect food is concerned. In a confined space, where a few Cochin fowls would live contentedly enough, although with great care and attention they may be reared, guinea-chicks would not thrive, and they should be left to those who can afford them an unlimited run. Upon a farm they will do well enough, and be found inexpensive poultry to keep by those who can reconcile themselves to their habits.

188. **FATTENING.**—As may well be imagined, from the roving disposition of guinea-fowl, they will not bear shutting up in fattening-coops like ordinary fowls, but, if so treated, will often pine away and die. The best plan will be to enclose the whole brood in some quiet, roomy outhouse, and supply them abundantly with corn, and plenty of green food. The best time of doing this will be about the middle of January.

189. **KILLING.**—It is usual to kill guinea-fowl by dislocating their necks in the same way that pigeons and game are killed, and, when intended for private consumption, they should be kept as long as possible before they are cooked, being generally eaten as a substitute for game, after the game season has ended, and they are a good deal in demand in the London markets, where they fetch seven-and-sixpence a-couple or more. It is not so large a bird as it appears; its full plumage giving to it an apparently larger size than it in reality possesses; when plucked weighing no more than an ordinary fowl.

190. **FEATHERS OF GUINEA-FOWL.**—The feathers of guinea-fowl are as useful as those of other poultry for ordinary purposes,

and are, in addition, much in request for the manufacture of ornamental articles, such as ladies' fans, brooms, feather-trimmings, tip-pets and other articles.

191. **DUCKS.**—The common tame duck is often accredited with being a descendant of the British mallard, which is thought to be supported by the fact that, the wild and the tame birds will freely intermix, the progeny resembling the former more than the latter; while others contend that it was originally received in an already domesticated state from the East.

Ducks may be kept anywhere, even where there is but little water to disport themselves, and be made very profitable; a small hole sunk in the ground, with cemented sides, serving them for a pond, for they are not nice in their appetites, and will eat almost anything, and may be thus kept cheaply enough where there is plenty of refuse, such as boiled vegetables, and the broken pieces from the kitchen, though in a confined space they are somewhat dirty poultry to keep.

They, however, thrive best where they have a good range, and can procure for themselves worms, snails, slugs, and insects and their larvæ, and luxuriate amongst the long grass of hedge-sides and ditches, green lanes, commons, by the sides of ponds, and in orchards. The ditches abounding with tadpoles, and the larvæ of aquatic insects, form capital feeding-grounds for ducks, which will thus obtain a good living, but they should share in the grain thrown down at morning and evening to the other fowls, even where there is abundance of food of their own choosing, so as to attach them to home, and give them a little stamina.

192. **LODGINGS FOR DUCKS.**—Ducks should always have a separate dormitory of their own, and not be allowed, as may often be seen, to group themselves on the ground beneath the perches of the fowls in the fowl-house, where the excrement of the latter fall upon their plumage, and befoul it.

A thin bedding of straw, or other litter, should be spread on the ground for them in an enclosure by themselves, and this should be changed every day, and not allowed to get damp or wet.

193. **LAYING.**—Well-fed ducks usually begin laying in January, or at latest in the month of February. It is customary with those who want to rear early ducks to give from nine to eleven of the first-laid eggs to a hen which may happen to want to sit. The drakes, however, reared by hens are ultimately apt to become troublesome in a mixed poultry-yard, and make too free with the hens.



DUCK AND DUCKLINGS.

While ducks are laying—as they are sometimes very careless about the business, and will deposit their eggs almost anywhere, even in the water—it will be found a good plan not to let them out too early in the morning from their dormitory. The second clutch of eggs the duck should be allowed to take charge of herself, as they are excellent mothers. Ducks lay a great many eggs, generally laying every day throughout the spring. Not more than four or five females should be allowed to a single drake where breeding is aimed at, or otherwise the eggs may prove unfertile; and as ducks' eggs have a strong flavour, and are only used for puddings, as a rule, and the ducks themselves are the main object, this point should not be overlooked.

194. **HATCHING.**—The period of incubation is thirty days, and ducks are capital sitters and mothers. The eggs and nest require no particular attention, beyond that a good nest of straw should be provided, and plenty of broken straw, or hay, be near at hand, to enable the sitting duck to cover her eggs over when she leaves them—a point about which she is somewhat particular.

Food and water should be liberally supplied to her whenever she leaves the nest, and if she is inclined for a bath, it will do neither her nor her eggs any harm, and she should be permitted to take one.

195. **CARE OF YOUNG DUCKLINGS.**—Ducklings are easily reared and fed, and give but little trouble. Soft food which is objectionable for chickens should be supplied to ducklings, of a nutritious nature. Barley-meal, or a mixture of barley-meal and oatmeal, mixed with water—or, better still, skimmed milk—is as good stock food as can be given to them. To this may be added the enriching diet, before recommended, in the form of meat-scrap that may most readily come to hand.

Young ducks should be kept from the water, and not allowed to enter it, till they become properly fledged. Ducklings while only covered with down get wet, and are liable to take cramp and die; and, under the supposition that water is their natural element, many people lose their ducklings in this way, though when completely fledged their plumage throws off the water, and they return from the pond quite dry.

The most successful rearers of early ducks for the market, do not allow their young ducklings to go near the water at all, except to give themselves a good washing before they are killed, but keep them cooped up in a warm place, and feed them liberally. This is carried on to a large extent in many places in Buckingham-

shire and Berkshire, where they are made fat at six weeks old, and are then deliciously tender, and early in the season fetch a very high price for the first-class poulterers, as much as twelve shillings a-couple being then realised, the best breed for this purpose being the white Aylesbury.

196. **FATTENING.**—As it is young ducks only which pay for fattening, and they are hearty eaters, never requiring any cramming, but will eat of their own accord till they are able to eat no longer, barley-meal is generally sufficient of itself to effect the desired object, but some give, in addition, a plentiful supply of grain; ship-biscuit, soaked in broth or beer, together with treacle or chopped mutton suet. By these means, when kept in confinement, they soon become fat.



ROUEN DUCKS.

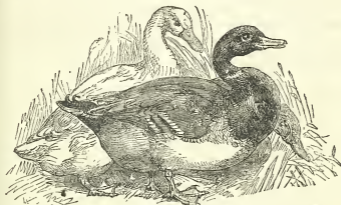
197. **VERMIN.**—If a stock for breeding is required, it will not be necessary to confine them so rigorously, but the water to which they have access should not contain either pike or eels. The rats also should be sedulously extirpated from the ponds and water-courses to which the young ducks have access. Rats and weasels are found to be very destructive to ducklings in many places, and these should be well guarded against. On the other hand, ducks themselves are capital extirminators of the vermin of the garden, which they will soon clear of slugs and snails, doing but comparatively little injury; the worst they can do in this way being to pull up a young cabbage-plant or two, or trample down delicate seedlings, if put into too confined a space.

It will be found a good plan to clip close with a pair of scissors the long down of the tail of ducklings to prevent them getting bedraggled, as dirt will often accumulate in that part; and before finally allowing them to have free access to water, treat them to a preliminary bath or two, in a shallow pan of water.

198. **VARIETIES.**—There are several varieties of ducks, the white Aylesbury being as good as any, and better than most. The Rouen are also a large-sized, useful breed, while the Warwick blues are held in high estimation in their own particular district. This breed is sometimes crossed with the white Aylesbury, many of the

birds thus produced retaining some of the leading characteristics of their progenitors in a somewhat peculiar manner, as a white drake with a green head, which has been seen.

The Aylesbury duck, when pure in breed, should be perfectly white in plumage, with yellow feet, and a *flesh-coloured bill*. There is a breed of ducks also perfectly white, but which have deep yellow or orange-coloured bills and feet, and are smaller in size than the true Aylesbury, for which they are often mistaken; but these are, indeed, the white call-duck, a more active and independent bird than the white Aylesbury, but not nearly so profitable



DUCK AND DRAKE.

a breed to keep. The three first-mentioned breeds will be found the most profitable varieties. As fancy ducks, the black East Indian are very handsome, the feet, legs, and entire plumage being black; the neck and back, and the larger feathers of the tail and wings, being gilt with metallic green; the female also exhibiting the same markings in a lesser degree.

One peculiarity attached to this species is, that at the commencement of the season they lay black eggs, this unusual appearance not being caused by any external stain, but by a sort of oily pigment, which may be scraped off; the eggs, as the laying is proceeded with, gradually fading off to the colour of ordinary ducks'-eggs.

The musk duck, often wrongly termed the Muscovy duck, is remarkable for the musk-like scent exhaled by its skin, and is con-

siderably larger in size than the common duck, the male being larger than the female. Scarlet fleshy caruncles surround the eyes, continued from those situated at the base of the beak, while the cheeks are somewhat naked. It is a native of South America, but was very early introduced into the poultry-yards of Europe. The Cairo duck described by Aldrovandi, who has not the reputation of being a very precise author, and the Guinea duck of some other writers, are identical with the musk duck.

The white variety is also supposed to be a native of South America, to which Willoughby gave the title of the "Brazilian Specu-Guaca of Piso."

199. **GEESE.**—Geese are capital stock to keep where there is sufficient accommodation for them; but, upon highly-farmed land, or rich pastures where cattle graze, they are considered objectionable, and spoil the grass, as the cattle object to eat after them, where a large number are kept.

In the neighbourhood of commons, or upon sterile land and uncultivated districts, geese can be made to answer well, and their rearing gives less trouble to the poultry-keeper than any other kind of domestic fowl.

The domestic goose is said by many to be a lineal descendant of the gray-lag goose, whose migratory habits caused it to be a frequent and continuous resident in our island, breeding freely in the fenny districts of Lincolnshire and Cambridgeshire; but there is no distinct proof of this being the case, the improvements in agriculture, the drainage of marsh-lands, the enclosures and general improvement of the soil, which is now mostly under the plough, having driven it away to more undisturbed districts.

200. **VARIETIES.**—Many breeders prefer the entirely gray kind of goose, which approaches as nearly as possible to the gray-lag wild goose in plumage; but the choice of breeds is almost nominal. Ganders are generally found to be more pure white than geese, but when flocks are all white, they are generally called Emden geese, after the name of a town in Hanover; but these differ very little, in the district from whence they take their name, from British geese. The Toulouse geese are of a very large size, but these do not possess any distinct attributes otherwise.

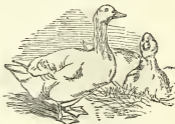
The China goose, or the Chinese goose, the *Anser cygnoides* of naturalists, is a native of China and other parts of Asia, and is known under a great variety of names, as Hong-Kong, Asiatic, Knot-Muscovy, Spanish, Polish, Guinea, &c., prefixed to the word

goose. It lays an abundance of eggs, but at uncertain intervals, falling most in March and October.

The goslings are hardy, while the ganders are larger than the geese, and attain to heavy weights, walking with an upright carriage; and, being noisy by day and very wakeful at night, are as good as watch-dogs in announcing the presence of strangers on the premises.

The domestic goose, however, is the only one upon which the poultry-farmer can rely with certainty, and these do not arrive at their best-paying condition till they are three or four years old. Until they attain this age the layings are less frequent, and their young are not so strong. Not more than two or three geese should be allotted to one male, otherwise the eggs may prove unfertile.

201. **LAYING.**—If geese are well-fed during the winter, they will begin to lay early—the middle of January being about the general time—though later if poorly-fed. It is a mistake to think geese will be enabled to procure sufficient keep from commons and roadsides; for, although they will eat a good deal of grass, they require corn as well, at morning and evening. Young geese that are underfed often pine and die off, and it is false economy to half-starve them.



EMDEN GESE.

202. **HATCHING.**—Some breeders employ turkey-hens to hatch goose eggs, and these have been found to answer tolerably well by those indisposed to take the trouble of rearing turkeys. Goose eggs are sometimes given to hens to hatch, but the animal heat of the hen is hardly sufficient for the purpose, and when so employed not more than four eggs should be given to her, and then only during the warmest weather; but the practice is not to be recommended under any circumstances.

A goose will cover eleven of her own eggs, but more are sometimes given if she has laid them, which is not a good plan, eleven being quite sufficient for her to take care of properly. The time of incubation is thirty days, a little more or a little less, according to the warmth of the season. When hatched, the goslings are best left all night with their mother.

203. **CARE OF GOSLINGS.**—Soon after the goslings are hatched,

it is customary with most breeders to feed them with "pegs," a delicacy made in the following manner:—An egg is broken into a cup with as much flour as will make a stiff paste. This paste is rolled on the palm of the hand into pellets about half-an-inch long, and about the thickness of a straw. These pellets are dried before the fire, and after being first wetted with water or milk to make them slip down easy, they are administered by cramming. This is usually done about three times a-day, three or four at a time, for the first month after the birth of the goslings. The process is not a necessary one, but it is supposed to hasten their growth, and make them finer birds.

In fine weather, the goose may be turned out with the goslings upon short, sweet grass, when the gander will assiduously protect them; but if the weather is severe they should be kept in a roomy outhouse, and supplied with plenty of green food which is indispensable, such as turnip-tops, cabbage, turves of grass, &c., and be well supplied with dry litter to keep off attacks of cramp to which the goslings are liable if they lie upon the cold, bare ground.



TOULOUSE GESE.

Barley-meal, mixed up into a paste, is as good food as can be given to them at first, and as soon as they can eat corn they ought to have plenty, and their food varied occasionally; rice, not boiled too much, making an agree-

able change to them.

204. **FATTENING.**—With good management, a green goose may be made ready for market in three months from the time of its birth. About the age of four months, however, is, perhaps, the most usual time taken. Many fatten upon oatmeal and peas, mixed with skimmed milk, and various kinds of grain in addition; and the time of fattening will have to be regulated by the degree of fatness required—a fortnight, three weeks, or a month. The parent birds should also share in the liberal diet given to the goslings, so as to hasten the eggs for a second brood.

205. **A DAY'S WORK ON A POULTRY-FARM.**—We will conclude by giving the routine of a day's work on a poultry-farm, that we will assume has been established in some dry, sandy district or other, well-adapted for the successful rearing of poultry, plenty of which districts are to be found in the county of Surrey.

The first thing in the morning, at five or six o'clock, the doors of the fowl-houses should be opened, to let out their inmates, which will come bustling down off their perches with eager haste, some, perhaps, being already on the ground; and the doors and windows of the fowl-houses should be left wide open, for the purpose of ventilation.

If the ducks are laying, the gate of their enclosure should be kept shut, if there are no eggs in the nest; but, as the poultry-man carries a bag of corn with him to feed the fowls, as they come rushing out from the hen-houses, a few handfuls should be put inside the ducks' enclosure by the gate, where the ground is clean and clear, so that the food does not become commingled with the straw which forms their bed. The hens, when they have finished their share, will run also to the ducks' enclosure, to get what they can from the ducks; but the latter having spoon-like bills, and the grain laying thick, will generally manage to secure their allowance pretty well, the hens having to insert their heads and necks into the enclosure, which occasionally receive an admonitory tap from the inmates.

After being thus fed, laying ducks will generally deposit their eggs, and, this finished, their liberty should be granted to them.

Their inmates having vacated the different houses, these should all be thoroughly swept out, and made clean, the litter from under the ducks removed, and fresh straw, or whatever kind of litter may be used, put down. Before this is done, however, all the water vessels should be cleaned, rinsed out, and fresh water supplied to each. All the sweepings should be removed to the manure heap, to which they will form a valuable addition.

If it is breeding-time, the coops of all the hens, turkeys, and ducks should be moved, so as to stand on fresh ground, their inmates being fed the first thing, and continued to be fed, discontinuing the other jobs in hand from time to time, in order to do this, which must be never neglected.

While the hen-houses are being cleaned out, the eggs can be collected, which are best placed in a proper wicker egg-basket, at once, where they will be safe. Amateurs are very apt to put eggs into their pockets, and sometimes forget they are there, till disagreeable consequences ensue, and they are reminded of their forgetfulness.

Fresh dust and gravel should be put down in heaps, where they are required, and the ground beneath the perches strewed with

light soil, sand, or litter, so as to keep the houses as clean as possible.

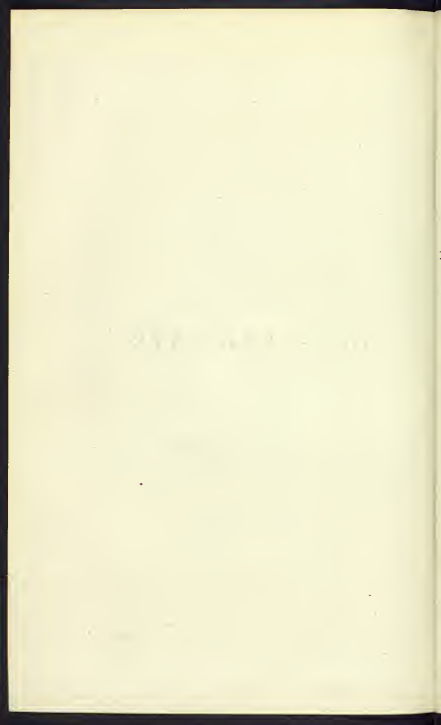
Green food should be procured for all the imprisoned fowls, and given to them, as well as to the chicks of all kinds; and by the time all this work is done, where there are a great many head of poultry to look after, the day will become far advanced, and it will be getting near the poultry-man's dinner-time.

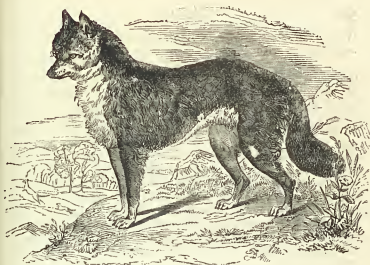
After dinner, the chicks of all sorts demand first attention in feeding, which must be supposed to have been done every hour in the meanwhile, in the case of young turkeys, and every half-hour in that of guinea-fowl, while the other work has been going on, to which there must necessarily be constant interruption. The windows and doors of the hen-houses should now be closed for the night, leaving only the small sliding little door open, by which the fowls can be admitted, as some birds go to roost earlier than others, and quiet is thus secured, and their rest undisturbed.

As the afternoon wears on, the chicks of various kinds will show the fatigues of the day are beginning to tell upon them, and they will be found nestling beneath the wings and plumage of the mother-hens; and these—where boards or shutters are provided to guard them from rats, or other vermin—should now be closed, and all shut in comfortable for the night. Before this is done, however, a good look should be taken around that no adventurous little chick, that has roamed off, be shut out; for those will be the strongest and self-reliant birds, that will do the most justice to their bringing up.

The boiling, and preparation of food, getting green food together, looking after coops and other appliances used upon the poultry-farm, will fill up the rest of the day, and all form pleasant occupations, agreeably diversified to those fond of dumb creatures, whose various peculiarities and characteristics offer an inexhaustible fund of amusement, while the time and care bestowed upon the different charges will be amply compensated for by the solid returns in the shape of produce made on a well-managed poultry-farm, and the thriving condition of all the stock upon it.

DOGS AND CATS.





THE DINGO.

THE DOG.

CHAPTER I.

WILD DOGS.

Origin of the Dog—The Dog and the Wolf—The Dingo—The Dhole—The Hunting Dog—The Buansuah—The Pariah Dog.

1. **THE ORIGIN OF THE DOG.**—This has always been a disputed point, so at the very outset of our task we find a difficulty confronting us. Some writers will have it that our faithful friend owes his being to the dhole or the wolf. Some authorities argue that all domestic dogs are of the same species; others, on the contrary, maintain that there are numerous species. The fox and the jackal have both been named as the progenitor of the dog. But all authorities are agreed that there is a great diversity amongst the various kinds, differing in many respects, "mentally" and physically. But it is impossible to reconcile the various theories advanced.

We can only state, as other writers of greater erudition have stated before us, the origin of the domestic dog is obscure.

2. THE DOG AND THE WOLF.—These have certain traits in common which seem to indicate the latter as the parent animal. Mr. Bell ascribes to the dog and the wolf specific identity. The period of gestation is the same in both animals, and the argument of the obliquity of the wolf's eyes in opposition to the more forward look of the dog, Mr. Bell has disposed of by the reasoning that the dog's habit for many generations of looking up to his master and obeying him may account for this difference in the position of the eyes. Mr. Bell further quotes instances of rare attachment in the wolf, and argues that with "analogous properties of form and structure, as well as disposition, I cannot but incline at least to the opinion that the wolf is the original source from which all our domestic dogs have sprung; nor do I see in the great variety which exists in the different races sufficient ground for concluding that they may not all of them have descended from one common stock."

"Upon the whole, the argument in favour of the view which I have taken, that the wolf is probably the origin of all the canine races, may be thus stated: the structure of the animal is identical, or so nearly as to afford the strongest *a priori* evidence in its favour. The dog must have been derived from an animal susceptible in the highest degree of domestication, and capable of great affection for mankind; which has been abundantly proved by the wolf. Dogs having returned to a wild state, and continued in that condition through many generations, exhibit characters which approximate more and more to those of the wolf, in proportion as the influence of domestication ceases to act."

One of the most decided objectors to the above theory is Mr. Richardson. His arguments are terse, energetic, and to the point:—

"I positively deny this assumed identity of structure. The intestines of the wolf are considerably shorter than those of the dog, evidently marking him as an animal of more strictly carnivorous habits. The orbits are placed higher and more forward in the skull. The proportion between the bones of the hind legs differs; so does the number of toes. The structure of the teeth is different, these being in the wolf much larger, and the molar teeth of the upper and under jaw being adapted to each other, in the wolf, in a peculiar *scissors*-like manner, rendering them infinitely more serviceable for breaking bones—a structure not found in the dog.

"The wolf is not 'susceptible of the highest degree of domestication, and capable of great affection for mankind, which has been abundantly proved of the dog.' When has it been proved? I have seen many so-called 'tame wolves,' but never one that might be trusted, or that did not, when opportunity offered, return to his fierce nature and wild habits. The whelps, too, produced by these partially domesticated wolves are not in the smallest degree influenced by the domestication of their parents.

"How does it happen that the dog is to be met with in every quarter of the globe to which man has penetrated, while the true wolf has never yet been met with south of the equator? Further, are not several distinct species of wolf admitted to exist? Is there not more than one distinct species of wolf admitted by naturalists to exist in North America alone? It has not even been attempted

to be proved that these species are identical; their distinctness has been more than tacitly admitted. Yet they resemble each other far more closely than any wolf does the dog. Has the dog, then, been derived from each and all of these wolves; or has the original wolf origin alike of wolf and dog been yet properly indicated? Should not this fact be duly ascertained prior to that in question?"

In a note to his translation of Cuvier's "Regne Animal," Mr. Blyth thus expresses his opinion respecting the domestic dog's origin:—

"If the idea, which I conceive there is every reason to entertain, respecting the origin of the domestic dog be well founded, it is clear that a recurrence to a single wild type would be impossible. The dog is apparently a blended race, derived principally from the wolf, and partly from various other allied species."

That the wolf possesses the mental qualities, and is capable of the same strong attachment to man as the most faithful dog, has been abundantly proved by the observations of M. F. Cuvier and others; and the unremitting persecution to which it has been necessarily subjected in Europe for so many years will sufficiently account for the savage and distrustful character which it exhibits when unreclaimed: though even then the germs of a better disposition are traceable in the permanent attachment of the male and female, and sociality of the young.

3. **WILD DOGS.**—The Dingo, or Warragal, which, as before observed, has had the credit of being the progenitor of the dog, was at one time supposed to be a native of Australia. Later research has proved that the animal is an importation. The dingo is something like the wolf in appearance; in colour a reddish brown. The head, as will be seen from the illustration on page 1, is like the fox, as is also the tail, but not so good a brush as Master Reynard's. It is very savage, and a great sheep worrier, and will not touch cooked meat. It possesses something of the manner of the domestic dog, but is extremely wild and savage, and when annoyed it erects its hairs porcupine fashion, without a warning growl or bark.

Dingoes roam the country in packs, each pack keeping to their own territory. They are a terror to sheep-farmers, and being very wary, agile, and fierce, they do a great deal of mischief among the flocks. The dingo's tenacity of life is remarkable; it will suffer itself to be beaten apparently "to a jelly," and when the hunter has departed, the seemingly dead animal will get up and limp away. It is somewhat cowardly in its nature, and, like many nobler animals, will rather run than fight. But when compelled to turn to bay, it will fight fiercely. It is about two feet high, and measures two and a half feet from snout to tail.

4. **THE DHOLE, or KHOLSUN,** inhabits the western frontiers of British India. Its colour is bright bay, deeper on the muzzle, ears, feet, and tip of tail, than elsewhere. It is under two feet in height, and rather slim in build. It is a very shy animal, abiding in the depths of the jungles, and never venturing near the abode of man. Like the other wild dogs, it forms packs, and hunts down its game, both large and small. The dhole is a brave dog, and has no fear even of the terrible tiger.

"From the observations which have been made," writes a naturalist, "it seems that hardly any native Indian animal, with the exception of the elephant

and the rhinoceros, can cope with the dhole; that the fierce boar falls a victim, despite his sharp tusks; and that the swift deer fails to escape these persevering animals. The leopard is tolerably safe, because the dogs cannot follow their spotted quarry among the tree-branches, in which he fortifies himself from their attacks; but if he were deprived of his arboreal refuge, he would run but a poor chance of escaping with life from his foes. It is true, that in their attacks upon as powerfully armed animals as the tiger and the boar, the pack is rapidly thinned by the swift blows of the tiger's paw or the repeated stabs of the boar's tusks; but the courage of the survivors is so great, and they leap on their prey with such audacity, that it surely yields at last from sheer weariness and loss of blood."

5. **THE "WILD HONDIN,"** or **HUNTING DOG**, which would seem to be a connecting link between the dog and the hyæna, is a native of Southern Africa. Its general colour is reddish or yellowish brown, marked at intervals with large patches of black and white. The nose and muzzle are black, and the central line of the head is marked with a well-defined black stripe, which reaches to the back of the head. The ears are extremely large, and covered with short black hairs. From their inside edge arises a large tuft of long white hair, which spreads over and nearly fills the cavity of the ear. They hunt in packs, and when in pursuit of game are very wolf-like in their behaviour, and for a wonderfully long period maintain a long-strided, leisurely gallop.

Against hunters' dogs they are bitterly antagonistic; and should a Boer or a hunter lose his pack and urge them to fight, the pack of hondins will open to permit the tame dogs to enter amongst them, then suddenly closing upon their enemies they will tear them to pieces.

6. **THE BUANSUAH.**—This animal, found throughout Northern India, in habit closely resembles the dhole. Like the latter animal, it is shy, bold, and hunts in packs. Unlike the dhole, however, it is capable of uttering a sort of bark, which, though quite distinct from that of the domestic dog, can be described by no other term. It is a bulkier dog than the dhole. When captured during its puppyhood, the buansuah may be trained to obey its keeper, to help him in the chase, and to come and go at command. Having, however, succumbed to one human being, the animal evidently regards it as by no means a natural consequence that he is to be regarded by the community at large as a tame dog. The individual who has tamed him is welcome to his services; but to the rest of the world he is a wild dog still, and willing to substantiate the title against anyone rash enough to dispute it. For this reason it would seem improbable that the buansuah will ever be numbered among domestic dogs.

7. ASIATIC DOGS.—These dogs, including the mongrel *pariahs* of Ceylon, may be passed over with a reference. These pariahs divide into bodies, and, portioning the city into lots, each body keeps to its own ground. Should a dog of one body pass the boundary and trespass on the ground of another body, he will infallibly be fallen on and devoured.

A modern writer relates that not long ago a traveller, who was well accustomed to the East, was rather in a hurry, and took a short cut through some bye-way. As commonly happens, the short cut proved a very long one, for a number of these dogs, resenting the intrusion of a stranger on their particular territories, immediately assaulted him. He was forced to stand at bay, with his back against a wall, exerting all his energies, to the discomfiture of the leader of the pack, a ferocious-looking cur, scarred in all parts of his body by the numerous battles in which he had been engaged. In this position he waited until help arrived, and took this as a warning never again to go by a short cut in an Oriental city, where dogs are a terrible nuisance at all times, and particularly in the hot season.





CHAPTER II.

THE DOG IN ITS RELATION TO MAN.

Instinct—Classification—Legal Aspect of Dogs.

8. **THE DOG THE FRIEND OF MAN.**—From a very early period indeed the dog has been man's companion, but in the Bible the dog is usually mentioned with disparagement. This is accounted for by the habits of the Asiatic dogs referred to in the previous chapter. In those Eastern countries the dog was not man's companion, but we have very early examples of the domestication of the dog in Nineveh marbles and sculptures, in hunting scenes, and other Egyptian hieroglyphics.

9. **ANTIQUITY OF THE DOG.**—The dog has ever been held in the highest esteem in all countries except the East, though Homer relates an anecdote of the dog with the most touching simplicity. The ancient fire-worshippers of Persia recognised the dog as the "good principle" by which they were enabled to resist the assaults of the evil powers. They symbolised Ormord, their god, in the form of a dog; for, to a nomad race, there is no animal so dear, no type of a divine watchfulness so true, as the protector of the

herd. A thousand lashes was the punishment for maiming any able dog, and it was a capital offence to kill one. The sight of a dog by dying men was said to comfort them with bodings of the conquest of all evil, and of their immortal peace. In later times, the Persians held it to be a good token for the dead if a dog approached the corpse and ate from between the lips a bit of bread that had been placed there; but if no dog would approach the body, that was held to be a sign of evil for the soul. In the feasts of Isis the dogs walked before men, and were received as household deities, as symbols to avert evil. The household gods of the Romans were dressed in dogskin.

Among the old Franks, Suabians, and Saxons, a dog was held in small esteem; nevertheless, and, indeed, for that cause, he was not seldom set over the highest nobles of the land. If a great dignitary had, by broken faith, disturbed the peace of the realm, a dog was put upon his shoulder by the Emperor. To carry a dog for a certain distance was, in the time of Otto the First, and after it, one of the severest punishments inflicted on unruly prisoners. Nobles of lower rank carried, instead of the dog, a chain; peasants, a plough wheel. The

Peruvians both worshipped the dog and ate it at their most solemn sacrifices. According to Kaempfer, the Japanese regard the dog with religious awe. Among ancient as well as modern Britons, the dog was an honoured companion. *Cu*, in the ancient British language, signified a dog, and among the ancient mighty British chiefs are found Cunobelin and Canute.

There is a pretty little Eastern legend about the dog:—"When Adam was driven out of Paradise, all the animals, that aforesaid had delighted to follow him, fled at his approach. In deep sorrow he sat down upon a rock and covered his face with his hands. Soon, however, he heard a rustling in the bushes and felt a soft tongue gently trying to lick his covered face. He looked up, and met the liquid eyes of a dog brimming over with love and compassion for his fallen master, and Adam was comforted; for he found there was still *one* creature that forsook him not, but preferred his company to a life of wild liberty. And ever after, through succeeding ages, the dog has been, of all animals, 'the friend of man.'"



DOG WORSHIP IN EGYPT.

10. **IMPROVEMENT IN THE DOG.**—Of late years the dog has risen in the social scale, there is no doubt. The frequent recurrence of dog-shows and the care bestowed upon the canine species are certainly elevating; though we can as yet scarcely expect our dogs to talk, as the shepherd's dog of Weissenfels did. That this improvement in social position is due to greater civilisation is no doubt in a sense true, though in elegant and learned Venice we read of Shylock complaining of being treated like a "stranger cur"—viz., kicked. The dog is also greatly indebted to Sir Edwin Landseer, who pictured him in all sorts of circumstances, and created much sympathy for him as a "distinguished member of the humane society."

All good men have been and are merciful and considerate to dogs and to the brute creation generally. "The just man is merciful to his beast," and this consideration is recognised by the dog almost more than by any other animal. Not only that, but the faithful creatures will caress the hands that ill-treat them. As truly says Cuvier, "the dog is the most complete, the most singular, and the most useful conquest ever made by man. The dog, far more than any other animal, becomes a humble friend and companion of man, often seeming actually to know and sympathise with the joys and sorrows of his master; and on this account it is that he is alike the pampered menial of royalty and the half-starved partaker of the beggar's crust."

11. **USES OF DOGS.**—The various uses to which dogs are applied are very numerous, and will appear more directly as we proceed to consider the different species and breeds. In some parts of the Continent dogs are employed to draw carts; in Lapland and in the "Great Lone Land" and other regions dogs are used in sledges. In England they are generally kept for the chase or sport, for defence and as ladies' pets. Sheep-dogs are wonderfully trained and possess instincts perfectly suited to the work they have to perform; and who has not noticed the "blind man's dog," which leads his master with such rare sagacity, or has not read the touching ballad of "Old Dog Tray"?

12. **THE INSTINCT OF THE DOG.**—This is one of the facts of Natural History that has given rise to much speculation. Instinct or Reason? We can scarcely separate the two attributes. What says chatty old Montaigne upon this question. "Wherefore do we not affirm boldly that this faculty is no other than knowledge and true wisdom? For verily this setting of their bright wit to the account of instinct, or Nature's schooling (clearly done to vilipend their worth), doth not at all filch from them the title to wisdom and true knowledge, but maketh such gifts attach with greater certainty to them rather than to us, all to the glorification of so sure a school-

dame." We may by-and-by have to relate many anecdotes of the sagacity of the dog, but we will now touch upon the wonderful faculty he has for finding his way from place to place.

Many domestic animals possess this faculty. The pigeon, the bee, the horse, the cat, and the dog all have the "homing" instinct, and no animal possesses it in greater perfection than the dog.

13. **HOW DOGS GET HOME.**—This is a question which has puzzled more than one writer. There is the fact, however, which admits of no dispute, and that is that the best-trained dogs return over the greatest distances, and surmount the greatest obstacles. Thus it may appear a matter of education, but we are more inclined to rely upon "scent" as the means whereby the "homing instinct," so called, is developed. No one will deny the very sensitive noses possessed by dogs, and when the sense of smell can be developed in a blind human mute to such an extent that she can distinguish visitors by scent, and assign his or her gloves even from a heap, there is nothing very extraordinary in the statement that the more acute perception of an educated dog will discover smells by the wayside (in addition to his possible communications with other dogs) which will lead him home even though the way be almost unknown. Memory and sight will of course aid the animal greatly, and there is no doubt in our mind that dogs (equally with other animals) can converse, or at any rate exchange doggish ideas.

The Rev. J. G. Wood, in his interesting book, "Man and Beast," gives several instances of this wonderful power of dogs to regain their homes. A dog has found his way (on shipboard) from Calcutta to his home in Scotland, and another from Manchester to Holywell, in Flintshire. All evidence tends to prove that the natural intelligence of the dog, assisted by memory, sight, and smell, and developed by education and by association with human beings, enables him to find his way back to a place he regards with affection. We seldom find a dog make a mistake in the way; and we, therefore, conclude that he does not attempt the feat until he is pretty certain of his course. But, after all, we can only speculate, though no one will deny reasoning powers to the dog.

14. **THE CLASSIFICATION OF THE VARIOUS SPECIES OF DOGS** has never been satisfactorily accomplished. Colonel Hamilton Smith is frequently quoted as an authority on this point. He has arranged dogs into six groups, as follows:—

a. *The Wolf Dogs.*—Siberian, Esquimaux, Iceland, Newfoundland, Nortka, Sheep, Great Wolf Dog, Great St. Bernard and Pomeranian Dogs.

b. *Watch and Cattle Dogs.*—Boar Hound, Danish Dog, Matin, North American Indian Dogs, &c.

c. Greyhounds.—Irish Hound, Lurcher, Egyptian Dog, and the various greyhounds so-called.

d. Hounds.—Bloodhound, Old Southern Hound, Staghound, Foxhound, Harrier, Beagle, Pointer, Setter, Spaniel, Springer, Cocker, Blenheim, Retriever, &c.

e. The Curs.—Including the Terriers and their allies.

f. The Mastiff.—Bull Dogs, Pugs, and Mastiffs generally.

Mr. Richardson arranges dogs differently in three groups, according to structure:—

a. Elongated Muzzle and Slender Form.—The Greyhounds, Wolf Dogs, and Deerhounds.

b. Acuteness of Smell.—Sporting Dogs, Bloodhound, Turnspit, Newfoundland, Pomeranian, Esquimaux, Labrador, Siberian, Iceland, and Shepherds' Dogs.

c. Combative and of Robust Stature.—Mastiffs, St. Bernards, Pugs, Bull Dogs, &c.

15. LAWS RESPECTING DOGS AND DOG-KEEPING.—*The Legal Aspect of Dogs* may be touched upon here in concluding this chapter. We quote the Act. The keeping of vicious or destructive dogs, except under proper precautions, is illegal, and the owner of the offending animal is liable for the damage done unless it can be clearly shown that the fault lay with the party injured. Measures of precaution may be enforced against dogs suspected to be savage. If a man have a dog which he suspects to be of a savage nature and addicted to bite, and he allow it to go in a frequented place without being muzzled or otherwise guarded, so as to prevent its committing injury, he may be indicted, in England, as for a common nuisance. If the dog be of a ferocious kind, as a mastiff, it has been held that it must be muzzled, and it will be no defence in an action of damages against the master that the person injured trod on the dog's toes, for he would not have trod on them if they had not been there. The harbouring of a dog about one's premises, or allowing him to resort there, will warrant indictment. If a dog known to his proprietor to have previously bitten a sheep be retained by him, the proprietor will be liable for all other injuries, even to any other animals, *e.g.* a horse ("Burn's Justice of the Peace," vol. ii., p. 333). An interdict may be granted against a dog going loose pending a discussion of the question as to whether or not he ought to be killed. Many local police acts contain provisions as to shutting up or muzzling dogs during the prevalence of weather likely to produce hydrophobia; and

where such do not exist the subject may be dealt with by a magistrate at common law. Dog-stealing is a misdemeanour punishable, on summary conviction, for the first offence by six calendar months' imprisonment and hard labour, or fine not exceeding twenty pounds above the value of the dog. The second offence is an indictable one punishable by fine or imprisonment and hard labour not exceeding eighteen months, or both. Similar punishment is provided for persons having in their possession dogs or dogskins, knowing them to be stolen. A dog going into a neighbour's field does not afford ground for an action of trespass unless he does mischief; and even then the person who kills him may, in certain circumstances, be liable for damage.

Any person, not being the owner, or acting under authority, who administers a poisonous or injurious drug or substance to a dog is liable to fine and imprisonment with hard labour; but the magistrate may take into consideration any reasonable cause or excuse.

The duty charged on every dog over six months old (with the exceptions hereafter stated) is seven shillings and sixpence annually, for which sum a licence is issued. Dogs used solely for the guidance of a blind person are exempt. Dogs used for the purpose of tending sheep or cattle on a farm and shepherds' dogs are also exempt; but the exemption only extends to three dogs for four hundred sheep on common or unenclosed land, to four dogs for a thousand sheep, and to an additional dog for every five hundred sheep over that amount; but no more than eight dogs altogether will be exempted. A shepherd can keep only two dogs free of duty. A master of hounds may claim exemption for whelps under a year old, which have never been used for hunting.

THE ACT OF 1871 (ABRIDGED).

(1). From and after the passing of this Act, any police officer may take possession of any dog that he has reason to suppose to be savage or dangerous, straying on any highway and not under the control of anyone, and may detain such dog until the owner has claimed the same and paid all expenses incurred by such detention.

When the owner of any dog taken possession of by any constable is known, a letter stating the fact of such dog being taken possession of, shall be sent by post or otherwise to the owner, at his usual or last known place of abode.

When any dog taken in pursuance of this Act has been detained for three clear days, where the owner is not known, or five clear days where he is so known, without the owner claiming the same and paying all expenses incurred by its detention, the chief officer of police of the district in which such dog was found may cause such dog to be sold or destroyed.

The Act then decides that money received from such sale shall be paid to the account of the local rates, and that all dogs detained shall be kept at the expense of the rates.

(2). Any court of summary justice may take cognisance of a complaint that a dog is dangerous and not kept under proper control, and if it appear to the court that such dog is dangerous, the court may make an order in a summary way, directing the dog to be kept by the owner under proper control or destroyed, and any failure to comply with such order will entail liability not exceeding 20s. for every day the order remains disobeyed.

Dogs mad, or suspected of being so, may be restrained by the local authorities, and they may restrict such dogs not under the control of any person, and anyone acting in contravention of any order made in pursuance of this section shall be liable to a penalty not exceeding 20s.

These are the principal clauses of the Act of 1871 against dogs. But no definition of "proper control" is given; and the "suspicion" of hydrophobia is rather a hard measure, considering how few people know much of the symptoms of the mania.





CHAPTER III.

DOG BREEDING.

Management of Puppies—Treatment—Washing—Diseases of Dogs—Education.

16. **BREEDING DOGS.**—We may take it for granted that the owner wishes to secure as perfect an animal as possible, and therefore it behoves us to take care that the female is of pure breed. This is especially desirable, as, if not of good pedigree, she may produce “mongrels.” No dogs are much use for breeding purposes before they are two years old, and care should be taken that the parents are healthy and strong, well educated and well formed. With such a beginning you should produce a fine litter.

Sixty-three days is the period of gestation in the dog; and as the lady-dog is rather fastidious respecting her offspring, a nice warm place should be prepared for her. But be careful that she be not exercised too much; no violent exercise is permissible before the anticipated event takes place. For some days previous to the birth of the pups, some boiled sheep's-head, carrots, and milk will be of use and assistance. Be sure that she is not worried or intruded on, except when it is necessary to call in proper assistance. But, as a rule, Nature had best take its course. Food must not be forced upon her, and she may safely be left alone. Mind that she has water and air, but no draughts.

17. **MANAGEMENT OF PUPPIES.**—As to the management of the puppies, it should be laid down as a rule that all handling is injurious. You may feel tempted to do so, but you will probably hurt the puppies and annoy the mother or at least cause her great anxiety. After they are four or five days old, the pups may be taken out and their dew-claws cut; or then those you do not require may be taken away from their mother; or a foster-mother may be procured if the children are too many for her.

18. CARE OF THE MOTHER.—Be careful that excessive fondness for her progeny does not so far lead her to neglect exercise as to injure her health. No doubt she will, on the day following the birth of her family, be very loth to respond to your whistle, and would much rather stay at home and cuddle her babies than go a-walking. In this, however—always assuming her to be a healthy animal—she must not be indulged. Take her a short walk, say of a mile's length, and then let her return to her family. Afterwards, she may be expected to get about pretty much as usual.

Some she-dogs are averse to suckling the pups they give birth to; others will, as is the case with cats, rabbits, and other animals, eat them as soon as they come into the world. Both sorts of dogs are, of course, objectionable; but, in my opinion, the last mentioned is least so. The dog that evinces no inclination to give suck to her pups, is, in all probability, physically incapable of performing that necessary function, and will remain so, to the expense and perplexity of her owner, as long as she lives; but the disposition to cannibalism is not likely to be a fixed propensity. As no satisfactory cause for the apparently unnatural act has yet been assigned, one cannot be wrong in choosing to ascribe it to benevolent rather than to malicious motives. One thing is certain, that the animal may eat her pups once, and never, in the whole course of her life, repeat the eccentricity. Indeed, it has been remarked that such dogs are generally among the most affectionate and well disposed.

The mother of the pups must be carefully fed. Healthy pups will, after the first few days, add at least an ounce daily to their weight; and in cases where the unlucky mother has five or six youngsters, it may be easily imagined that the drain on her system must be enormous—five ounces of puppy flesh and bone to be realised from her teats! At the same time, it must of course be borne in mind that *discrimination* as regards feeding must be observed as scrupulously now as at any other time.

19. TREATMENT.—With dogs of value, especially "toy" dogs, there is a natural desire on the part of the owner to save as many of each litter as possible, and he need be in no fear but that the affectionate parent will gladly second his designs—frequently, however, with lamentable results to all parties. Dogs of choice breeds, especially those of smaller size, are seldom particularly strong, and cram them with as much nourishment as you please, they are still unable to produce sufficient milk for the maintenance of the little troop of gluttons. You may easily ascertain if her strength is being overtaxed. While she is suckling, her countenance, instead of being expressive of unmistakable pleasure and content, will wear a

nervous, jaded air, and she will, from time to time, "nose" among the restless suckers, as though conveying the gentlest hint in the world that they have been pulling a longish time, and now, perhaps, wouldn't mind letting mother have a bit of rest. She does not recline easily with her progeny at her dugs, but lies along the ground and pants, as though, as is actually the case, her very life was being drained out of her. She will get up and go creeping about the house in the most anxious and melancholy way, and maternal care presently conquering bodily pain, back she will go to the kennel, to be at once seized by the hungry pups, who, of course, pull all the harder for there being little to pull at. The end of this is that the poor mother has fainting fits.

There is but one way of saving the poor animal. The fits of themselves are not imminently dangerous, but they indicate a state of such extreme weakness that the dog may be said to be bound straight for death, unless the existing condition of things be altered. Tonics must be administered and the mother at once removed from her progeny. As to the latter, you must either bring them up by hand or provide them with a foster-parent.

As a rule, the hand-raised puppy will at the end of a month be sufficiently established in life to be equal, in a certain degree, to the business of self-feeding. Its tender mouth, however, must not at first be too severely tasked. A mixture of finely-shredded meat, mixed with soaked ship-biscuit or boiled rice, is as good food as any.

The feeding of mother and puppies is a matter of very great importance. Food should be nourishing, light, and cleanly prepared. Milk-and-water may be given warm to pups when they begin to lap at about three weeks old. A little cod-liver oil will improve their appearance after they are five weeks old. By the time they are six weeks old they should be removed from their mother, as they will gain nothing, and indeed they will rather lose by remaining longer under her nursing. Light, wholesome food six or eight times a day is not too often at first. Any non-stimulating food will do, bread-and-milk, boiled rice-and-milk, oatmeal porridge and milk, boiled Spratt cake and sheep's head broth with an allowance of the meat.* Never restrain puppies; keep them clean and make them happy as possible.

20. **FOOD OF THE DOG.**—The food should be particularly attended to. Raw meat is not fit for purely house dogs. Sheep's head boiled is good for puppies, and when stewed small and mixed

* Stable's,

with rice will be found excellent. For the grown animal a variety is good, as he will enjoy a change of diet as much as anybody in the house.

21. **THE SORT OF FOOD FOR DOGS.**—Meat, when allowed, cannot be of too coarse a quality; the shin or the cheek of the ox being preferable to the ribs or buttocks. It should be lean. Paunch is excellent meat for dogs, and to aristocratic animals it may be given in the form of tripe. Never allow your dog to eat what is commonly known as "cats'-meat."

I am loth to say a word that may work ill towards any branch of industry, but there is little doubt that the abolition of the "cats'-meat" business would be an immense benefit to the canine and feline races. Consider the long odds that exist against the chance of the horseflesh being nutritious. First, it may be safely reckoned that at least a fourth of the number of horses killed are diseased. Secondly, it is generally pitched into the cauldron almost before it is cold; and as it does not in the least concern either the wholesale or the retail dealer whether the meat be lean or tough, very little attention is paid to the boiling. Thirdly, the retail dealer—the peripatetic cats'-meat man—as a rule, brings the meat hot from the copper, and though, perhaps, not equally as a rule, yet by no means as an exception, souces it into cold water, to make it cut "firm." After these explanations, the owner of a dog may judge of the nutriment to be derived from cats'-meat.

22. **GOOD FOOD.**—Bullock's liver is good for dogs, not as the staple of its food, as it is laxative, but say once or twice a week, when its medicinal properties will be beneficial; besides that, it will break the monotony of "paunch for dinner." It is much more laxative in a raw than a boiled state. It will be well to bear in mind that raw meat is more stimulative than cooked meat; consequently, for idle dogs the latter is preferable. "Give dogs as much porridge and as little meat as they will take; if ill, double the quantity of meat." Breakfast should be light—two Spratt cakes and the important buttermilk which Dr. Stables says is invaluable. There is nothing like it. Oatmeal porridge is good for dogs; so is ship-biscuit. Rice is excellent, besides being very cheap. A pound of shin of beef boiled, and the broth saved, and a pound of rice well boiled the next day in the broth, will serve a hearty dog nearly a week. Persons having lap-dogs will find the keep upon rice, properly seasoned or soaked in gravy, less likely to render them gross, and their bodies odorous, than dining them daily from the family joint. Never give a dog *warm* meat; sooner or later it will certainly enfeeble digestion. Be regular in giving dogs their meals.

23. **SICK DOGS.**—For dogs that are ill, food should be prepared with extreme care. Sickness cannot be relieved without

trouble, and in many cases an animal requires as much attention as a child. To gain success neither time nor labour must be spared. Nothing smoked or burnt, no refuse or tainted flesh, must on any account be made use of. The meat may be coarse, but it should be fresh and wholesome. Dirty saucepans or dishes ought not to be employed; and so very important are these circumstances that the practitioner who engages in dog-practice will often surprise his acquaintances by being seen at market, or busied over the fire. Beef-tea is one of the articles which, in extreme cases, is of great service. Few servants, however, make it properly, and where a dog is concerned there are fewer still who will credit that any pains should be bestowed on the decoction.

To prepare the beef-tea, take half a pound of beef, cut from the neck or round is better than any other part, but it does not matter how coarse the quality may be. Divest the beef of every particle of skin and fat, and mince it as fine as sausage-meat. Put it into a clean saucepan, with a pint of water, and stand it on the hob at such a distance from the fire that it will be half an hour before it boils. Let it boil ten minutes; set it aside to cool; skim off what fat there may be on the surface, and, without the addition of salt or any kind of seasoning, the beef-tea is ready for your canine patients. However, we will say no more of sick dogs at present; they will be treated of presently.

24. **HOW TO FEED DOGS.**—The dog should be fed *once* a day, and his food need not be given on a plate. That is a politeness he can very well dispense with; besides that, his health will be advantaged by a waiving of such ceremony. Throw him his meat on the floor—not on to a paved or plank floor, but on the earth. The quantity of the latter he will swallow with his meat will not hurt him; on the contrary, it will stimulate his intestines. Feed him *regularly*. Reflect on your own case, and on what an annoying, not to say painful, thing it is to be kept hungry two or three hours after your customary dinner-time, and be merciful. As to the quantity of food with which a dog should be supplied, it is impossible to direct, as, like men, no two dogs eat alike, and many a healthy little dog will comfortably stow away as much as would serve a big dog for two meals. The owner of a dog, however, may easily ascertain the wholesome limit of his dog's appetite. Set before him in a corner, where he will not be disturbed, an ample allowance, or more, and, unobserved, keep your eye on him. If he be in health, he will set to, and not abate his industry till he feels comfortably full; then he will raise his head, and move away from the remnants. Marking this, and to save him eating to repletion, as he certainly will, if allowed, you will remove what is left, and so learn what should be his regular allowance.

25. **BONES.**—A large, hard bone thrown to the dog very frequently will be useful to him; not for the sake of what he may pick off it—indeed, the less there is on it the better—but to keep his teeth in order. Concerning bones generally, however, the remarks of Mr. Edward Mayhew may be studied with profit. “A dog in strong health may digest an occasional meal of bones; but the ‘pet’ has generally a weak, and often a diseased stomach, which would be irritated by what would otherwise do no harm. The animal, nevertheless, true to its instincts, has always an inclination to swallow such substances, provided its teeth can break off a piece of convenient size for deglutition. Game and chicken bones, which are readily crushed, should therefore be withheld, for not unfrequently is choking caused by pieces sticking in the œsophagus; though more often is vomiting induced by irritation of the stomach, or serious impaction of the posterior intestine ensues upon the feebleness of the digestion.”

26. **GENERAL REMARKS.**—Some general remarks as to treatment and feeding dogs may be added; for instance, sporting dogs have meat mixed with vegetables or oatmeal, with meat twice a week only, but vegetables should be sparingly used when the dogs are at work daily, as such diet is laxative.

27. **FLESH FOR DOGS.**—In all cases flesh for dogs should be well boiled, and not served to them hot at any time. Some people always give dogs their food quite cold. Remember variety is charming. Hounds in the hunting season may have some sulphur mixed with their food once a week. Greyhounds may be generally fed upon animal food, boiled or stewed, twice a day, and always in moderation. Great attention should be paid to cleanliness with these dogs; indeed, with all dogs cleanliness is essential to health.

28. **DAMP.**—Damp is very injurious to dogs, and kennels should be warm and dry, placed in non-exposed situations, and raised from the ground. Mind the bed is clean.

29. **PET DOGS.**—Pet dogs require considerable care. The sleeping places should be warm and comfortable, and the pet should never be permitted to eat too much, nor forced if disinclined. More illness arises from over-feeding than from other causes. The snoring of dogs also proceeds from this cause. We have already referred to the washing of dogs, and the treatment of parasites will be touched upon in a subsequent section. Diet has everything to do with dogs, and from indigestion arise many ailments.

30. **CHAINING DOGS UP.**—Do not chain the dog up in a place

where he cannot get shade from the sun. Do not leave him dirty water, or water that has been long in the heat of the sun. Feed your dog in the morning if you wish him to be watchful at night, for if fed late the dog will remain quiescent during the progress of digestion. Always unchain your dog for a run every day, and after meals.

31. **HOUSE DOGS.**—House dogs should be *regularly* turned out, and if they transgress the rules of cleanliness, should be taken to the spot and scolded and *gently* beaten. They will not offend again.

32. **RAW MEAT.**—Raw meat should on no account be given to dogs kept in the house, as it makes them offensive, and it is also apt to make them savage.

33. **DOG BROSE.**—We give an excellent recipe for dog brose, culled from Dr. Stables' "Book on the Dog."

"Very finely-powdered meal, two handfuls in a basin; salt, one teaspoonful.

"Keep the kettle highly boiling, and pour on boiling water sufficient to almost cover the meal.

"Stir quickly with the handle of a spoon *across* and half round, not around the basin, adding water gently, till the brose is thick and lumpy."

34. **SCRAPS.**—Concerning "scraps," a lately-quoted authority has something instructive to communicate on this point. "However strict may be the orders, and however sincere may be the disposition to observe them, scraps will fall; bits *will* be thrown down; dishes will be placed on the ground; and sometimes affection will venture to offer 'just a little piece,' which no one could call feeding. It is astonishing how much will in this way be picked up, for the dog that lies most before the kitchen fire is generally the fattest, laziest, and at feeding-time the best behaved of the company. Consequently, no dog should be allowed to enter the kitchen, for their arts in working upon mortal frailty can only be met by insisting on their absence. The dog that is well fed and not crammed should not refuse bread when it is offered. If this be rejected, while sugar is snapped eagerly, it will be pretty certain either that the animal is too much indulged, or that its health requires attention.

Cleanliness is essential to the well-being of dogs. The kennel ought to be washed once a fortnight at least, and done over with turps. The straw should be changed at the same time, or oftener in wet weather. Wash the yard well by douching with water, and carbolic acid may be used as a disinfectant if necessary. A wooden

bench is recommended for dogs to lie on outside the kennel, which ought to be made so as to open or close up at night, according to the weather. Good housing and feeding, cleanliness, plenty of (not excessive) exercise, will always keep the dog's coat in good order

" In muddy weather
Bathe his legs a feather."

35. **WASHING DOGS.**—Dogs will but seldom require washing if properly treated. Frequent washing, especially where soap, soda, &c., are used, renders the hair harsh and rough, and much more liable to catch the dirt than the hair of the dog treated as a rule by the dry process. All that is required is a comb with a fine and a coarse end, and a stiff brush. It should be combed and brushed regularly every morning, and if it is allowed to get its coat mudded the mud should stay on till it is quite dry, when it may be dusted and brushed out without leaving a stain.

An *occasional* wash will be beneficial, but in the coldest weather the chill only should be taken off the water, and the yolk of an egg used instead of, and in the same manner as, soap. Many a thin-skinned dog, could it but speak, might tell of the agonies it had endured through the application of coarse soap to its sensitive body. His eyes smart, his skin burns, and if, in the event of your not thoroughly rinsing the latter from it, he attempts to finish off with a few licks of his tongue, he is made sick and ill. If egg be used all these difficulties may be obviated. As useful a lather as soap lather is produced, it does not burn the animal's skin, and if he wishes to "plume" himself, after his nature, he will not be made ill. A small dog, say a Skye terrier, will not require more than the yolk of a single egg.

Never use lukewarm or warm water in dog-washing; nothing is more debilitating to the system. The animal will feel faint and weak, and not at all disposed to frisk about after his immersion. This is the worst part of the business, as it is utterly impossible thoroughly to dry the coat of a long-haired dog, and violent cold is the result.

36. **THE BATH.**—A cold bath, which is of course altogether different from a cold *wash*, will not hurt a robust dog even if it be practised every morning. Here again, however, there are one or two important rules to be observed. Do not allow the dog's *head* to be plunged under water; it does no sort of good, and inflicts on it a certain amount of pain. Even if it be a stupid dog, and unable to keep its head above water, a very little assistance from you, applied to the nape of the neck, will effect the purpose. With the

other hand the dog's coat should be stirred and roughed so that it be thoroughly saturated.

It is almost useless to try to dry the animal by means of the towel; dried, however, he must be, and that by his own bodily exertion. In all probability he will be much more inclined to skulk by the kitchen fire than to scamper about, in which case you must rouse him, and either take or send him out for a run. A good plan, if you live in the country, is to take him a mile or so out and then give him a dip in a brook; if he take deep offence at the proceeding, and scamper home as hard as his legs will carry him, so much the better for his health. If, however, you would try the same trick the next morning, you had better pass a string through his collar, otherwise he will never be induced to approach the scene of the previous day's discomfiture.

37. **PARASITES.**—For the destruction of fleas a well-known authority directs as follows: "The dog must be taken from the place where it has been accustomed to sleep. The bed must be entirely removed and the kennel sluiced—not merely washed—with boiling water, after which it should be painted with spirits of turpentine. The dog itself ought to be washed with eggs and water, with a teaspoonful of turpentine to each egg-yolk. After this the animal should have yellow-deal shavings to sleep on, and if they are frequently renewed the annoyance will seldom be again complained of. As, however, exceptional cases will always start up, should the tribe not be entirely dispersed, the washing must be repeated, or if from want of time or other cause it be inconvenient to repeat the operation, a little powdered camphor rubbed into the coat will abate and often eradicate the nuisance."

38. **TO DESTROY FLEAS** and other skin-biting pests, "Persian Insect Destroying Powder" is recommended to be applied in the following manner: "First dust the dog well with the substance until every portion of him has received a few particles of the powder, and then put him into a strong canvas bag in which a handful of the powder has been placed and shake well about, so as to distribute it equally over the interior of the bag. Leave his head protruding from the bag, and put on his head and neck a linen rag in which are holes for his nose and eyes, and let the interior of the rag be well coated with the powder. Lay him on the ground and let him tumble about as much as he desires, the more the better. In an hour or two let him out of the bag and scrub his coat well with a stiff brush. In a week or so the operation should be repeated in order to destroy the creatures that have been produced from unhatched eggs that always resist the power of the destructive powder."

Another remedy is to take the dog into an apartment where grease-spots on the floor are of no particular consequence, and saturate his coat completely

with castor oil. Such is applied with the hand, but it may be done with a brush. So leave it for twelve hours, and then cleanse the animal with yolk of egg and water. This, however, although an effective process, is a troublesome and an expensive one, as a small dog will require quite a pound of the oil, and a large dog, such as a Newfoundland, four or five pounds.

39. **HYDROPHOBIA**, of all the diseases of the dog, is the most terrible, because "of the causes or treatment of the disorder we know nothing, neither, considering the nature of the study, are we likely to learn." Where, then, is the use of writing on such a painful subject? More uses than one, good reader. To enable you to recognise in your own pet the earlier stages of the disease, should it be unluckily so afflicted; to endeavour to demonstrate a fact which it is to be feared is too little understood, that a rabid dog is not a malicious enemy to mankind, but a poor, suffering brute, to be regarded pitifully.

The most graphic account of the commencement, progress, and termination of hydrophobia in the dog ever written, is by Mr. Edward Mayhew, M.R.C.V.S. The description is so thoroughly excellent, that we shall take the liberty of quoting it entire.

"The dog that is going mad feels unwell for a long time prior to the full development of the disease. He is very ill; but he does not know what ails him. He feels nasty, dissatisfied with everything, vexed without a reason, and, greatly against his better nature, very snappish. Feeling thus, he longs to avoid all annoyance by being alone. This makes him seem strange to those unaccustomed to him. This sensation induces him to seek solitude. But there is another reason that decides his choice of a resting-place. The sun is to him an instrument of torture, which he therefore studies to avoid, for his brain aches and feels, as it were, a trembling jelly. This induces the poor brute to find out the holes and corners where he is least likely to be noticed, and into which the light is unable to enter. If his retreat be discovered, and his master's voice bid him come forth, the countenance of the faithful creature brightens, his tail beats the ground, and he leaves his hiding-place, anxious to obey the loved authority; but before he has gone half the distance, a kind of sensation comes over him which produces an instantaneous change in his whole appearance. He seems to say to himself, 'Why cannot you let me alone? Go away—do go away! You trouble and pain me,' and thereon he suddenly turns tail, and darts back to his dark corner. If let alone, there he will remain, perhaps frothing a little at the mouth, and drinking a great deal of water, but not issuing from his hiding-place to seek food.

"His appetites are altered. Hair, straw, dirt, filth, tar, shavings, stones, the most noisome and unnatural substances, are the delicacies for which the poor dog, changed by disease, longs and swallows in hope to ease his burning stomach. Still, he does not desire to bite mankind; he rather endeavours to avoid society; he takes long journeys of thirty or forty miles in extent, and lengthened by all kinds of accidents, to vent his restless desire for motion. When on these journeys he does not walk. This would be too formal and measured a pace for an animal whose whole frame quivers with excitement. He does not run. That would be too great an exertion for a creature whose body is the abode of a deadly sickness. He proceeds in a slouching manner, in a kind of trot, a movement neither run nor walk, and his aspect is dejected. His eyes do not glare, but are dull and retracted. His appearance is very

characteristic, and if once seen can never afterwards be mistaken. In this state he will travel the most dusty roads, his tongue hanging dry from his open mouth, from which, however, there drops no foam. His course is not straight. How could it be, since it is doubtful whether at these periods he can see at all? His desire is to travel unnoticed. If no one notices him, he gladly passes on. He is very ill. He cannot stay to bite. If, nevertheless, anything opposes his progress, he will, as if by impulse, snap—as a man in a similar state might strike—and tell the person 'to get out of his way.' He may take his road across a field in which there are a flock of sheep. Could these creatures only make room for him and stand motionless, the dog would pass on and leave them behind uninjured. But they begin to run, and at the sound the dog pricks up his ears. His entire aspect changes. Rage takes possession of him. What made that noise? He pursues it with all the energy of madness. He flies at one; then at another. He does not mangle, nor is his bite simply considered terrible. He cannot pause to tear the creature he has bitten. He snaps, and then rushes onward, till, fairly exhausted, and unable longer to follow, he sinks down, and the sheep pass forward to be no more molested.

"He may be slain while on these excursions; but if he escapes he returns home and seeks the darkness and quiet of his former abode. His thirst increases, but with it comes the swelling of the throat. He will plunge his head into water, so ravenous is his desire; but not a drop of the liquid can he swallow, though its surface be covered with bubbles, in consequence of the efforts he makes to gulp the smallest quantity. The throat is enlarged to that extent which will permit nothing to pass. His state of suffering is most pitiable. He has lost all self-reliance; even feeling has gone. He flies at, pulls to pieces, anything within his reach. An animal in this condition being confined near a fire, flew at the burning mass, pulled out the live coals, and, in his fury, crunched them. The noise he makes is incessant and peculiar. It begins as a bark, which sound being too torturing to be continued, is quickly changed to a howl, which is suddenly cut short in the middle; and so the poor wretch at last falls, worn out by a terrible disease."

40. HOW HYDROPHOBIA IS GENERATED.—This is still a mystery. It is certain that the venom lies in the *saliva*, and that its application to the abraded skin of another animal, without even a touch of the mad dog's teeth, is sufficient to impart the terrible disease. Hot weather has been supposed to be favourable to the development of rabies (see Mad Dog bills issued by the police in July). But dog doctors generally agree that it is quite as prevalent in the winter. Some writers attribute it to thirst, but the reply to that suggestion is, that whereas in a well-watered country like England hydrophobia is lamentably common, in scorching Eastern cities it is unknown. Besides, the latter proposition has been set aside, at least to their own entire satisfaction, by certain scientific Frenchmen, who, with an inhumanity that makes one's flesh creep, and which may not be excused on any ground whatever, caused forty poor dogs to be shut up and kept without water till they died. The result was that they (the men, not the dogs) were enabled to show that at least not one out of forty dogs go mad through thirst. One is almost inclined to be cruel enough to wish that the biggest dog

of the doomed forty *had* gone mad and bitten the cruel wretch who proposed the monstrous test.

41. **TREATMENT OF WOUNDS.**—Concerning the treatment of a wound caused by a rabid animal, the patient's fright should be allayed as far as possible. He should be impressed with the fact that a bite from a mad dog is by no means *certain* to produce hydrophobia. He must, however, make up his mind to a rather painful treatment of his wound. Washing the part is condemned by many medical men; they opine that in the process the virus is diluted and reduced to a state to be the more easily absorbed into the system. Some recommend the cupping-glass. This, says the surgeon, only draws the blood about the wound and accelerates its mixture generally with the poison. The knife is objected to, for "in using the knife that which runs from the newly-made incision is apt to overflow into the poisoned locality and so to convey the venom into the circulation by mixing with the fast-flowing blood as it bathes the enlarged wound."

42. **SAFEST TREATMENT.**—The simplest and safest mode of treatment is by burning. If it is at hand, take a piece of luuarcoustic and scrape one end of it as small and fine as a writing pencil, with this stab the wound all over. If the caustic is not forthcoming, hot iron will do nearly as well; the best instrument will be a steel fork. It must be used in much the same manner as the caustic, and it should be borne in mind that it is no tenderness to the patient to make the fork "not too hot." The hotter the better for the eradication of the poison and the feelings of the bitten person. It is well-known that a burn from a substance heated only to a dull-red inflicts considerably more pain than if brought to a glowing white heat. Ordinary dog-bites may be washed well with salt and water and at once cauterised.

Some years ago there appeared in a Prussian newspaper, and since then in various European treatises on dog diseases, an account of how fourteen people were simply and speedily cured of this terrible disorder. As to the efficacy of the remedy employed, no guarantee can here be given. The reader must take it as he finds it, and form his own conclusions.

"M. Maraschetti, an operator in the Moscow hospital, while visiting the Ukraine, was applied to by fifteen persons for relief on the same day, they having been bitten by a rabid dog. Whilst the surgeon was preparing such remedies as suggested themselves, a deputation of several old men waited upon him with a request that he would permit a peasant who had for some time enjoyed considerable reputation for his success in treating cases of hydrophobia to take these patients under his care. The fame of this peasant and his skill were known to M. Maraschetti, and he acceded to the request of the deputation on certain conditions: in the first place, that he himself should be present and made cognisant of the mode of treatment employed; secondly, that proof should

be given him of the dog that had injured the sufferers being really rabid; and then, that he, the surgeon, should select one of the patients to be treated by himself according to the ordinary course adopted by the medical profession. This might, at a hasty view, be deemed an improper tampering with human life on the part of the Russian surgeon; but when the admitted hopelessness of all remedies is recollected, the reader will refrain from animadversion. M. Maraschetti selected, as his own patient, a little girl six years old; the other condition was duly complied with—no doubt could exist of the genuine rabies of the dog, which perished shortly afterwards in extreme agony.

"The peasant gave to his fourteen patients a decoction of the tops and blossoms of the broom plant (*Flor. Genista lutea tinctoria*), in the quantities of about a pound and a half daily; twice a day he examined beneath their tongues, where, he stated, small *knots*, containing the virus, would form. Several of these knots did eventually appear, and as soon as they did so, they were carefully opened and cauterised with a red-hot wire, after which the patients were made to rinse their mouths and gargle with the decoction. The result was that all the patients—two of whom only, and these the *last bitten*, did not show the knots—were dismissed, cured, at the expiration of six weeks, during which time they had continued to drink the decoction. The poor little girl, who had been treated according to the usual medical formula, was attacked with hydrophobic symptoms on the seventh day, and died within eight hours after the accession of the first paroxysm. M. Maraschetti saw, three years afterwards, the other fourteen persons all living and in good health."

The report goes on to say that the worthy Russian doctor had, some time after, another opportunity of testing the value of decoction of broom as a remedy for the terrible affliction. In this case, twenty-six persons were bitten by mad dogs; nine were men, eleven women, and six children. The peasant's remedy was administered, with the following results: five men, all the women, and three of the children exhibited the *knots*; those most severely bitten, on the third day—others on the fifth, seventh, and ninth—and one woman, who had been bitten only superficially on the leg, not until the twenty-first day. The remaining seven showed no *knots*, but all continued to drink the decoction; and in six weeks all the patients had recovered.

43. FITS.—Fits in a dog are often mistaken for hydrophobia, and many a poor beast has been thus summarily and wrongfully slaughtered. Not that fits are harmless, either to the creature or to those who may by chance come within reach of its spasmodically twitching jaws. It is a very serious malady, and its symptoms decidedly lunatic. The dog, trotting before or behind his master, will suddenly stand still and look round mazedly, and then emitting a curious cry that is neither a bark nor a howl, will fall on his side, continuing the curious noise, but more feebly. As soon as he has fallen his limbs assume a strong rigidity, but after a few moments they relax, the animal kicks violently, the eyes are wide open and staring, and foam issues from the mouth. In this condition he will eagerly bite and snap at anything that is put near his mouth. Presently his convulsions will subside, he will raise his head and look about him, as though wondering what in the name of goodness he does lying on the pavement in the midst of a crowd of men and boys. No doubt in his present dreamy condition he sees himself

surrounded on every side by danger, and is anxious to escape. This he is not long in attempting. Starting to his feet, he makes a bolt at somebody's legs, and somebody is only too anxious to skip aside and let the animal pass. He starts off. Never did dog look more mad. Never did mad dog run faster. "Hi! Hi! Mad dog! Mad dog!" Boys bawl, men shout, women scream, stones are thrown, and carters, secure in their vehicles, endeavour to club him, as he dashes past, with the butt ends of their heavy whips. Presently he receives a blow that stuns him, and tumbles him over in the mud, and he dies the death of a mad dog, however little he may deserve it.

44. **WHEN A DOG IS IN A FIT**, "the first thing to do," says an authority, "is to secure the animal and prevent it running away when the fit is over. The second thing is, for the person who owns the dog stubbornly to close his ears to the crowd who are certain to surround him. No matter what advice may be given, he is to do nothing but get the animal home as quickly as possible. He is neither to lance the mouth, slit the ear, nor cut a piece of its tail off. He is on no account to administer a full dose of salt and water, or a lump of tobacco, or to throw the animal into an adjacent pond; and, of all things, he is to allow no man more acquainted with dogs than the rest of the spectators to bleed the animal. Any offer to rub the nose with syrup of buckthorn, however confidently he who makes the proposal may recommend that energetic mode of treatment, is to be unhesitatingly declined. The friendly desire of any one who may express his willingness to ram down the prostrate animal's throat a choice and secret specific must be strenuously declined. Get the dog home with all speed."

Arrived home, should the fit continue, send at once for a veterinary surgeon, as any medicine you can administer will be useless, or worse, because the animal, being unconscious, cannot swallow, and you may chance to suffocate the creature for whose welfare you are so solicitous. Should the fit be got over, all you can do is to take care that the dog's bowels are in good working order, and keep it cool and quiet for a day or two, on low diet.

45. **INDIGESTION.**—Indigestion is the cause of the majority of the complaints that afflict dog-kind. All kinds of skin diseases are bred therefrom, and inflammation of the gums, foul teeth, and pestilential breath, are produced from it. It is the origin of asthma, excessive fat, cough, and endless other ailments.

The symptoms are not very obscure. "A dislike for wholesome

food, and a craving for hotly-spiced or highly-sweetened diet is an indication. Thirst and sickness are more marked. A love for eating string, wood, thread, and paper denotes the fact, and is wrongly put down to the prompting of a more mischievous instinct; any want of natural appetite, or any evidence of morbid desire in the case of food, declares the stomach to be disordered. The dog that, when offered a piece of bread, smells it with a sleepy eye, and, without taking it, licks the fingers that present it, has an impaired digestion. Such an animal will perhaps only take the morsel when it is about to be withdrawn; and having got it, does not swallow it, but places it on the ground and stands over it with an air of peevish disgust. A healthy dog is always decided. It will often take that which it cannot eat, but having done so, it either throws the needless possession away, or lies down, and with a determined air watches the property. There is no vexation in its looks, no captiousness in its manner. It eats with decision, and there is purpose in what it does. The reverse is the case with dogs suffering from indigestion."

The old-fashioned remedy for this complaint—at least among dog-quacks—was to shut the pampered animal in a room by himself, and give him nothing but water for two, three, or four days. Nothing can be farther from the proper course, or more clearly display the operator's ignorance. It would seem that among these old-fashioned worthies an impression prevailed that so long as an animal's body was burdened with fat, nothing was better for him than a course of starving—regarding the fat, indeed, as so much funded victuals, on which the animal might draw at pleasure; whereas the mere existence of the overloaded sides is evidence sufficient that the dog's stomach is weakly and unable properly to perform its functions; and surely it requires no profound inquiry to discover that a weak and infirm stomach is in much worse case to be trifled with than one strong and vigorous, albeit lean as French beef.

45. TREATMENT OF INDIGESTION.—The best mode of treatment is to diet the animal on sound and plain food, taking care that moderation is observed. If he has been in the habit of eating at any and every hour in the day, divide his daily portion into three, and for the first two or three days give him a meal morning, noon, and night. After that his allowance may be cut in two, and only two daily meals given—one at noon, and the other before he retires to rest at night. Dog-fanciers generally agree that a dog should be fed but *once* a day.

The dog while thus dieted should have exercise in plenty. I think it as well to mention this, as I have heard of a lady whose dog was ill from indigestion, and to which "exercise" was recommended. At the end of a week the creature's health didn't improve, and the doctor was puzzled. "Is your ladyship quite sure that it has the two hours' daily exercise ordered?" "Quite sure, doctor." "Pray does it run by the side, or walk sluggishly?" "What? walk? Fido walk this nasty weather? How could you think me so cruel, doctor? The pretty fellow is driven through the parks *in the brougham*." A cold bath, of the sort described elsewhere in this book, is good for a dog suffering from indigestion, as well as tonic sedatives and vegetable bitters.

47. **MEDICINE.**—As an ordinary stomach-pill for the dog, Mr. Edward Mayhew recommends the following compound:—Extract of hioscyamus, sixteen grains; sodæ carb., half an ounce; extract of gentian, half an ounce; ferri carb., half an ounce. To be made into eight, sixteen, or twenty-four pills, according to the size of the indisposed animal, and two to be given daily.

Indigestion in very old dogs is accompanied by alarming appearances. The stomach becomes inflated to a degree almost incredible. As the digestive organs are worn out a cure in such a case cannot be expected, still relief may be given. Liquid, but strengthening food, such as beef-tea, should be given. A weak solution of chloride of lime, or the liquid potassæ, is as good medicine as any. You had better, however, before administering it, let a veterinary surgeon see the dog, that he may instruct you as to the strength and quantity of medicine to be given at a dose.

48. **TO PHYSIC DOGS.**—To give a dose to a squalling, kicking, refractory child is bad enough, but, in ordinary cases, to see "Sambo" or "Floss" taking its medicine is a sight that would make the fortune of a farce, could it be properly put on the stage. It is usually a job for four adults, the animal operated upon weighing from eight to twelve pounds. There must be two to hold its feet, one to open its jaws and keep them open, and the other to force the medicine down the patient's throat. The result is that the poor fellow grows dreadfully alarmed and excited, no doubt fully believing that the four ruffians about him are bent on his destruction, and expecting every moment to be dragged limb from limb. Indeed, I have no doubt that a stranger dropping suddenly on the interesting group, would have much the same impression. If it is a pill that is to be administered, it sticks in the patient's

throat, and perhaps a quill pen is caught up to "push it down." If so the result is certain; how it would be with a human being under such circumstances may be shrewdly guessed, but with a dog the effect is inevitable. Then there is a pretty consternation among the four doctors. If it is a draught, the jaws are held open and the liquid poured in; but there it remains at the back of the mouth, not a drop going down the throat, and the patient's eyes growing wilder and wilder every moment. "Let him go," says the tender-hearted person at the fore-legs, "he is being suffocated," and that he may have no hand in the murder he lets those members free, whereon the patient makes the best use of his fore-claws on the jawholder's hands, and *he* lets go; and all the time, and struggle, and sixpenny draught have gone for nothing. By-the-by, it should be added that, funny as this may read, it is a dreadful business for "Sambo," who would, doubtless, if he knew the nature of his ailment—indigestion, dropsy, mange—cheerfully endure it, or anything else short of hydrophobia, rather than submit once more to the dreadful physicking.

All fuss may be avoided. There are several ways of managing, but the best of any are those recommended by a gentleman to whom I have referred till I am almost ashamed to do so once more. I allude to Mr. E. Mayhew, and unless all his kind-heartedness is devoted to the canine race (and really it must be exhaustless if this be not the case), I think I may hope for forgiveness.

"A small dog should be taken into the lap, the person who is to give the physic being seated. If the animal has learnt to fight with its claws, an assistant must kneel by the side of the chair and tightly hold them when the dog has been cast upon his back. The left hand is then made to grasp the skull, the thumb and forefinger being pressed against the cheeks, so as to force them between the posterior molar teeth. A firm hold of the head will thus be obtained, and the jaws are prevented from being closed by the pain which every effort to shut the mouth produces. No time should be lost, but the pill ought to be dropped as far as possible into the mouth, and, with the finger of the right hand, it ought to be pushed the entire length down the throat. This will not inconvenience the dog. The epiglottis is of such a size that the finger does not excite a desire to vomit, and the pharynx and œsophagus are so lax that the passage presents no obstruction.

"When the finger is withdrawn the jaws ought to be clapped together, and the attention of the creature diverted. The tongue being protruded to lick the nose and lips will certify that the substance has been swallowed, and after a caress or two the dog may be released. Large brutes, however, are not thus easily mastered. Creatures of this description must be cheated, and they fortunately are not as naturally suspicious as those of a smaller kind. The dog bolts its food, and unless the piece is of unusual size, it is rarely masticated. The more tempting the morsel the more easily is it gorged; and a bit of juicy or fat meat, cut so as to contain or cover the pill, insures its being swallowed. Medicine which in this manner is to be administered ought to be perfectly

devoid of smell, or for a certainty the trick will be discovered. Indeed, there are but few drugs possessed of odour which can be long used in dog practice, and even those that are endowed with much taste cannot be continually employed."

49.—**FLUIDS—HOW ADMINISTERED.**—"Fluids are more readily given than solids to dogs. To administer liquids the jaws should not be forced open and the bottle emptied into the mouth, as when this method is pursued the greater portion will be lost. The animal's head being gently raised, the corner of the mouth should be drawn aside so as to pull the cheeks from the teeth. A kind of funnel will thus be formed, and into this a quantity of medicine equal to its capacity should be poured. After a little while the fluid will, by its own gravity, trickle into the pharynx and oblige the dog, however unwilling it may be, to swallow. A second portion should then be given in the like way, and thus little by little the full dose is consumed. Often dogs treated in this fashion swallow a draught very expeditiously; but others will remain a considerable time before they deglutate. Some, spite of every precaution, will manage to reject the greater part, while others will not waste a drop."

50. **TO MAKE A DOG SWALLOW.**—"Two pieces of tape, one passed behind the canine teeth of the upper, and the other in like manner upon the lower jaw, have been recommended. The tapes are given to an assistant, who pulling on them forces the mouth open and holds it in that position. In certain cases this may be adopted for pills; indeed, every stratagem will be needed to meet the multifarious circumstances that will arise. For ordinary circumstances, however, the practice is not to be commended, and should never be embraced when drinks are to be given: the animal cannot swallow while the jaws are held asunder; but for solids the plan answers better. There are several objections, however, to be urged against its constant use. The operation is violent, and the restraint it necessitates not alone prevents the poor animal deglutating fluids, but also terrifies it, and on the next occasion it will be more resistful. Difficulties therefore increase, and the dog generally is not long before it baffles the efforts to confine it. Moreover, unless the assistant be very well up to his business his steadiness cannot be depended on, and the hand often is wounded by the teeth of the patient."

51. **PARALYSIS IN THE DOG.**—This is another result of over feeding, and before all others affects those pets which are so pretty, so interesting, that freedom of the dining and breakfast rooms is

accorded them. The consequence is they have never done eating. In just as many meals as the family partake of they participate, and that almost without the knowledge of a single person at the table; that is, without a single person being aware that at each meal the dogs eats as plentifully as himself. Each one is ready to declare that "Fido" has only had "the least bit in the world," and that—allowing, of course, for the extravagance of common parlance—is true as regards each individual's experience. The secret, however, is that from each Fido *has* only received one—or two—of the "least bits in the world," but then the persevering little mendicant has been the round of the board and obtained, perhaps, six or seven contributions. He grows fat, monstrously fat; he is such a funny little barrel of a dog it is quite ludicrous to watch him. Some fine day, however, the "funny little barrel" is discovered floundering about the carpet, seemingly well enough in all other respects, but with his hind legs trailing and benumbed and evidently useless for locomotive purposes. The dog is hurt, been squeezed in a door, or had some piece of heavy furniture thrown down on his loins! All a mistake; therefore do not blame John or Mary for the calamity, or give them warning "for concealing the truth." The truth is patent: the poor beast is paralysed in its hind legs.

52. **TO CURE PARALYSIS** have prepared the following prescription:—Ol. Ricini, 4 parts; Ol. Olivæ, 2 parts; Ol. Anisi, q. s.; mix.

Administer this with a cathartic pill every day till the limbs are restored to their healthy action, and for a few days afterwards. Do not, however, be induced by the easy cure of the first attack to renew the patient's unnatural mode of feeding. If you do, he will certainly be again attacked, and again and again—the chances of recovery diminishing with every attack, till there comes one that defies all the veterinary skill in the kingdom.

53. **DISTEMPER** is not easy of detection in its early stages. Sometimes it starts with watery eyes and a short cough; at others, the same sort of desire to be alone [and secluded, and the same peevishness that heralds the all-dreaded disease, hydrophobia, marks its advent. If, however, in addition to these or any other unusual symptoms, there should be a redness about the eyelids, and the dog's body should feel dry and feverish, you may make up your mind as to what is about to happen.

54. **ORIGIN OF DISTEMPER.**—As to the origin of distemper, doctors disagree. Some—in fact, nearly all canine physicians of the

old school—assert that it is contagious. Modern men of science declare that such is not the case. The old school doctrine, too, was that every dog *must* have distemper, as infallibly as that every child has measles and hooping-cough. This also is denied, and not without sound proof, by the wise men of the nineteenth century. "Cold, wet, bad food, foul air, excessive exertion, fear, &c., are grouped together and put forth as causes of this disorder; but it has yet to be proved that these accepted terms have any connection with it. Dogs that are starved, neglected, or cruelly tortured; animals that are judiciously fed, properly housed, and sensibly treated—as well as favourites that are crammed, nursed, and humoured—are equally its victims; and those that are most cared for fall most frequently, while those that are least prized most generally survive. If, therefore, privation or exposure be of any importance, the fact seems to infer their tendencies are either to check or mitigate the evil."

55. SYMPTOMS OF DISTEMPER.—The symptoms the dog may exhibit during the prevalence of the disease are wonderfully numerous. There is not a single inch of his body, from his head to his tail, but may seem to be the part suffering especially. The eyes sometimes, indeed generally, are very bad. Indeed, it is by these organs that the owner may tell whether his dog is really cured of distemper, or whether the disease, instead of taking its departure, is merely at rest, to break out immediately with renewed fury. It will frequently happen that after the dog has exhibited a few of the milder characteristics of the disease it will disappear even more rapidly than it developed itself, and, better than all, leave the patient much better than it found him. His eyes look brilliant and transparent, his nostrils are dry and comfortable, his coat clean and glossy, and his spirits not only high, but actually boisterously unruly. He does not shiver, and eats like an Arctic wolf. The dog's master is rejoiced, and in the height of his satisfaction he speaks scornfully of the disease that lately afflicted his pet. "Pshaw! this is distemper, is it, that people make such fuss about? Why, it is nothing at all; if anything, just a salutary ailment that clears the system and sets the dog up with a new stock of health." Softly, good sir. Does your dog, that grew so woefully thin over that "salutary" ailment, grow fat? It is not sufficient that the diminution ceases; does he increase in bulk *visibly* and day by day? Look under the upper eyelid; is it clear and healthy, or thickly marked with minute red veins? Unless these two questions can be answered

satisfactorily, do not say your dog is well; and if within a week, or even within a month, he should grow suddenly and dreadfully ill, and, after exhibiting a complication of perplexing symptoms, die, do not attribute the death to fits, to some physical injury, or to the malicious and poisonous designs of your servant or neighbour. The simple truth is, the supposed poisoning was nothing but the second stage of distemper.

The eyes sometimes suffer very much during this disorder. The pupils seem to fade and blanch, the lids are nearly closed, and the dog seems blind. Possibly it is. Its lungs may be affected. On applying the ear to the animal's chest a harsh wheezing may be detected, denoting something very wrong in the interior. The poor creature is constantly shivering and has a wearying cough. A viscid matter impedes the passage of breath through the nostrils, and the paws are ever busy tapping and rasping at the unfortunate nose, sometimes coaxingly and sometimes irritably, as though the poor wretch felt aggrieved that this, his leading organ, should serve him so. Besides these there are many other dreadful symptoms, a description of which would look so far from pretty in print that I must leave them for the dog-owner to discover.

56. DURATION OF DISTEMPER.—Six weeks is the average time the attack lasts, though the owner of the animal will know before that time if it will live or die. The following are bad signs. Steady dwindling of bulk, while at the same time the patient has a ravenous appetite. A *very* harsh and *very* inodorous coat, the latter leaving a taint on the hand that is passed over it. The tongue furred, almost lead-coloured, and red and dry at its tip and edges. All these things are ominous. So is a prevalence of vermin in the dog's fur, especially if fleas or other parasites appear very suddenly and swarm in great numbers. The worst symptom of all is when the breath is exceedingly hot and foul, and when the belly and the extremities feel cold to the touch. Even then, however, so long as it keeps on its legs and is able to walk there may be a chance of recovery.

57. RECOVERY FROM DISTEMPER.—“During the recovery from distemper, small and delicate animals, terriers and spaniels, are very liable to faint. The dog is lively, perhaps excited, when suddenly it falls upon its side and all its limbs stiffen. A series of these attacks may follow one another, though generally one only occurs; when numerous and rapid there is some danger, but as a general rule little apprehension is to be entertained. The fainting

fits are of some consequence if they exist during a sickening for or maturing of distemper. In pups that have not passed the climax of the disease they are not unseldom the cause of death; but even in that case I [Mr. Mayhew] have never been convinced that the measures adopted for the relief did not kill quite as much or even more than the affliction. When the symptom is mistaken and the wrong remedies are resorted to, the fainting fits will often continue for hours, or never be overcome. When let alone the attack does not last, as a rule, more than a quarter of an hour, and under judicious treatment the consciousness almost immediately returns. When the fainting fits occur during the progress or advance of the disease—that is, before the symptoms have begun to amend—it is usually preceded by signs of aggravation. For twelve or twenty-four hours previously the dog is perceptibly worse. It may moan or cry, and yet no organ seems to be more decidedly affected than before. I attribute the sounds made to headache, and, confirming this opinion, there is always some heat at the scalp. The uncertain character of the disease renders it a difficult matter to lay down laws for its treatment; there can be no doubt, however, that food and exercise have much influence over the complaint, in whatever shape it may appear. Everything sweet and everything fat must be rigorously withheld. Skim-milk even is preferable to new, and ship-biscuit to be chosen before wheaten bread. If these two latter articles can be procured a more wholesome dish of bread-and-milk may be prepared with them than with any other. Boiled rice may be given in considerable quantity, moistened—and this is the extreme limit as regards animal food—with broth from which every particle of fat has been skimmed. Whatever the sop consist of, let it be COLD before offered to the sick animal."

58. **GREAT CARE NECESSARY.**—Your care of the animal must not cease. The diet must still be scrupulously regulated, and the following tonic pill prepared:—Disulphate of quinine, one to four scruples; sulphate of iron, one to four scruples; extract of gentian, two to eight drachms; powdered quassia, a sufficiency. Make into twenty pills, and give three daily. This is Mr. Mayhew's prescription, as indeed are all the others contained in this chapter.

59. **NIBBLING HABITS IN DISTEMPER.**—In distemper cases it will sometimes happen that the animal, irritated beyond control by the violent itching of a particular member—either of its feet or tail—will commence to nibble at it with his teeth. Nor will he stop at nibbling, but proceed to downright gnawing. A dog has

been thus known to consume the first two joints of his tail. Applications of nauseous drugs to the itching parts are sometimes recommended as a preventive, but the best remedy is to encase the offending member in a socket of leather, of the same substance, say, as gentlemen's boot-tops are made of.

60. EYES OF THE DOG IN DISTEMPER.—With regard to the animal's eyes, however bad they may appear, do not meddle with them. According to the best authority all water, either warm, tepid, or cold, every kind of lotion, or any sort of salve or powder, will do harm, either by weakening or irritating the organs of sight. Nature, if left to herself, will probably restore the animal's eyes to their former perfection, but any meddling with them will certainly put it to great pain, and not improbably destroy the sight, or at least leave on the eye a white seam to remind you of your folly.

61. EDUCATION OF DOGS.—In the space at our disposal it is impossible to give full and detailed instructions as regards breaking dogs for sporting purposes, but we will give a few hints and plain directions for teaching a dog some tricks which will prove entertaining when learnt, and give the teacher some interest to impart.

62. RULES.—The first and fundamental rule for educating dogs is, be kind, be patient. No amount of harshness or whipping will really succeed. The dog may perfunctorily perform a trick or two, but very unwillingly if he is beaten for first failures. Kindness, firmness, and patience are the three most necessary attributes for teaching dogs, or any other animal; and it is astonishing how quickly a dog will learn if he be kindly treated. If he won't learn by kindness he won't learn at all.

63. THE TEACHER.—The teacher must possess many virtuous attributes, for as much will depend upon him as on his canine pupil. He must be cautious in his treatment, and consistent with regard to circumstances. He must use his discrimination, and never lose his temper with the dog.

64. TIME TO EDUCATE DOGS.—The best time to begin to instruct a dog is in the morning, as early as convenient, and in an empty room or yard; for any object likely to distract the animal's attention will be all against the teacher and entail upon him extra work.

65. ONE TEACHER ONLY.—The dog must have but one teacher. This is also an essential point to be observed. As the dog must get accustomed to his master's voice and gesture, it is manifestly ridicu-

lous to confuse and worry him with two or three different voices, modes of gesture, or manner of performing a trick. So take your dog in hand yourself and let no one interfere.

If the animal be full of play and desirous to romp about, it will be better not to coerce him at first to your teaching. Let him bound about and enjoy himself till his sprightly fit has worn off. He will then perceive you have more serious work in hand and comport himself accordingly.

66. PATIENCE NECESSARY.—Do not be disheartened by a few failures. Bear in mind the first golden rule—patience. Try to realize what the dog thinks of your gestures. Put yourself, as far as possible, in his place, and think what you would see in the pantomime you use to him. Be kind, we cannot repeat this too often. Dogs are much more intelligent than most people think, so give your pupil credit for doing his best.

Never permit the dog to be slovenly in his tricks. Make him go over and over again till he does you tell him. If attention be paid to the foregoing suggestions many very amusing tricks, fetching and carrying, &c., may be easily taught, and the dog will improve in temper and disposition besides.

67. FETCHING AND CARRYING.—All dogs will fetch articles without much instruction. There is little difficulty in this lesson. But it requires a little attention to teach the animal to bring an article back and to “give it up,” and to retrieve. If you accustom the animal to “drop it” he will drop everything and some day do mischief. Remember, therefore, that “Give it up” be the signal for the relinquishment of the article, whatever it may be, and most people at first use an old glove. For many reasons this is an excellent thing; it is soft, not valuable, cannot be very easily destroyed, and above all it has the scent of the teacher and owner (the dog’s master) on it. The animal will then recognize the scent in future when the glove is hidden and he is sent to fetch it. On no account permit the animal to give up the article till you tell him to do so.

The way a dog is taught to fetch and carry is so simple that no directions are needed. Firmness and gentleness will accomplish a great deal. But do not keep the animal at school too long, particularly at first.

68. REWARDING THE DOG.—Take care to reward your pupil when he does right, and some tid-bit should be produced, and he will understand, and finally perform on his own account. The glove can be hidden at a distance, and the dog will discover it by

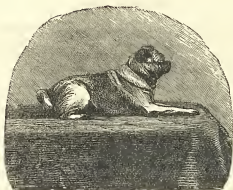
scent after a few lessons. If he be disobedient scold him, more in sorrow than in anger, and, as dogs are naturally very proud and sensitive, your pupil will be abashed at once; if not, a gentle tap or two, or even the sight of a whip, may bring him round. Then if he do right, the reward should promptly follow.

69. **BEGGING.**—To teach a dog to beg set him up in a corner, so that he can lean against the wall, and hold him up by your fingers beneath his chin. Say "beg," and make him remain up unassisted by gently striking his fore-legs.

70. **AS TO TRICKS.**—There are many tricks, such as hand-shaking, hoop-jumping, lying "dead," and so on, which require only patience. Be very careful never to strike the animal roughly. Speak firmly and kindly, correct gently, and any dog worth teaching will by such means be very soon an accomplished and intelligent companion.

71. **BREAKING DOGS.**—The chief requisites in a breaker, says General Hutchbinson, "are, firstly, command of temper; secondly, consistency, so that a fault may not go unpunished," and we have already referred to the necessity for putting oneself in the dog's place, as far as possible, so as to be able "to judge what meaning an unreasoning animal is likely to attach to every word or sign—nay, even to every look."

Breaking dogs to shoot over is sometimes a tedious process, and should not be undertaken unless the rules given above are kept in mind. A good plan is to let the young dog have a good example in an experienced animal, and this will apply forcibly to shepherds' dogs. A string fastened to the pup's neck, pulled or let go at certain words, will soon teach him something, and if the preliminary instruction be given at home, and every successful attempt be rewarded with some little delicacy, the dog will soon do all that is required. He can thus be taught to 'seek dead,' to retrieve, and to lie quiet, as spaniels do, at gun-shot. Common-sense and intelligence on the part of his trainer will develop like qualities in the dog. An ill-tempered sheep-dog is nearly always owned by an ill-tempered shepherd.



CHAPTER IV.

DOMESTIC DOGS.

The Thibet Dog—The Cuban Mastiff—The English Mastiff—The Bull-dog—The Bloodhound—The Boarhound—The Pug—The Colley—The Newfoundland—St. Bernard—The Pomeranian—The Poodle—The Carriage-dog.

72. **DOMESTIC DOGS.**—We have already spoken of the Esquimaux dog, and we will now proceed to look chiefly at the varieties of dogs (not being sporting dogs) which are more generally domesticated in England. But as we must commence with the mastiffs, we must introduce two foreign varieties before the true English breed can be considered. We begin with the Thibet mastiff because he is the largest dog in the world.

73. **THE THIBET DOG.**—The Thibet mastiff has an unconquerable detestation for Europeans and white men generally. Notwithstanding this unpleasant tendency towards us, several of the Thibet mastiffs have at various times been brought to this country. But the climate has proved too hot for them; they are so accustomed to a very cold country that the temperate zone does not agree with them. They are beautiful animals and capital watch-dogs, but it is reported that, except when their feet are upon "their native heath," they are not so courageous as might be expected from their behaviour to strangers.

Speaking of the Thibet dog, Mr. Broderip observes: "These noble animals are the watch-dogs of the table-land of the Himalaya mountains about Thibet. Their masters, the Bhotas, to whom they are most strongly attached, are a singular race, of a ruddy copper colour, indicating the bracing air which they breathe, rather reserved, but of an excellent disposition. The men till the ground and keep sheep, and at certain seasons come down to trade, bringing

borax, tinctal, musk, &c., for sale. On these occasions the women remain at home with the dogs, and the encampment is watched by the latter, which have an almost irreconcilable hatred to Europeans, and generally fly ferociously at a white face." They are of a black colour, with a tawny patch over each eye. Their skin seems to hang loosely, and their upper lips are curiously pendulous.

74. **THE CUBAN MASTIFF.**—This animal is supposed to be a cross between the true English mastiff and the bloodhound. The aversion to white folks that distinguishes the Thibet dog is in this case exactly reversed, if not by nature, at least as far as the teachings of brutal men may prevail. Sometimes this mastiff is called the "Nigger" hound, a term the application of which will render any explanation as to this dog's pursuits almost unnecessary. When, in reading slave romances or realities, the reader comes across a runaway-nigger hunt, he may bear in mind that the dog in question is the foremost brute in the chase. When the Spaniards invaded America, the ravages and bloodthirstiness of these creatures astonished the simple natives no less than the "thunder and lightning" of the Spanish arms. They were also used by the English, with some success, during the rebellion in Jamaica. Here is an anecdote of a Cuban hound told by Dallas:—"One of the dogs, that had been unmuzzled to drink when there was not the least apprehension of any mischief, went up to an old woman who was sitting attending a pot, in which she was preparing a mess. The dog smelled at it and was troublesome. This provoked her; she took up a stick and began to beat him, on which he seized her by the throat, which he would not leave till his head was severed from his body by his master."

75. **THE ENGLISH MASTIFF.**—This, the largest of the dogs indigenous to this country, is a creature whose chief characteristics might be emulated by not a few bipeds. In times of peace, and when not disturbed by a sense of responsibility, the huge fellow is just as mild as a kitten. No puppy is too young for him to try a game with; and should the waspish little brute turn and snap at his huge patron, he will merely blink his eyes good-humouredly and wag his tail, as though he thought it rather a good joke, or, better still, remembering his own strength, as an act of pluck on the part of the pigmy, and a thing he admired.

In old time Great Britain was so noted for its mastiffs that the Romans employed an officer to breed and send them to Rome to fight in the amphitheatres. As Sir Walter Scott observes, with regard to dogs generally, the mastiff hath a "noble nature and is incapable of deceit." He is a quiet, gentle animal; incapable



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apparently of harming a fly in the daytime, or when his care is not needed. All this may happen when the sun is shining, and all men have their eyes open to watch over their goods. But stay till night-fall, when the mastiff "mounts guard" in the yard or warehouse. Then his whole faculties are his master's. In anyone else's interest, or in his own, he has neither ears nor jaws nor limbs, and should his oldest canine chum approach with no worse intention than a gossip, he will be warned off surlily; if he comes any closer, he will be bitten. His discrimination between friend and foe is seldom at fault, and even in cases that reasoning mortals would regard as a "fix," the mastiff manages sometimes to pull through cleverly.

The height of this animal is usually from twenty-five to twenty-eight inches at the shoulder, sometimes thirty to thirty-four inches, and its weight above a hundred pounds. The shape of the mastiff breed is such as might be expected from a crossing of the bull-dog and the bloodhound. Like the former, the under jaw is generally slightly protruded; but the teeth are constantly covered, as is never the case with the thoroughbred "bull." The mastiff's coat is smooth, and its most common colour light liver-colour, and different brindlings, with black and white patches. The pure breed of mastiff is very scarce. The expression of the mastiff is particularly imposing, kindly, and trusting. Its proportions are extremely good, the deep wide chest and square muzzle entitling it to respect from a would-be enemy.

76. **THE BULL-DOG.**—This dog is one of the mastiff kind, and of all four-footed animals the most courageous; bull-dog tenacity and courage are proverbial. Originally trained for the bull-ring, there is no animal this dog will not attack, and a single glance at his expressive features will convince even the most sceptical that his tastes lie in the direction of pugnacity.

77. **SHAPE OF THE BULL-DOG.**—The shape of the bull-dog is somewhat remarkable, and indicative of great power. "The fore-quarters are particularly strong, massive, and muscular; and the chest wide and roomy. The hind-quarters, on the contrary, are very thin, and comparatively feeble. All the vigour of the animal seems to settle in its fore-legs, chest, and head. The little fierce eyes that gleam savagely from the round combative head, have a latent fire in them that gives cause for much suspicion on the part of a stranger who comes unwarily within reach of one of these dogs. The underhung jaw, with its row of white glittering teeth, seems to be watering with desire to take a good bite at the stranger's leg;

and the matter is not improved by the well-known custom of the bull-dog to bite without giving the least vocal indication of his purpose."

78. NATURE OF THE BULL-DOG.—The bull-dog by nature is affectionate. As he occasionally makes his appearance before us he is stolid and hideous enough, in all conscience. But it must be borne in mind that this is not the true bull-dog; this is a creature taught and trained, or, what is worse, whose great-grandfather was taught and trained only to fight its kind and to pin bulls. It is housed to this end, and fed and educated to it. No other canine animal has so little liberty. It is fettered to its dismal kennel in



THE BULL-DOG.

many ways in which other dogs are exempt. It is preparing for a "match," and must, therefore, be kept quiet; it is recovering from a "match" (look at its poor throat and ears), and must not leave the kennel for a moment. Even when neither of these causes of imprisonment exists, there are two others that are as firmly attached to it as its own tail. It is dangerous to let it out—it might bite somebody; it is impolitic to let it out, as it is an animal of choice breed, and

to let it run with common street dogs might spoil its manners at the very least. So it is kept a prisoner; a surly savage, feeding—not too heartily—on raw meat, with an occasional bone to whet its fangs on while it cogitates its last battle and battles to come. A pretty specimen of humanity a *man* would turn out if he were subjected to similar treatment.

79. ARTIFICIALITY OF THE BULL-DOG.—"The bull-dog is an entirely artificial creation. - In proof of this stands the well-known fact, that unless the breed be sedulously kept up, it is apt to degenerate, or to become extinct. Old breeders even now say the ancient kind of English bull-dog is nowhere to be found. But take another proof. We want no anatomical knowledge or prejudice: in him formation is to be judged. Look at the head of the animal. Is not the cranium a malformation? Do not the habits of the

animal prove it to be a pampered creation? It is not generally known that the disposition of the genuine bull-dog is too fond. It will fondle upon any stranger; and yet, contrary to the general custom of its race, it displays small preference for its master. It will fondle a human being as though its heart would burst with affection; but upon the slightest excitement—often upon a sudden sound—it will fly at and mangle the hand that was caressing it. Then the hold taken by this animal is more retentive, that is, strictly natural. It will fix upon an object, and frequently suffer itself to be dismembered before it will let go its hold, although its master's voice be energetically raised to command it. Do not these traits bespeak the being formed rather by man's malice, than created by Nature's goodness? Look at the likeness of the beast, and say how far it resembles the mild, graceful, and generous race to which it outwardly belongs."

According to Stonehenge, the bull-dog, to be well-bred, should present the following characteristics:—"The head should be broad and short, the skull high, large, and wide, the eye of moderate size, and the forehead well sunk between the eyes, which should be full, black, and far apart; the ears semi-erect and small, well placed on the top of the head, and rather close together than otherwise; the muzzle short, truncate, and well furnished with chop; the back should be short, well arched towards the stern, which should be fine and of moderate length. Many bull-dogs have what is called a crooked stern, as though the vertebræ, or tail, were dislocated or broken. I am disposed to attribute this to ill-breeding. The coat should be fine, though many superior strains are very woolly-coated; the chest should be deep and broad, the legs strong and muscular, and the foot narrow, and well split up like a hare's."

There is scarcely a sporting dog in Europe into whose blood has not been imported some of that of the bull-dog. It is not only as a fighter that the animal excels. Perseverance is as much its characteristic as pugnacity, and many a time it has easily beaten another dog in a feat supposed to be its antagonist's specialty. For instance, a bull-dog was lately matched by its owner to swim a match against a large Newfoundland dog. The owners of the competing quadrupeds threw them out of a boat at a given signal, and then rowed away as fast as possible. The two dogs followed the boat, and the bull-dog won the given distance by a hundred yards. It was remarked that while the whole of the Newfoundland's body was submerged, showing only the upper part of his head above the surface, the whole of the bull-dog's head and its neck were visible the whole distance.

80. **THE BLOODHOUND.**—The bloodhound was, in ancient times, very common in England, and very commonly employed. Let not the innocent reader, however, imagine that *human* blood is the only sort this hound's nose is quick at scenting. Bloodhounds were chiefly used for the detection of sheepstealers, it being the common custom for the delinquent to slaughter the animals before conveying them away, that their carriage might be the easier. Little more than fifty years ago, however, we read of the Thrapston

Association, who, "for the detection of felons in Northamptonshire, have provided and trained a bloodhound for the detection of sheep-stealers. To demonstrate the unerring infallibility of this animal, a day was appointed for public trial; the person he was intended to hunt started, in the presence of a great concourse of people, about ten o'clock in the forenoon, and at about eleven o'clock the hound was laid on. After a chase of an hour and a half, notwithstanding a very indifferent scent, the hound ran up to a tree in which the man was secreted, at the distance of fifteen miles from the place of starting, to the admiration and perfect satisfaction of the large number of persons assembled."



THE BLOODHOUND.

whose shoes had been rubbed with the blood of the deer, had started on a circuit of two or three miles; during his progress the man was instructed to renew the blood from time to time, to keep the scent alive. His circuit was gradually enlarged at each succeeding lesson, and the young hound, thus entered and trained, became at last fully equal to hunt by itself, either for the purposes of woodcraft or war.

82. APPEARANCE OF THE BLOODHOUND.—A thoroughbred bloodhound stands about twenty-eight inches high, and is muscular, compact, and strong; the forehead is broad, and the face narrowed towards the muzzle; the nostrils are wide and well developed; the ears are pendulous and broad at the base. The general aspect of the hound is one of self-possession and sagacity. Its voice is deep and sonorous, and may be heard at a very great distance. The colour

81. TRAINING.—The ancient mode of training a young bloodhound was to lead it, accompanied by an experienced old hound, to the spot whence a deer or other animal had been taken on a mile or two; the hounds were then "laid on" and encouraged, and after hunting this "drag" successfully, were rewarded with a portion of the venison which composed it. The next step was to take the young hound, with his seasoned tutor, to a spot whence a man,

of the true breed is said to be reddish tan, darkening gradually towards the upper parts, till it becomes mixed with black on the back; the lower parts, limbs, and tail being of a lighter shade, and the muzzle tawny. It is rather a bad-tempered animal as regards strangers.

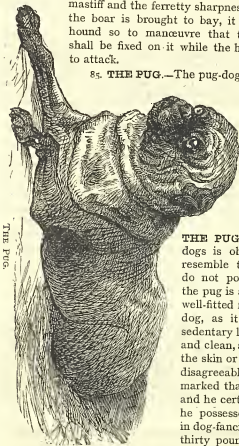
The only chance for either man or beast hunted by the bloodhound is to take to the water—to start a jump three or four feet off the water's edge, and to leap far and fairly in. Water holds no scent; therefore, when the hound comes to the jumping-place, he will be puzzled, and double back on the track, and altogether become so confused as to be for the time useless. Should blood in any quantity be spilt on the tracks, the hound often refuses to proceed beyond it; and so it has happened in slave-breeding countries, that a runaway has purposely gashed his leg or arm, so that the ground might be saturated and farther chase baulked.

83. **THE BOARHOUND.**—This brave and valuable dog is the result of a careful blending of other species. To successfully overtake and assail so tremendous and savage a creature as the boar—concerning which one of the most eminent of modern Indian hunters, Captain Shakspear, says that, as dangerous game, it certainly ranks before the tiger and leopard—to successfully meet this tusked monster three qualities are essential: first, speed; second, quick scent and swift action; and third, indomitable pluck. The first is supplied by the pure greyhound, and by crossing it with the English mastiff two of the three demands—speed and pluck—are met; for scent and quick movement, what better than the nimble, fiery terrier? With the latter, then, the progeny of the greyhound and the mastiff is crossed, and the result is the boarhound.

Some notion of the sort of animal the wild boar is to face may be gleaned from the following summary that terminates one of Captain Shakspear's hunting narrations:—" . . . I have stated that the boar is the most courageous animal in the jungle. There he lay, with a broken spear in his withers, the shaft sticking up a foot and a half from the blade—knocking over a horseman and wounding his horse; receiving two bullets, ten to the pound—the first in the neck and throat, the second breaking his jaw, and fired within a few feet of his muzzle; making good his charge, cutting down his enemy like grass, wounding him, knocking over a second man armed with a spear, defying the dogs, and then, when in the act of charging, receiving a shot in the brain, and dying without a groan."

84. **BOAR-HUNTING.**—Boar-hunting is happily but a thing of the past in England. In other parts of Europe, however—in Germany, for instance—the dense forests still afford a stronghold to the "long-tusked hog," and in that country boar-hunting is still a common sport, and the boarhound generally bred for use. In appearance the dog in question is rather formidable; it is taller at

the shoulders than the mastiff, the colour of which it usually assumes. The limbs are very stout and long, and the shape of the head, which is rather large, partakes of the squareness of the mastiff and the ferretty sharpness of the terrier. When the boar is brought to bay, it is the business of the hound so to manœuvre that the animal's attention shall be fixed on it while the hunter is left at liberty to attack.



THE PUG.

85. **THE PUG.**—The pug-dog is closely allied to the mastiffs and "bulls," and the fashion for these animals as pets has revived to a certain extent of late years. They first came into fashion in William the Third's reign, and were known as "Dutch pugs."

86. **ORIGIN OF THE PUG.**—The origin of these dogs is obscure; they certainly resemble the bull-dog, but they do not possess his pluck. Still the pug is a good companion and well-fitted for a house or carriage dog, as it can put up with a sedentary life. It is usually sweet and clean, and, unlike water-dogs, the skin or coat of a pug is never disagreeable. It has been remarked that the pug is of no use, and he certainly is not much, but he possesses a value of his own in dog-fanciers' eyes. As much as thirty pounds, or even more, has been given for a good specimen.

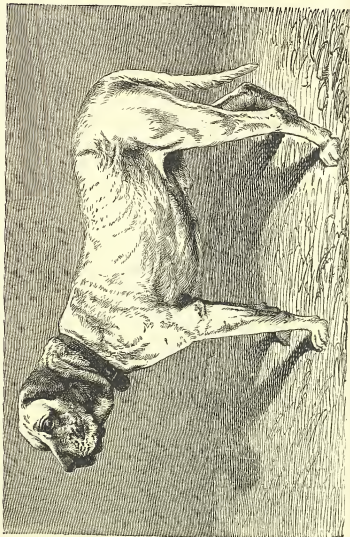
87. **PUG POINTS.**—The points of a pug are as follows, according to Doctor Stables and others:—Mastiff colour; weight about ten pounds; height fifteen inches; small, rounded, firm body; flat round head, high forehead, short nose, not turned up; wrinkled brow;

ears thin, soft, small and black, lying close to the head; square jaw; eyes full and protruding; straight legs; broad chest. The curled tail to one side or other of the hind-quarters (in the male it generally inclines to the right, in the female left). The thumb-mark on the forehead and the mole on each cheek are distinguishing traits.

88. **THE COLLEY.**—The colley, or collie, is one of the finest dogs we possess. Doctor Stables calls him the king of dogs, and from our experience of collies we are quite of his opinion. There is no such intelligent animal as the Scotch collie, or sheep-dog. It is something like the English shepherd's dog. The collie stands about twenty-four inches; is black with tan markings. White collar and chest. Long feathery tail. The fur is thicker round the chest and shoulders, like a mane. The eyes are very bright and intelligent. The muzzle is pointed rather "foxy" fashion. The forepaws are particularly strong. Some collies are said to be uncertain in temper with children, but this is not within our experience of the true collie. The collie is something like the so-called ancestor of the dog-tribe, the dingo.

89. **HIS SAGACITY.**—The sagacity and intelligence of the collie has been the foundation for many anecdotes, and it is really wonderful what they will do. We have seen sheep-dogs performing work with a flock, dividing them into packs and arranging the lambs and mothers in a way that baffles description. Indeed, the sheep understand the dog much better than they understand the shepherd, who issues his orders to the dog by word and sign. The true dog will never bite the sheep, his bark is sufficient. The drover's dog is a different animal, and often worries the sheep unnecessarily. But drovers are not shepherds; unfortunately they are often cruel and quite unfit to have the charge of any animal. Like master, like dog. We could multiply anecdotes of the collie, but in this place it is impossible to do so.

90. **THE NEWFOUNDLAND.**—The Newfoundland dog really belongs to the spaniels, but as it is not used for sporting purposes, as so many spaniels are, we will include this most intelligent and favourite dog in this chapter. We have referred to his capacity for hard work. In his native land, whatever his deservings may be (it is just possible that, ruled by cruelty, he is not quite the model animal we find him), he is treated cruelly. "He is converted into a beast of burden, and forced to suffer even greater hardships than those which generally fall to the lot of animals which are used for the carriage of goods or the traction of vehicles. The life of a hewer of wood is



THE MASTIFF.

proverbially one of privation, but the existence of the native Newfoundland dog is still less to be envied, being that of a servant of the wood hewer. In the winter the chief employment of the inhabitants is to cut fuel, and the occupation of the dog is to draw it in carts. The poor animals are not only urged beyond their strength, but are meagrely fed on putrid fish, the produce of some preceding summers. Many of these noble dogs sink under the joint effects of fatigue and starvation, and many of the survivors commit sad depredations on the neighbouring flocks as soon as the summer commences and they are freed from their toils."

There are two kinds of Newfoundland dog. The black and the black-and-white. The latter has been called the "Landseer," because Sir Edwin Landseer painted that variety. The black is the original and true breed. There is a variety of the Newfoundland (sometimes called the Labrador, or St. John's dog) which rarely measures higher than two feet. The Newfoundland is eminently a water dog. Not only does he freely enter the unstable element at the least bidding, but if he should happen to live near the sea or a river, and can find a playfellow of his own kind, their swimming matches and aquatic gambols are a good thing to witness. No doubt this dog owes its swimming powers in a great measure to its broad feet and strong legs.

The sagacity of the Newfoundland in assisting a drowning person is wonderful. It is not content with seizing any part of the person or dress and endeavouring to paddle shoreward; it will shift and shift its hold till it secures a grip on anything that may encircle the neck, and there hold on, as though aware that as long as a man's head was out of the water no harm could come to him. On shore his intelligence is just as surprising. Take the following as a sample, on the undoubted authority of the Rev. J. G. Wood:—

"One of these animals, belonging to a workman, was attacked by a small and pugnacious bull-dog, which sprang upon the unoffending canine giant, and after the manner of bull-dogs 'pinned' him by the nose, and there hung, in spite of all endeavours to shake it off. However, the big dog happened to be a clever one, and, spying a pailful of boiling tar, he hastened towards it, and deliberately lowered his foe into the hot and viscous material. The bull-dog had never calculated on such a reception, and made its escape as fast as it could run."

91. **POINTS OF THE NEWFOUNDLAND.**—The points of the Newfoundland dog, according to the best authorities, include the following traits:—Coat straight and long on the breast, fine head, brow broad, deep muzzle, large teeth, eyes rather small and deeply set, but dark and very intelligent; ears also small; large, flat, webby feet; muscular chest, with altogether a "well set up" appearance, and worthy of the title of "A Distinguished Member of the Humane Society" bestowed upon him in Landseer's celebrated picture.

92. **LABRADOR DOG.**—The Labrador dog is an intermediate between the true "Newfoundland" and the land spaniel. Mr.



"LANDSEER" NEWFOUNDLAND.

Jukes, in his "Excursions" in Newfoundland, mentions "a thin, short-haired, black dog, which possessed a thin, tapering snout; a long, thin tail; rather thin, but powerful legs; a lank body, hair

short and smooth." These are the most abundant dogs of the country, and different from our idea of a Newfoundland dog. As swimmers and divers they are unmatched. They can catch fish for themselves, and they paddle their paws about in the water to attract the prey.

93. **THE ST. BERNARD, OR ALPINE SPANIEL.**—This dog much resembles the Newfoundland, and is of two kinds—the "rough" and the "smooth-coated." The breed is celebrated all over the world; but there are several dogs sold in Switzerland which are not true St. Bernards. At the Hospice, and also at the Grimsel Inn, as we were last year informed, a register is kept of the dogs and of the offspring, which are all known. We were offered a pup at Chamounix, which was said to be a true St. Bernard, but it was not so. The price asked was ten pounds. One was purchased by a gentleman, but it did not survive the journey to England.

94. **POINTS OF THE ST. BERNARD.**—The true St. Bernard should stand about thirty inches high at the shoulder, or perhaps a little higher. The eyelids droop a little, so that the red is seen inside the lid. This is an infallible test, and is very characteristic of the breed. The head resembles the Newfoundland dog's, being very handsome and noble; the eyes are particularly expressive; the lips somewhat hanging down.

95. **ST. BERNARD'S SAGACITY.**—The sagacity of the St. Bernard is extraordinary, and many authentic anecdotes are annually told of the wonderful feats performed by this breed of dogs. It is also remarkable that even the whelps display the peculiar attributes of the animal as soon as they can walk, by sniffing at the snow, as if in search of something. The stuffed body of a celebrated dog is still preserved in the museum at Berne; the phial which he carried round his neck when seeking belated travellers is still suspended from it. This is the dog which restored a half-frozen child to consciousness, and then, having induced the boy to cling to his neck, brought him to the Hospice in safety.

The grand appearance of the St. Bernard will be readily perceived from the accompanying illustration. The dog is most docile and affectionate, easily trained, and very brave, partaking of the qualities as well as of the appearance of the Newfoundland and the mastiff. Several beautiful specimens of the pure breed exist in England; one is in the possession of the Prince of Wales, at Sandringham, and is a great pet with the royal children.



THE ST. BERNARD.

96. **THE POMERANIAN.**—This dog is also known as the Pomeranian fox-dog, or Loo-loo (Loup-loup). It is essentially a "pet" dog, and in appearance bears a wonderful resemblance to the Arctic fox. The Pomeranians are of two kinds, white and black. It is a very handsome and intelligent companion. Its "bushy tail gives it a very distinguished appearance, of which," continues Mr. Wood, "the animal seems to be thoroughly aware."



THE POMERANIAN DOG.

97. **THE KING CHARLES SPANIEL.**—This favourite dog is another of the "pets" which we include amongst the house-dogs. Everyone is familiar with this clever little animal, which derives its royal title from our "mutton-eating king." Charles II. was absurdly fond of these spaniels, and had a number of them always following at his heels. As a companion, the King Charles is very amusing. The dog is easily trained, and a kind master or mistress will readily teach it to perform many little tricks. It has

been known to join in children's games and play "touch" with as much zest and enjoyment as the young people.

98. **THE BLENHEIM SPANIEL.**—When thoroughbred, the Blenheim is smaller even than the King Charles. Like the latter, to be of value it should possess a very short muzzle, very long, silky ears, falling close to the head, and touching the ground as the dog walks. The legs should be covered with long glossy hair to the toes, and the tail should be well "feathered," as the fanciers say. The eyes of both these dogs are always extremely moist. The hair covering the whole body should be slightly "wavy," but should not curl. The colour is white, with red markings, a broad white leaf down the skull separating the red; the ears are red.

In the centre of the "blaze" is a smooth spot, oblong in shape. This is the Blenheim mark.



MALTESE DOG.

99. **THE MALTESE.**—This is another dog of the "toy" school. It is remarkable for the extreme fineness, gloss, and length of its hair. Maltese dogs barely exceeding three pounds in weight have been known to measure fifteen inches in length of hair across the shoulders. As its name implies, it originally came from Malta. It is among the rarest of our canine pets. It is lively and good-tem-

pered, and never "unpleasant," as some pets are.

100. **THE POODLE.**—The poodle is certainly an intelligent dog, and it is possibly on this account, because it is capable of performing extraordinary tricks, that its master is at considerable pains to bestow on it an extraordinary appearance. That the dog should be subjected to such indignity, however, is no wonder, when we see the same spirit actuating mountebanks, acrobats, and other "performing" specimens of humanity. Since Signor Jacko cannot possibly turn that tremendous number of somersaults without he wears a girdle of spangles, and a gorgeous star or crescent on his forehead, it is no wonder that he renders his performing poodle hideous by shaving off its coat, leaving nothing but a few rags about its throat and toes. This is quite contrary to Nature, and is a barbarous custom in every sense.

There are few doggy tricks the poodle cannot be taught to perform, in the water as well as on land. He is a cunning rascal. Jesse, in his "Gleanings," mentions a poodle belonging to a friend of his, for whom correction was found necessary, he being sometimes rather unruly. The gentleman bought a whip, with which he corrected him once or twice when out walking. On his return he left the whip on the hall-table, and in the morning it was missing. Having been found, concealed in an out-building, and, as before, used when occasion required, in correcting the dog, it was once more missed; but on the dog, who was suspected of having stolen it, being watched, he was seen to take it from the hall-table, in order to hide it as before.

"There was a story when we were in Heidelberg," says a writer in the *Dublin University Magazine*, "going about of a certain student who had a remarkably fine white poodle, that used daily to accompany his master to the lecture-room of a professor who was not very remarkable for the distinctness of his vision. The dog would regularly take his seat upon the bench beside his master, and peer into his book, as if he understood every word of it. One wet morning, the lecture-room, never, at any time, remarkable for being crowded, was deserted save by a few students, amongst whom was the student who owned the poodle. The dog, however, had somehow happened to remain at home. 'Gentlemen,' said the short-sighted professor, as he commenced his lecture, 'I am sorry to notice that the very attentive student in the white coat, whose industry I have not failed to observe, is, contrary to his usual custom, absent to-day!'"



THE POODLE.

There is a small variety of poodle called Barbet, mentioned by the Rev. J. G. Wood. In appearance it is like an animated mop, and some difficulty is experienced in finding where its head is and where its tail. It makes a good pet. It is cleanly in its habits, very affectionate, full of tricks, and as easily trained as the larger poodle.

101. **THE DALMATIAN DOG, OR COACH-DOG.**—This animal is easily recognisable by his spotted coat, which has earned for him the soubriquet of "plum-pudding dog." This dog is more attached to the stable and horses than to the house, but he is a faithful animal.

and were he paid more attention to would be more intelligent. This dog is the "harrier" of Dalmatia, and is used in various capacities in Italy. Great friendships exist between the coach-dog and his stable companions, and instances can be adduced of this attachment between the horses and the dogs. These dogs are more sagacious than is generally supposed, and one of them, left in



THE DALMATIAN DOG, OR COACH DOG.

France, has been known to embark on board ship and return to England and home.

102. **THE GREAT DANISH DOG** is also sometimes nicknamed after our Christmas dish as well as the Dalmatian. The Danish dog is usually white, with large dark patches. His ears are white, those of the Dalmatian being black. He is also used as a stable-dog in this country, but appears, contrary to the proverb, to be more appreciated in his own country, where he is used as a pointer, and seems equal to his work. He is a fine animal, standing about two feet high, and is very faithful to his trust. An anecdote is

related of a Danish dog being accidentally shut in a room with some game. The keeper was called away from the castle, and unexpectedly detained from day to day. At length he returned, and went to the room for the game, which he found untouched, and the faithful dog lying dead upon the floor. The dog had succumbed to starvation rather than eat the forbidden game.

103. **THE CUR-DOG.**—The cur deserves notice, not so much for his good qualities to strangers, as for his attachment to his master and his possessions. We are apt to class every mongrel as a "cur," which has become a term of reproach to dogs and even to men. The cur has somehow obtained a bad character, but anyone who has kept a cur will acknowledge his fidelity and trustworthiness. Against these qualities must be set his poaching propensities, and his unfortunate and disagreeable tendency to rush out and bark at all passing horses or vehicles.

104. **ORIGIN OF THE CUR.**—The true cur-dog is obtained from a shepherd's dog and a terrier. In the north of England he is well-trained and proves very intelligent in looking after sheep. Indeed, in looking after anything he is very useful, and will remain seated a whole day in charge of his master's coat, while the man is at work in the fields or on the road. No consideration will tempt him from his allegiance. So there is something to be admired even

in the village cur. It is a capital house-dog also, and will perish sooner than devour or give up to any stranger the food or property committed to its charge. One of these dogs has been known to carry his owner's dinner to the dockyard at Portsmouth (a distance more than a mile), and return with the empty basket to the cottage.

105. **THE ITALIAN GREYHOUND.**—Last, but not least, in the esteem of canine pet-keepers, comes the diminutive, delicate Italian greyhound. It derives its origin from the smooth old English greyhound, and is, indeed, the same animal dwarfed. Its sole value is as a "toy;" for although its speed is sufficient to enable it to overtake such small game as the rabbit, it would be too faint-hearted to seize it; or, even should it manage to screw up its courage, too weak in the jaw to hold it. It dares not stir out on a



ITALIAN GREYHOUND.

cold day without an overcoat and mittens, and even then a shift of wind will give it ague.

The worst feature of Italian greyhound keeping is that you are never sure of the value of your dog. Fashion is more constant even to ladies' bonnets than to this dog. This year it must be free from spots and of a uniform colour. Next year, to be perfection, it must be "starred" on the breast. It may be said, however, that golden fawn is a highly respectable tint for an Italian hound, and that white dogs and red dogs of this breed are held cheaper than any other.





CHAPTER V.

SPORTING DOGS.

I. GREYHOUNDS.

106. **THE GREYHOUND.**—This is the most graceful of animals, and specially fitted by Nature for speed and endurance. It was known in remote ages in Egypt, and the semblance can still be seen upon monuments four thousand years old. The English greyhound is a model of elegance and symmetry, and is so made as to offer the very least resistance to the air through which it passes. It hunts by sight rather than by scent, so its eyes are placed forward. The head is beautifully shaped and slender, the muzzle is long and pointed, the ear-points droop, the back is broad and muscular, the chest deep and capacious, as befits such an enduring courser; the body is lank, and much contracted towards the tail.

The extraordinary speed of the greyhound is the theme of many anecdotes, and prizes are now regularly competed for by favourite animals. The hare would have no chance with the greyhound were it not for the dexterity of the former in "doubling" on its track. The greyhound is often crossed with the bull-dog, with a view to give it pluck and endurance. After a few crossings, the appearance of the greyhound parentage is preserved, and the endurance of the bull-dog is secured.

107. **POINTS OF THE GREYHOUND.**—The pure greyhound is remarkable for its symmetry, speed, and keenness of sight. It is found throughout Europe and in parts of Asia, and would seem to have been a distinct variety of the dog from a very early period. In ancient times it was more valued even than now. To be the possessor of a greyhound was to be a distinguished person—a

nobleman, or at least a gentleman. We find it recorded that a fine paid to King John consisted of "five hundred marks, ten horses, and ten leashes of grayhounds."

The perfection of greyhound form is well described in the following quaint lines:—



GREYHOUNDS IN LEASH.

"Headed lyke a snake,
Neckyed lyke a drake,
Footed like a catte,
Tayled lyke a ratte,
Syded lyke a teme,
And chyned lyke a bream.
The fyrst yere he must learne
to hie,
The seconde yere to fild him
lide,
The thyrde yere he is felon
lyke,
The fourth yere there is none
syk,
The fifth yere he is goode
ynough,
The sixth yere he shall hold
the plough,
The seventh yere he will
avayle
Grete bitches for to assayle;
But when he is come to the
ninth yere,
Have him than to the tane-
nere;
For the best hound that ever
bytch had
At the ninth yere is full bad."

This description is scarcely borne out by more modern writers, for the feet are not cat-like in reality. The chest and shoulders should be deep and narrow, long and strong back, glossy coat.

108. **USES OF THE GREYHOUND.**—Formerly the greyhound was principally employed in chasing the stag; in modern times, however, its use appears in the sport of hare-coursing. Swift as is the hare, the greyhound is swifter; and if the former ran in a straight line it would be overtaken in a very short space. The instincts of the hare, however, teach it better. Its forelegs being very short, it is enabled to turn an acute angle with little diminution of speed; whereas the long-limbed and impetuous hound finds it impossible to halt or make short turns at will, and so is carried beyond his mark, as it were, and has the chase to renew with a fair start for the hare. Should the latter once gain cover, it is tolerably

safe, as the greyhound hunts solely by sight. Its muzzle is so narrow in proportion to its length, that the nasal nerves have no room for proper development, the result being that the animal's power of scent is very deficient.

109. **VARIETIES.**—The largest of the species is the Irish greyhound, which measures four feet in length, and is altogether rougher and sturdier than the English greyhound. Like all good dogs, it is peaceful enough when not angered or excited by the sight of game. When this latter is the case, its ferocity is terrible. In ancient times, when the Irish forests were infested by the wild boar and wolf, the hound in question was wont to do good service to its masters. There are very few of the genuine breed existing at the present day.

110. **THE SCOTCH GREYHOUND.**—The greyhound peculiar to Scotland is a shaggier creature than the Irish one, but is not so large or so powerfully built. This is the dog towards which Sir Walter Scott evinced

so much affection, and whose disputed intelligence and sagacity he was at such pains to vindicate. The Scotch greyhound, or deerhound, as it is sometimes called, is used in the chase of hares and deer.

111. **THE RUSSIAN GREYHOUND.**—The Russian greyhound, which is smaller than the others, is used as a chaser of wild beasts, in which occupation he has an advantage over his English and Scotch brethren, inasmuch as he is gifted with the power of scent. Persia has its greyhound. It is of rather slender build, and its ears



THE GREYHOUND.



THE DEERHOUND.

are "feathered" spaniel fashion. It is bold, enduring, and marvellously swift. With its aid, the Persians chase that speediest of quadrupeds, the wild ass. It is used, too, against the antelope, and, though no match for that animal, is often enabled to overtake and pull it down by what seems to fair-thinking folks rather a mean "dodge." The Persian antelope-hunters, besides the dogs, are provided with a trained falcon, whose business it is to hover about the antelope's head, and to flap its wings before its eyes, thus scaring the poor beast, and compelling it so to deviate from its proper course that the dogs are enabled to come up with it.

112. **THE DEERHOUND.**—This now rare hound is said to derive its origin from the bloodhound and the greyhound—a mixture resulting in the most exquisite scent combined with great endurance. Of late years the sport of stag-chasing has in a great measure given place to fox-hunting; and even where the royal and ancient sport is still followed, the dogs employed are generally a large and powerful species of foxhound. These dogs, of which mention will be found in another page, rank among the swiftest and most enduring dogs in the world. They have been known to maintain, without flagging, a stag-chase of fifty miles' duration, and in old sporting chronicles may be found an account of a hunt of so protracted a nature that the whole pack of dogs excepting two fell off the trail, and that at last the huntsmen came up to their game dead from sheer exhaustion, and the two hounds, within a short space, dead too.

It is said, however, that the modern substitute, although equal in fleetness and strength to the old English deerhound, is not its match for courage. It would seem, at first sight, that no particular amount of bravery was requisite to face the "gentle" stag, but it should be remembered that that animal, when brought to bay, becomes a rather formidable opponent: its neck is curiously like, its antlers sharp and hard as steel prongs, and its active hoofs by no means to be despised.

II. SHOOTING DOGS: POINTERS, SPANIELS, SETTERS.

113. **THE TRUE POINTER.**—This dog should possess the following points:—"A moderately large head, something like the foxhound, wide rather than long, with a high forehead and a full intelligent eye of medium size. Muzzle broad, with its outline square in front, and not receding, as in the hound. Flews (*i.e.* the overhanging lips) manifestly present, but not pendant. The head should be well set on the neck, with a peculiar form at the junction, only seen in the pointer. The neck itself should be long and well set on, covered in its upper outline, without any tendency to a

dewlap or a ruff, as the loose skin covered with long hair round the neck is called. The body is of good length, with a strong loin, wide hips, and rather arched ribs, the chest being well let down, but not in a hatchet-shape, as in the greyhound, and the depth in the back ribs being proportionately greater than in that dog. The tail, or stern as it is technically called, is strong at the root, but suddenly diminishing, it becomes very fine, and then continues nearly of the same size to within two inches of the tip, where it goes off to a point, looking as sharp as the sting of a wasp, and giving the whole very much the appearance of that part of the



THE POINTER.

house-dog. But he is in no degree inferior to other dogs in intelligence and domestic good qualities.

114. **SPANIELS.**—Of spaniels there are six distinct breeds, as follows:—The Irish water-spaniel, the Clumber, the Sussex, the Norfolk, the Cocker, and the English water-spaniels. No doubt spaniels originally came from Spain, hence the name.

115. **THE IRISH SPANIEL.**—The Irish water-spaniel is, as his name implies, extremely fond of the water. "He stands," says Doctor Stables, "twenty-one inches high at the shoulder, has large and pendant ears, a rather large head and good forehead; the muzzle is something like the collie, but with a kind of comical expression, as befitting an Irish dog. The face is smooth; a beautiful top-knot hangs over it in the form of a "peak." The fur is crisp and curly, and curly on the legs; the tail is short, stiff, and tapering. The colour is generally a dark mahogany."

insect, but magnified, of course. This peculiar shape of the stern characterises the breed, and its absence shows a cross with the hound or some other dog." This, according to Stonehenge, is a description every true-blooded pointer should answer, and, according to the same authority, white dogs with lemon-coloured heads are to be preferred before all others.

The pointer is essentially our out-of-door companion, and seldom is seen as a

115. **THE CLUMBER.**—The Clumber spaniel is a rather delicate animal, and very rare, but the breed has been preserved by the Dukes of Newcastle for generations—hence the title, from their family seat in Northamptonshire. They are rather heavy-looking animals. The colour is white, "patched" with a reddish orange tint. Their coats are not curly. Their powers of endurance and unerring nose, as well as the very valuable quality of hunting silently, have put the Clumbers in the foremost rank of sporting dogs.

116. **THE COCKER SPANIEL.**—This species, whose weight averages twelve or fifteen pounds, is the most useful sporting dog, as his small size enables him to work in places where larger dogs cannot penetrate. There are several sorts: the "Welsh," the "English," the "Devonshire," and many others. He resembles the springer. Colour black and tan, or a liver-colour and tan.

The cocker spaniel is the parent of the King Charles and the Blenheim, which we have already mentioned.

Captain Williamson (author of "Oriental Field Sports") once experienced an instance of the indomitable courage of a tiny cocker of his, called "Paris." The Captain was shooting near some underwood, rather thinly scattered among reedy grass, growing on the edge of a large watercourse, which took its rise at the foot of the large hill at Mucknee Gunge (India), when suddenly the spaniel in question, one of a brace that was present, ran round a large bush greatly agitated, and apparently on some game which the sportsman expected to put up. The Captain followed as fast as he could, but Paris was too quick for him, and before he could well get round to the bush, which was about ten yards from the brink of the ravine, had come to a stand, his ears pricked, his tail wagging like lightning, and his whole frame in a seeming state of ecstasy. "I expected that he had got a hare under the bank, and as the situation was in favour of a shot, I ran towards him with more speed than I should have done had I known that instead of a hare I should find, as I did, a tiger sitting on its rump, and staring Paris in the face. They were not above two yards asunder.

"As soon as the dog found me at his side, he barked and, giving a spring down, dashed at the tiger. What happened for some moments I really cannot say; the surprise and danger which suddenly affected me banished at once that presence of mind which many boast to possess in all emergencies. However, as soon as my fright had subsided, I began, like a person waking from a dream, to look about, and saw the tiger cantering away at about a hundred and fifty yards' distance with his tail erect, and followed by Paris, who kept barking." The tiger, arriving at a thick cover, disappeared, and the plucky little cocker returned to his dismayed master.

117. **THE SPRINGER.**—Like the cocker, the springer is essentially a field spaniel; the latter being employed for the heavier work, the former deriving his name from the "cock," or woodcock, for the seeking of which he is generally employed. The springer is seldom obtainable quite pure. The colour is a "golden liver"

tinge. The *Norfolk Spaniel* is much the same, but the colour is "white and liver."

118. **THE ENGLISH WATER-SPANIEL** is of moderate size, about twenty-two inches at the shoulders, and stoutly made. The forehead is high, fine nose, long ears, which, extended, measure rather more from tip to tip than does the animal himself. They are deeply fringed. Its coat is liver colour and brown, close and curly over the body. The tail is not fringed, but covered with curly hair.

That the water-spaniel was known to the Romans is proved by the fact that his figure exists on many of their monuments.

No weather, be it ever so cold or boisterous, can daunt this water-loving species of the genus *canis*. Indeed, it is admirably formed for aquatic exercise. Its feet are very broad (webbed, it has been asserted, but this is an old woman's tale), and its coat is supplied with natural oil in such profusion that it never becomes saturated; as soon as the dog leaves the water he gives himself a vigorous shake, and is at once dry. This waterproof quality of the water-spaniel, however, debars him the privilege of inhabiting the house, for should he happen to come near the fire the human organ of smell is speedily and unpleasantly made aware of the fact.



THE ENGLISH SPANIEL.

119. **THE GREAT WATER DOG.**—There is another dog of aquatic habits, known as the Great Rough Water-Dog.

It is about the height of a setter, but more stoutly built. His coat is long and curled, and its colour usually black and white, or brown and white.

"I recollect," says Mr. Richardson, "a singularly large dog of this breed about ten years ago in the possession of Mr. Grierson, of North Hanover Street, Edinburgh, near the foot of the Mound, which was possessed of unusual intelligence. Amongst other eccentricities, this dog followed the profession of mendicancy, and regularly solicited the charity of the passer-by. On receiving a halfpenny, his habit was, if hungry, to proceed at once to the shop of Mr. Nelson, at the corner of Rose Street, and purchase a biscuit; but it sometimes happened that he put by his halfpence till the calls of appetite returned, and he would go to his repository, take the money to the baker, and make his purchase. A servant of Mr. Grierson accidentally came upon this sagacious and provident animal's hoarding-place on one occasion, where was found about fivepence-halfpenny in halfpence. The dog chanced to enter at the moment of the discovery, and, with a growl of displeasure, he moved to the spot, and,

snatching up his wealth, proceeded at full speed to the shop, and dashed the money on the counter, barking vehemently at the same time, probably deeming it safer at once to turn his money into bread than risk being robbed by keeping it."

120. **THE SETTER.**—The setter partakes of the peculiarities of the pointer and spaniel, and, as the former dog derives its name from its habit of standing still and "pointing" at any game it may discover, the setter is so called because of its custom of "setting," or crouching, when marking down its game. There are three varieties of setter—the English, Irish, and Scotch (the "black and tan" setter). Respecting the common old English setter, an authority on such matters gives the following as the points the thoroughbred animal should possess:—"A moderately heavy head, but not so much as in the pointer; the muzzle not so broad nor square in profile, the lower jaw being nearly rounded off, but the upper being still nearly a right angle. The eye is similar to that of the pointer, but not so soft, being more sparkling, and full of spirit; the ear long, but thin, and covered with soft silky hair, slightly waved. The neck is long, but straighter than that of the pointer, being also lighter and very flexible, and slightly arched. The back and loins are as strong as those of the pointer, the latter also being rather longer; the hips also are more ragged, and the ribs not so round and barrel-like. The tail, or "flag," is usually set on a little lower, is furnished with a fan-like brush of long hair, and is slightly curled upward towards the tip; but it never should be carried over the back or raised above the level of its root, excepting while standing, and then a slight elevation is admired, every hair standing down with a stiff and regular appearance. The elbow, when in perfection, is placed so low as to be fully an inch below the brisket, making the fore-arm appear very short. The hind feet and legs are clothed with hair, or "feathered," as it is called, in the same way as the fore-legs, and the amount of this beautiful provision is taken into consideration in selecting a dog for his points." The colour varies with the breed; the "Laverock" is said to be the best.



THE SETTER.

The setter has its peculiarities respecting water. To get through a day's work creditably, it should be enabled to wet the whole of its body every half-hour or so. Moreover, it cannot do without water to drink so long as the pointer, though, having drunk its fill, it can endure heat and fatigue much longer than the pointer. In wet or very cold weather the setter is to be preferred before the pointer, the body of the former being securely protected by a flowing coat, while the latter is short-haired; consequently, in warm weather the pointer is preferable. The setter hunts by "body scent," as it is called, in contradistinction to the power possessed by the beagle, harrier, &c., who follow the footprints of their game, or hunt by "foot-scent."

121. **THE GORDON SETTER.**—The Scotch or Gordon setter stands higher on its legs than the English or Irish breed, and its hair is somewhat longer. They are very graceful animals, but not such hard workers as the English breed. The Irish setter much resembles the English, but has thicker legs, and "is distinguished," says a modern writer, "from its English relative by a certain Hibernian air that characterises it, and which, although conspicuous enough to the practised eye, is not easy of description." Their colour is somewhat of the shade of mahogany. They are excellent sporting dogs.

122. **RUSSIAN SETTER.**—Russia claims a setter of its own, an animal whose hair is long and woolly, and generally so matted that the true form of the dog is not clear to the casual observer. It is slower in its movements than the other breeds, but is possessed of a much more delicate scent, and it is pronounced by sportsmen who have had opportunities to test and compare their merits, that in its peculiar way the Russian setter is unsurpassed. The muzzle of this dog matches that of a Scotch terrier for hairiness; and its feet are likewise covered with hair, which serves as an important protection in long and rough travelling.

123. **THE RETRIEVER.**—Like the pointer and the setter, this dog derives its name from its special utility—that of "retrieving," or recovering game that has fallen at a distance after being shot. In height the retriever measures from twenty to twenty-five inches, and is powerfully built. Its colour is almost invariably black, and its fur of a short, crisp and curly nature, though some are flat-coated and glossy. There are many breeds of retrievers, but the most favourite are those derived either from the Newfoundland dog and setter, or from the water-spaniel and terrier.



THE RETRIEVER "CARLO."

A smaller retriever is produced by the beagle and terrier, and for stealth and quiet the smaller is superior to the larger sort in wild-game shooting.

As the animal is not born a retriever, but merely comes in its puppyhood into its master's hands an intelligent dog of promising parentage, some pains must be taken to teach it its business. It must be taught, as its first lesson—how dreadfully hard it must come to the uproarious little puppy—never to bark, or even to whine, in business hours. Such an impropriety would disturb the game in the neighbourhood, and be to the sportsman the unlucky means of saving their lives. It must be taught not to eat, nor to bite, the game as soon as it finds it, but to bring it straight to its master, and lay it at his feet uninjured. Being sent for a thing, it must be charged with the errand over and over again, till it performs it, or it may be apt to infer that you are not very particular about the recovery of your game, and—especially if it be tired—shape its behaviour accordingly.

124. **TIME TO TRAIN RETRIEVERS.**—The time of year should also be noted when training these dogs, for very cold water and cold wind after a dip are both injurious, and may be fatal to the dog. Great care and attention, with much patience, must be bestowed upon the animal, and he will soon learn to do as he is told. Kindness and firmness are the needful qualities for dog-training.

III.—HUNTING DOGS.

125. **THE FOXHOUND** is one of the most highly prized and valuable animals we possess. Palatial kennels are erected for its reception, and thousands of pounds spent every year with a view to the maintenance of its present excellence, with improvements if practicable. It is commonly agreed that the foxhound originated with the ancient English hound, improved by judicious crossings. That the greyhound enters into its composition is pretty evident, as it is one of the speediest of dogs. This was tested some years ago on the Beacon Course at Newmarket. "The length of the course is 4 miles 1 furlong and 132 yards, and this distance was run by the winning dog in eight minutes and a few seconds. The famous race-horse 'Flying Childers,' in running over the same ground, was little more than half a minute ahead of the hound. Now, if we compare the dimensions of the horse and the hound, we shall arrive at a tolerably accurate conception of the extraordinary swiftness to

which the latter animal can attain. In that match no less than sixty horses started together with the competitors, but of the sixty only twelve were with the dogs at the end of the run."

126. **DISCIPLINE.**—Foxhounds are kept with the severest discipline. At home it is customary to call them from the kennel by name, and one at a time when feeding-time arrives, and among a well-trained pack the circumstance of one dog answering to another's name, or one coming uncalled, would be considered as a heinous offence, and one that would certainly earn for the transgressor a tremendous thrashing. The result of this severe training is, that when in the hunting-field the foxhound will instantly obey the most hurried order or gesture of the huntsman.

The foxhound is not a particularly large dog, its average height being under two feet, and of proportionate length. The female is smaller than the male.

127. **THE HARRIER.**—The harrier bears a great likeness to the foxhound, except that the former is five or six inches less in height. They derive their name from the circumstance that when hare-hunting was fashionable the dogs in question were used for the sport. The harrier is not so swift an animal as the foxhound. Beckford sums up the perfections of the harrier as follows, and what was written and accepted in 1779 is, singular to relate, endorsed by huntsmen of the present day: "Let his legs be straight as arrows; his feet round, and not too large; his shoulders back; his breast rather wide than narrow; his chest deep; his back broad; his head small; his neck thin; his tail thick and bushy—if he carry it well so much the better. Such hounds as are out at the elbows and such as are weak from the knees to the foot should never be taken into the pack."

128. **THE BEAGLE.**—The beagle (the *bratch* of ancient times) is the smallest of our true hounds. In shape it is something like the harrier, but is heavier about the throat, and its body and limbs are stouter. The ordinary beagle measures about fourteen inches in



THE FOXHOUND.

height. The animal known as the rough beagle is supposed to be a cross between the original stock and the rough terrier. This opinion, however, is probably derived from the fact that its bark, which is sharp and shrill, more nearly resembles the voice of the terrier than any other, and that the quality of its hair and its whiskers resembles the terrier's. Some writers regard the rough beagle as a distinct variety. The smallest of the family is the dwarf or rabbit beagle. It is said that at the time of Queen Elizabeth there was a breed of these beagles so small that one might be hidden in a man's glove. Perhaps, however, his hawking glove was meant; and although this would denote the dog to be marvellously little, a dog that could be squeezed into a modern "kid" would be a much *greater* novelty, as an Irishman might observe.





CHAPTER VI.

TERRIERS.

129. **THE TERRIER.**—The black and tan English terrier is not a large dog. It seldom weighs over fifteen pounds. It is square-chested, and its fore-legs are particularly muscular. Its muzzle is sharp, its forehead high, and its eyes large, bright and intelligent. Its coat is sleek and smooth. The colours of the pure breed are black and tan, the value of the animal much depending on the richness of the two tints. To be perfect it should have a small patch of tan colour over each eye, and on the cheeks; its nose and palate should be black.

It is a very busy, graceful, intelligent, fussing little animal, but not particularly courageous. If a dog is wanted to rout out a rat colony, no dog can so effectually set them scampering as the English terrier. Killing them, however, is a business which this dog declines. While the rat runs, the dog will run after it, but when the rat stops, so does the dog, and at a respectful distance, too. Should the rat show fight the English terrier takes to his heels.

130. **BULL-TERRIER.**—The bull-terrier, however, is very different. He it is that delights in carnage, and is never so thoroughly happy as when he is literally up to his eyes in rats in a rat-pit. His courage is wonderful. As many as five or six savage rats at one time have been seen clinging with their sharp teeth to the ratter's lips and nose and eyebrows, but the dog has never once winced nor paused in his attack. It is curious, too, how little of bull-dog blood goes to furnish a dog with this contempt for pain, on the one

hand, and fierce desire to inflict it, on the other. It is not too much to say that the most valuable of bull-terriers in London have been independent of the bull-dog for six or seven generations. Some of these dogs, while weighing no more than six pounds, will be matched to kill large rats in a minute each, and that for the space of an hour. The colour of the bull-terrier should be white; the head long; eyes dark; nose black; deep, wide chest; short, strong



BULL TERRIER.

legs. The tail is the great "point." It should be fine and tapering and carried in a "jaunty" manner, says Mr. Webb. The coat fine, close and smooth.

131. **SCOTCH TERRIER.**—The Scotch terrier is a quaint-looking, clever little dog, almost as remarkable for its animosity to vermin as the bull-terrier. Its colours are, as a rule, the same as the English terrier, mingled with grey. It was this dog that in ancient times was used in the cruel sport of "badger-drawing." "There is," says a popular writer, "a peculiar breed of Scotch terriers, called the Dandy Dinmont, in honour of the character of that name in Scott's 'Guy Mannering.' These dogs are of two colours:

one a light brown, with a reddish tinge, termed 'mustard,' and the other a bluish-grey on the body, and tan on the legs, denominated



SCOTCH TERRIER.

'pepper.' These little animals are very courageous; although they often exhibit no proof of their bold nature until they have passed



SKYE TERRIER.

the age of two years, appearing until that time to be rather cowardly than otherwise. This conduct is supposed to be occasioned by their gentle and affectionate disposition. The legs of

this variety of terrier are short in proportion to the length of the body, the hair is wiry and abundant, and the ears are large, hanging closely over the sides of the head. Colour a dark slate-tinge."

132. **THE SKYE-TERRIER.**—The "Skye" is certainly the oldest terrier of the family. It would be worth inquiring how it is that this dog is so constantly losing himself. That this is the case, anyone taking ordinary notice of window-bills and placards must have discovered. It can't be that the dog's extraordinary value tempts the dog-thief, for many dogs allowed as much freedom as the Skye,



YORKSHIRE TERRIER.

are of much more value, and are but seldom "lost or stolen." Is it that the poor creature's vision is so obstructed by his hirsute furniture that he can but dimly make out where he is going? Is it that he is a stupid, blundering dog, who really doesn't care which way he goes, or what becomes of him? Or is he a dog of so much intelligence and of such an inquiring mind that he is impelled to investigate any and every odd matter that may turn up in the course of a morning's walk?

It is generally regarded as a "toy" dog, and like a "door-mat" in appearance, and is usually clever at learning tricks, and displays considerable affection. It is, however, the largest, or, rather, the heaviest of the "toys," and can seldom be obtained weighing less than ten or twelve pounds. When of pure breed the legs are very

short, and the body extremely long in proportion to the length of limb; the neck is powerfully made, but of considerable length, and the head is also elongated, so that the total length of the animal is three times as great as its height. The "duw-claws" are wanting in this variety. The hair is long and straight, falling heavily over the body and limbs, and hanging so thickly upon the face that the eyes and nose are hardly perceptible. Colour iron grey or dark. The quality of the hair is rather harsh and wiry in the pure-bred Skye-terrier, for the silky texture of the generality of "toy" Skyes is obtained by a cross with the spaniel. It is easy to detect the presence of this cross by the scanty appearance of the hair on the face.



WHITE TERRIER.

133. **THE FOX-TERRIER.**—The fox-terrier is a variety of the bull-terrier, and useful, as its name implies, for unearthing the wily fox. It is a very clever dog, and seems possessed by more than the average intellect of dogs.

134. **THE WHITE ENGLISH TERRIER** is a small dog with tapering muzzle, black eyes, and smooth coat—a particularly "neat and well-made" dog. It weighs about fifteen pounds; sometimes more—but it is frequently about twelve. It is a great favourite in the Northern districts of England.

No dogs are so well known as these, and it may be safely said that there is scarcely a mongrel, be he ever so thorough a castaway and vagabond, but has terrier blood in his lean body. The more he has of it the better for him, especially if he have a living to pick up, and a lodging to procure, and no master to help him. The dog

with anything of the terrier about him is sure to be a shrewd dog—a more or less knowing reader of the human countenance, a quality by no means to be despised in a houseless dog; it often—especially when he finds himself late on a bitter winter night, with no better sanctuary against the north wind and the snow—procures the poor animal a lodging from a human pedestrian, who, trudging along home to his bit of hot supper and comfortable bed, is unable to resist the imploring eyes, and the meekly insinuating wag of the tail. For my part, I must own to a feeling of considerable satisfaction when one of these houseless creatures so makes up to me. I comfort myself with the reflection that I must carry about with me an air of charity and goodwill, and am the better assured of it that it is a dog that reveals it. I believe that there was never yet so consummate a hypocrite but that a really clever dog would find him out. At the same time, I am bound to state my conviction that, giving effect to my vanity, I have several times been taken in by artful dogs—dissipated canine scoundrels that have been locked out, and that ungratefully and without the trifling acknowledgment of a wag of the tail, bolt off as soon as the gate is opened in the morning.





THE CAT.

CHAPTER I.

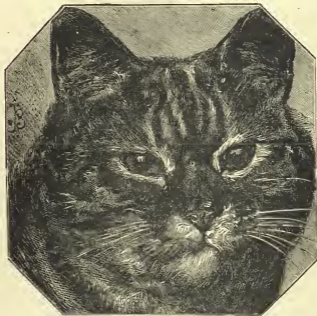
THE CAT.

The *Felidæ* Family—The Cat Unappreciated—Wild Cats—The Tiger-Cat—The Ocelot.

135. **THE FELIDÆ FAMILY.**—The cat belongs to the beautiful *Felidæ* family, in which are included the lion, the tiger, the jaguar, leopard, and other animals distinguished by their gentle, silent manner of walking, and swift spring upon their prey. They also possess the power to extend and withdraw their talons at pleasure, and their teeth are especially fitted for carnivorous food. This manner of eating is daily observable in the cat, which eats with a snapping bite instead of the grinding movement employed by other and less exclusively carnivorous animals. This method of taking food requires caution when handing pussy a piece of biscuit or meat, for she will almost snap at the morsel, and the fingers may be the worse. We remember an anecdote of a tiger and its visitors, one of whom said to the other, "That tiger will eat off your hand." The friend at once placed a biscuit on his palm, and the tiger snapped it and two fingers off at once. All the consolation the poor man received was, "I told you he'd eat off your hand, but I didn't think you'd be so foolish as to let him try!" We ourselves have been touched by pussy's teeth accidentally, and very sharp they are.

136. **CATS UNAPPRECIATED.**—Cats are frequently unappreciated. There are people who exclaim against them, even against quite domesticated cats, as "nasty spiteful things;" and say, "We

wouldn't have a cat in the house for the world!" Now, people who talk thus have no appreciation of cats, and do not understand them. We have had considerable and varied experience of cats. From our boyhood upwards we have always had pet cats, and even now a tabby shares our meals, and sits upon our paper as we write, always choosing the last folio written, to the occasional detriment



of the article, if blotting-paper has not been previously used. We fearlessly maintain that cats are most affectionate and sensible animals; very fond of anyone who notices them, and as docile as a dog. If cats had been educated in past times as much as their supposed enemies the dogs, we should find pussy as constant a companion, for cats are quite as intelligent as dogs. When properly and kindly treated, cats become greatly attached to their master or mistress, and will follow them all over the house.

137. **CATS AND HUMANKIND COMPARED.**—The close observer of true cat nature—and we claim to be one of the com-

paratively few who care for cats—must have noticed how great a



resemblance their disposition bears to that of womankind, We

have held this theory for years, and have frequently been called to account by ladies for the expression of our opinion. Curiously enough, it is chiefly ladies by whom we have heard cats called "spiteful, cruel things." Cats are neither spiteful nor cruel, as far as our many years' experience goes. They are affectionate and faithful. They generally attach themselves to one person in a house, and are devoted to their young. They are very intelligent, and never hurt children unless teased beyond endurance. Certainly they are curious, and will pry into corners and find out all they can; but is not the fair sex blessed with curiosity, too? They rejoice at your coming home, and lament your absence; they are pleased with your kind attention, and seldom resent a scolding, which they greatly dread, or a hasty word. They will show their claws when hurt or badly treated, and if they pluck up a spirit under such circumstances can we blame them? But they are long-suffering with those who usually treat them kindly, and even to children who treat them almost cruelly they will ever be gentle. We have seen a cat carried by its tail by a child, and tossed and teased till we remonstrated. The little girl did not intend to hurt the animal, and puss quite understood the case, and was as quiet as a lamb—even quieter, under the circumstances.

We shall give, later on many instances which will, we believe, convince the most sceptical that the cat is an animal whose acquaintance should be cultivated and not despised. Just now, however, our business is to speak of Wild Cats. We will then consider the domestic pussy. Some so-called wild cats are merely domestic cats which have broken away from home ties, gone out into the world, and become regular vagabonds—"Homeless, ragged, and" tabby!

138. **WILD CATS.**—The wild cat can be distinguished from the tame cat by the tail. The caudal appendage of the wild animal is much shorter and blunter than that of the domestic species. This difference even continues when a domestic cat has taken to a roving life. The young rovers will have long, pointed tails, not blunt ones.

The colour of the wild cat is more uniform than that of the domestic species. On a ground colour of pale reddish-yellow are dark streaks extending over the body and limbs, forming pretty much the sort of pattern exhibited on the tiger's robe. From the back of the neck to the spine a line of very dark spots extends to the tail, which is short and bushy, and has a black tip. The feet and insides of the legs are yellowish grey. In the female—which is smaller than the male—the colours are not as distinct. The medium size of a full-grown male wild cat is as follows:—

Length of head and body, 1 foot 10 inches; length of head, $3\frac{1}{2}$ inches; length of ears, $2\frac{1}{8}$ inches; length of tail, 11 inches. The wild cat affects rocky and densely-wooded districts, living in holes or in hollow trees. According to Mr. St. John, a wild cat will sometimes take up its residence at no great distance from a house, and entering the hen-houses and out-buildings, carry off fowls, or even lambs, in the most audacious manner. Like other vermin, the wild cat haunts the shores of lakes and rivers, and it is therefore easy to know where to lay a trap for it. Having caught and killed one of the colony, the rest or them are sure to be taken, if the body of their slain relative be left in some place not far from their usual hunting ground, and surrounded with traps, as every wild cat who passes within a considerable distance of the place will to a certainty come to it.

The wild cat was in ancient times plentiful in Britain, and, moreover, set down in the category of beasts of chase. This is proved by the fact that in a charter granted by Richard II. to the Abbot of Peterborough, permission was given him to hunt the hare, fox, and wild cat. Except, however, in certain forests in Cumberland and Westmoreland, it is now seldom or never met with in England; and even in the districts mentioned, and where some few centuries back it abounded, it is a rare thing to encounter a wild cat. In Scotland, however, and certain parts of Ireland it is still occasionally found. The following narrative, furnished by Mr. St. John, will demonstrate the sort of creature it is:—

“Once, when grouse shooting, I came suddenly, in a rough and rocky part of the ground, upon a family of two old and three half-grown wild cats. In the hanging birch woods that bordered some of the highland streams and rocks the wild cat is still not uncommon; and I have heard their wild and unearthly cries echo afar in the quiet night, as they answer and call to each other. I do not know a more harsh and unpleasant cry than the cry of the wild cat, or one more likely to be the origin of superstitious fears in the mind of an ignorant Highlander. These animals exhibit great skill in finding their prey, and the damage they do to the game must be very great, owing to the quantity of food which they require. When caught in a trap, they fly without hesitation at any person who approaches them, not waiting to be assailed. I have heard many stories of their attacking and severely wounding a man when their retreat has been cut off. Indeed, a wild cat once flew at me in a most determined manner. I was fishing at a river in Sutherlandshire, and in passing from one pool to another, had to climb over some rocky and broken ground. In doing so I sank through some rotten moss and heather up to my knees, almost upon a wild cat who was concealed under it. I was quite as much startled as the animal herself could be, when I saw the wild-looking beast rush out so unexpectedly from between my legs, with every hair on her body standing on end, making her look twice as large as she really was. I had three small Skye-terriers with me, who immediately gave chase, and pursued her till she took refuge in a corner of the rock, where, perched in a kind of recess, out of reach of her enemies, she stood with her hair bristled out, and spitting and growling like a common cat. Having no weapon with me, I laid down my rod, cut a good-sized stick, and proceeded to dislodge her. As soon as I came within six or seven feet of the place, she sprang right at my face, over the dogs' heads. Had I not struck her in mid-air, as she leapt at me, I should probably have got some severe wound. As it was,

she fell with her back half broken amongst the dogs, who, with my assistance, despatched her. I never saw an animal fight so desperately, or one so difficult to kill. If a tame cat has nine lives a wild cat must have a dozen."

The wild cat of Ireland would seem to be quite as savage a fellow as his Scotch cousin. In Maxwell's "Wild Sports of the West" is a story of one of these animals which was killed after a severe battle. It was of a dirty grey colour, double the size of the common house cat, and with formidable teeth and claws. It was a female, and was tracked to its burrow under a rock and caught with a rabbit net. So flimsy an affair, however, was scorned by the fierce brute, which speedily rent a hole with its teeth and claws, and was about to run off, when the lad who had set the snare seized it by the neck. He was a brave lad, and there was a tremendous fight, the wild cat being finally despatched by a blow of an iron spade. The lad, however, was so terribly wounded as to necessitate his removal to a hospital, where he for some time remained under terror of lockjaw.

The wild cat is more plentiful in the wooded districts of Germany, Russia, and Hungary than in any other parts of Europe. It is found also in the north of Asia and in Nepaul.

139. **TIGER-CATS.**—Besides the true wild cat, there are other species of *Felis* which, on account of their resemblance to the tiger, are called tiger-cats. They are found in all parts of the world, with the exception of Europe. The largest of this family is the Rimau-Dahan, an inhabitant of Sumatra. When full grown it measures over seven feet from the nose to the tip of its tail, which appendage, however, monopolises three feet six of the whole length. This species is nearly two feet high at the shoulders. Its colour is light grey, striped and spotted with jet black.

Some of the first specimens of this tiger-cat seen in England were brought to this country by Sir Stamford Raffles, who procured two of them from the banks of the Bencoolen River. "Both specimens," writes this gentleman, "while in a state of confinement were remarkable for good temper and playfulness—no domestic kitten could be more so; they were always courting intercourse with persons passing by, and in the expression of their countenances, which were always open and smiling, showed the greatest delight when noticed, throwing themselves on their backs, and delighting in being tickled and rubbed. On board the ship there was a small dog, which used to play round the cage, and with the other animals, and it was amusing to observe the playfulness and tenderness with which the latter came in contact with their inferior-sized companion. When fed with a fowl that died, the tiger-cat seized the prey, and after sucking the head, and tearing it a little, he amused himself for hours in throwing it about and jumping after it, in the manner that a tame cat plays with a mouse before it is quite dead. He never seemed to look on man or children as his prey; and the natives assert that, when wild, tiger-cats live chiefly on poultry, birds, and small deer."

140. **THE COLOCOLO.**—The colocolo is another kind of tiger-cat. It is an inhabitant of Guiana, and though not more than a third the size of the Rimau-Dahan, is a most formidable enemy to the smaller animals of the forests it inhabits. It is related by Mr. Wood that a specimen of this creature was shot on the banks of a river in Guiana by an officer of Rifles, who stuffed it and placed the skin to dry on the awning of his boat. As the vessel dropped down the river it passed under overhanging boughs of large trees on which rested numerous monkeys. Generally when a boat passed along a river the monkeys which inhabit the trees that border its banks displayed great curiosity, and ran along the boughs so as to obtain a close view of the strange visitant. Before the colocolo had been killed the passage of the boat had been attended as usual by the inquisitive monkeys, but when the stuffed skin was exhibited on the awning the monkeys were horribly alarmed, and instead of approaching the vessel as they had before done, trooped off with prodigious yells of terror and rage. From the universal fear which the sight of the animal occasions to the monkeys, it may be conjectured that the colocolo is in the habit of procuring its food at the expense of the monkey tribes.

141. **THE SERVAL.**—Of the tiger-cat of Africa, the serval may be taken as the type. It is about two feet long, exclusive of the tail, which measures nine inches, and is a foot in height at the shoulders. Its upper parts are clear yellow, and its under parts white, and its entire body is spotted with black. Among the natives it is known as *bosch-katte*, or bush cat. It is an inoffensive creature, not easily irritated, and behaving generally like our own familiar grimalkin.

142. **THE OCELOT.**—America has several tiger-cats, foremost amongst which may be mentioned the ocelot. This animal is a native of Mexico and Paraguay. Its home is the gloomiest depths of the forest, where all day long it lies quiet, but, as night advances, comes out to prey on birds and small quadrupeds. It is said to be a particularly cunning creature, and sometimes, when other stratagems to replenish his larder have failed, to stretch himself all along the bough of a tree and sham death. The monkeys of the neighbourhood have no greater enemy than the ocelot; therefore, it is only natural that when they find him dead they should be much rejoiced, and call together their friends and relations to see the pretty sight. The treacherous ocelot is, however, meanwhile keeping sharp watch through a tiny chink of his eyelids, and

when the rejoicing is at its highest up he jumps, and, before the monkey-revellers can recover from their fright, at least a couple will feel the fatal weight of his paw.

Two of these animals were kept at the Tower of London, at the time when that ancient fortress counted a menagerie among its other attractions, and of one of these Mr. Bennett gives the following description:—

"Body, when full grown, nearly three feet in length; tail rather more than one foot; medium height about eighteen inches. Ground colour of fur grey, mingled with a slight tinge of fawn, elegantly marked with numerous longitudinal bands, the dorsal one continuous and entirely black, the lateral (six or seven on each side) consisting for the most part of a series of elongated spots with black margins, sometimes completely distinct, sometimes running together. The centre of each spot of a deeper fawn than the ground colour external to them; this deeper tinge is also conspicuous on the head and neck, and on the outside of the limbs, all of which parts are irregularly marked with full black lines and spots of various sizes. From the top of the head, between the ears, there pass backwards, towards the shoulders, two or more, frequently four, uninterrupted diverging bands, which inclose a narrow fawn-colour space with a black margin; between these there is a single longitudinal, somewhat interrupted, narrow black line, occupying the centre of the neck above. Ears short and rounded, externally margined with black, surrounding a large central whitish spot. Centre parts of the body whitish, spotted with black, and the tail, which is of the same ground colour with the body, also covered with black spots."

There are several ocelots—the painted, the grey, and the common, among others. In captivity few animals are more surly and spiteful until they grow thoroughly well acquainted with their keepers, or others who court their notice. There is, however, one weapon keener than the sharpest sword, more potent than the Armstrong gun, more powerful than all the gunpowder and bullets ever made, and yet so simple that the boy yet in pinafores may direct it: to this weapon the suspicious tiger-cat succumbs, and the name of this weapon is *KINDNESS*. So armed, the Rev. J. G. Wood conquered a body of ocelots exhibited at the menagerie. He says:—

"Several of these animals, when I first made their acquaintance, were rather crabbed in disposition, snarled at the sound of a strange step, growled angrily at my approach, and behaved altogether in a very unusual manner, in spite of many amicable overtures. After a while, I discovered that these creatures were continually and vainly attempting the capture of certain flies which buzzed about the cage. So I captured a few large bluebottle flies, and poked them through a small aperture in the cage, so that the ocelot's paw might not be able to reach my hand. At first the ocelots declined to make any advances in return for the gift; but they soon became bolder, and at last freely took the flies as fast as they were caught. The ice was now broken, and in a very short time we were excellent friends; the angry snarl being exchanged for a complacent purr, and the suspicious, lurking movement for a quiet and composed demeanour. The climax to their change of character was reached by giving them a few leaves of grass, for which they were, as I thought they would be, more anxious than for the flies. They tore the green blades out of my hand, and retired to their sleeping-house for the purpose of devouring the unaccustomed dainty undisturbed. After this they were quite at their ease, and came to the front of the cage whenever I passed."



CHAPTER II.

Antiquity of the Cat—The Egyptians and their Cats—Famous Cats—Superstitions as to the Black Cat—Electric Qualities.

143. **ANTIQUITY OF THE CAT.**—The cat appears to have been known in all parts of the world from the most remote age, and nowhere does it seem to have held so high a position as in Egypt. Says an ancient scribe, "In Egypt the cat was held in the greatest veneration, and when it died a natural death it was actually mourned for with demonstrations of grief appointed for the event; and if the death were caused by malice the murderers were condemned to be given over to the rabble to be buffeted to death. And elsewhere we read that "Cambyses, who succeeded his father Cyrus as king of Persia, about the year 530, availing himself of the regard of the people for their favourite animals, when he invaded Egypt to punish Amasis for an affront, made himself master of Pelasis, which had before successfully resisted his arms. The stratagem he adopted was certainly an ingenious one; he gave a live cat to each of his soldiers instead of a buckler, and the Egyptian soldiers, rather than destroy these objects of their veneration, suffered themselves to be conquered." Mourief mentions that

an insult offered to a cat by a Roman was once the cause of an insurrection among the Egyptians, even when the fact of their own vanquishment could not excite them to rebel. If other evidence were wanting, the enormous quantity of cat relics discovered in Egypt, buried with as much care as though they had been grandees of the land, or preserved by the tedious and expensive process of embalming, would afford ample proof of the esteem in which the Egyptian cat was held. The Egyptian pussy is very like our domestic cat, with ears more erect and an Egyptian cast of countenance. It is indigenous to Nubia.

The Turks are great admirers of the cat kind. When Baumgarten visited Damascus he found a spacious hospital, the sole inmates of which were sick cats and their nurses; and when he inquired as to the origin of the institution, he was informed that Mahomet, when he had once lived there, brought with him a favourite cat, which he kept in the sleeve of his garment, and carefully fed with his own hands, taking off his sleeve rather than disturb the repose of his pet; therefore his followers paid superstitious respect to these animals, and supported them in this manner by public alms, which were found to be sufficient.

144. THE CAT IN ENGLAND.—The cat has been held in high respect since a very early age, in this and the sister kingdom. "Our ancestors," says Pennant, "seem to have had a high sense of the utility of this animal. That excellent prince Howel Dda, or Howel the Good, did not think it beneath him, among his laws relating to the prices, &c., of animals, to include that of the cat, and to describe the qualities it ought to have. The price of a kitling before it could see was to be a penny; till it caught a mouse, twopence. It was required besides that it should be perfect in its senses of hearing and seeing, be a good mouser, have the claws whole, and be a good nurse; but if it failed in any of these qualities the seller was to forfeit to the buyer the third part of its value. If anyone stole or killed the cat that guarded the prince's granary he was to forfeit a milch ewe, its fleece, and lamb; or as much wheat as when poured on the cat suspended by its tail (the head touching the floor) would form a heap high enough to cover the tip of the former. This last quotation is not only curious, as being an evidence of the simplicity of ancient manners, but it almost proves to a demonstration that cats are not aborigines of these islands, or known to the earliest inhabitants. The large prices set on them (if we consider the high value of specie at that time), and the great care taken of the improvement and breed of an animal that multiplies so fast, are almost certain proofs of their being little known at that period." And just think of Whittington's cat!

Cardinal Wolsey's favourite cat used to share his regal seat, and this even when he held audiences or received princely company. Petrarch, the great Italian poet, made a home pet of grimalkin, and after its death paid it the questionable honour of embalming, and placed it in a niche in his studio. Godefroi Mind, the celebrated painter, and who was styled the "Raphael of Cats," from his making them his almost constant study, maintained a large staff of these animals, and it is related of him that when, at one time, hydrophobia was prevailing in Berne, and a vast number of the cats of the city were by order of the magistrate put to death, poor Godefroi Mind was so affected that he was never afterwards completely consoled. He contrived to hide his chief favourite until the panic was passed, and he always worked at his easel talking to her, and was generally found with her and her family, either on his knees or on his chair, whenever his friends entered the room. . .

Doctor Johnson kept a cat. The doctor's cat once fell sick, and refused its diurnal cat's-meat. In the midst of his distress on pussy's account, he discovered that the dainty feline appetite might be tempted by an oyster. Acting on the hint, he went out and bought oysters for his cat, and continued to visit the oyster-stall every day till the animal grew well. The poet Cowper also had a cat. It came to an untimely end however. She was not allowed to go the way of other cat-flesh—to be put into a hole and thought no more of. So much affection had the poet for his pet that he composed to her memory the following verses;—

ON THE DEATH OF MY FAVOURITE CAT, DROWNED
IN A VASE OF GOLD FISH.

'Twas on a lofty vase's side,
Where China's gayest arts had dyed
The azure flowers that blow,
Demurest of the tabby kind,
The pensive Selima reclined,
Gazed on the lake below.

The conscious maid her joy declared;
The fair round face and snowy beard,
The velvet of her paws,
Her coat that with the tortoise vies,
The ears of jet, and em'rald eyes,
She saw, and purr'd applause.

The hapless nymph with wonder saw
A whisker first, and then a claw,
With many an ardent wish;
She stretch'd in vain to reach the prize—
What female heart can gold despise?
What cat's averse to fish?

Presumptive maid! with looks intent,
Again she stretch'd, again she bent,
Nor knew the gulf between.
Malignant Fate sat by and smiled,
The slippery verge her feet beguiled—
She tumbled headlong in.

Eight times emerging from the flood,
She mew'd to every watery god
Some speedy aid to send,
No dolphin came, no Nereid stirr'd,
No cruel Tom nor Susan heard,—
A fav'rite has no friend.

Learn hence, ye beauties undeceived,
 Know one false step is ne'er retrieved,
 And be with caution bold;
 Not all that tempts your wondering eyes
 Nor heedless hearts, is lawful prize,—
 Nor all that glitters gold.

145. **SAILORS AND CATS.**—Sailors are very superstitious as regards cats. Should the ship-cat be inclined for fun, and scud and bustle and rush about as cats will, old mariners will wag their heads and whisper of a coming storm. Nor may the landsman laugh at Jack Tar; for how often may we hear—especially if grandmother is on a visit—“see, the cat is washing its face; we shall shortly have rain.”

146. **THE MEDICINAL PROPERTIES OF CATS.**—Our forefathers, in the wisdom which distinguished the “good old times,” were firm believers in the medicinal properties of the cat. Any part of the animal, from the tip of its nose to the extremity of its caudal appendage, was considered efficacious in the cure of diseases. If, for instance, a person has a whitlow on the finger, he will find a sure remedy by acting as follows:—Of course it is understood that the whitlow is caused by a worm; then all you have to do is to put your forefinger into the ear of a cat for a quarter of an hour every day, and in a few days, by this means, the worm which causes the whitlow will not be able to wriggle, and, of course, if the worm cannot wriggle, it *must* die, and the finger will then soon get well! To the ingenious discoverer of the above remedy we are perhaps indebted for the following “certain cure” for epilepsy:—Take a penknife, cut the vein under a cat's tail, take *three drops* of blood therefrom, put it into a glass of water, swallow it quickly, and in a few days all disease will have vanished! To prevent weak eyes:—Take a black cat's head, burn it to ashes, and blow a little of the dust in the eyes three times a day. Be careful in performing any of the above operations, for if a person swallow a single cat's hair he will immediately go into a fainting fit!

In the apothecaries' shop-windows of a century or two ago might have been seen a label, on which was inscribed, “*Axungia cati sylvestris*.” This, dear reader, simply meant that wild cats' fat might be obtained within, as a certain cure for lameness, epilepsy, &c.

The cat is not to be despised, however, as a minister to certain of the ills to which flesh is heir, especially in cases where electricity is of good service. The electrical character of the cat is a very well ascertained fact. A cold bright day

is the best time to convince oneself of the truth of this. Not only will a crackling be heard, and a spark seen, but, if the experiment be properly conducted, a positive shock may be obtained. The animal should be placed on the knees, the operator placing one hand on its breast, while the other hand is engaged stroking the fur of her back. In a short time crackling will be heard, and sparks seen, and the person stroking the cat experiences a shock above the wrists. We have frequently experienced this, and a black tom cat, or indeed any tom cat, is better than a female for the success of the experiment. The Rev. J. G. Wood also attests that the above given directions, if faithfully followed, will produce satisfactory results, and gives an instance of the electricity of the cat as exhibited in his clever and interesting cat "Pret." "If a hair of her mistress's head were laid on Pret's back, the cat would writhe about on the floor and put her body into violent contortions, and would endeavour with all her might to shake off the object of her fears. Even the mere pointing of a finger at her side was sufficient to make her fur bristle up and set her trembling, though the obnoxious finger were at a distance of six inches from her body."

The same gentleman goes on to express an opinion that on account of the superabundance of electricity which is developed in the cat, the animal is found very useful to paralyzed persons, who instinctively encourage the approach of a cat and derive a gentle benefit from its touch. Those who are afflicted with rheumatism often find their sufferings alleviated by the presence of one of these electrically gifted animals.





CHAPTER III.

CAT AND KITTENS.

Origin of the Cat—Egyptian Cat—Mr. Bell's Opinion—Sir W. Jardine's Statement—Varieties of the Cat - The Manx - The Angora - The Chinese—Tortoiseshell Cats—Chartreuse Cats—The Tabby—Black and White Cats—Their Characteristics.

147. **ORIGIN OF THE DOMESTIC CAT.**—The origin of the domestic cat is not at all clearly ascertained. By many writers it is asserted to be a variety of the wild cat of Europe and Northern Asia; and a talented writer in a series of popular books, published originally in 1836, lays down the law as follows:—"In this case" (the case of the cat), "unlike that of the dog, there is no doubt which is the original head of the domesticated stock. The wild cat of the European forests is the tame cat of European houses. The tame cat would become wild if turned into the woods. The wild cat at some period has been domesticated, and its species has been established in almost every family of the old and new continent." This argument is, however, not completely correct. The tame cat will certainly "become wild" if turned into a forest; that is to say, it will cease to be gentle and to respond to the slavish epithet of "puss;" but really it is no more a *wild cat* than when it dozed on the hearthrug and drank milk from a saucer. One of the chief points of distinction between the wild and domestic cat is found in the comparative size and length of their tails, as already remarked. Again, the domestic cat is invariably of smaller size than the wild animal, and it is well known that the effect of domestication on animals is to increase their bulk.

The celebrated naturalist, M. Rüppel, discovered in the weedy and bushy regions of Ambukol, west of the Nile, a cat whose size was that of the medium-sized domestic cat, or about one-third smaller than the European wild cat, and having a longer tail than the animal last mentioned. The hair of this animal was long, and

In colour a blending of dirty white and yellow. It was M. Rüppel's opinion that this cat was descended from the domestic cat of the ancient Egyptians, now to be traced in the cat-mummies and their representations on the monuments of Thebes. The domestic cat is the "chat" of the French, "gatto" of the Italians, "gats" of the Spanish and Portuguese, "Katze" of the Germans, "Kat" of the Dutch and the Danes, "cath" of the Welsh. It is worthy of remark that all these names are the same as the Latin *Catus*, and this is somewhat in favour of all northern and western Europe having received the cat through Roman navigators, and we are thus brought nearer to Egypt and its probable origin.

Rüppel believed that the Egyptian cat and that which is familiar to us were identical, and Temminck concurs with him. Professor Owen, however, declares emphatically against this doctrine, and gives as the reason this—that in the Egyptian cat the first deciduous molar tooth has a relatively thicker crown, and is supported by three roots, whilst the corresponding tooth both of the domestic and wild cat of Europe has a thinner crown and only two roots.

Mr. Bell, in his "History of Quadrupeds," handles the cat question with the same masterly hand as every other subject he touches. With regard to the favourite belief that the common wild cat is the father of the tame, he states his belief that there are many reasons for believing that this opinion is entirely erroneous. In the first place, he observes, the general conformation of the two animals is considerably different, especially in the length and form of the tail, which in the wild cat is strong, robust, and at least as large towards the extremity as at the base and middle, whilst that of the domestic cat tapers towards the apex. The fur, too, of the former, he remarks, is thicker and longer, and although the colours are somewhat like those which occur in some individuals of the ordinary species, there are, even in this respect, distinctions which can scarcely be considered otherwise than as essentially specific, as, for instance, the termination of the tail in a black tuft which invariably marks the wild cat.

Referring to Sir William Jardine, for his opinion on the origin of *Felis domestica*, he suggests that, since the introduction of our house-cat to this country, there may have been an accidental cross with the wild native species, by which the difference in form between the wild and tame cat may be accounted for. "The domestic cat," says Jardine, "is the only one of this race which

has been generally used in the economy of man. Some of the other small species have shown that they might be applied to similar purposes; and we have seen that the general disposition of this family will not prevent their training. Much pains would have been necessary to effect this, and none of the European nations were likely to have attempted it. The scarcity of cats in Europe in its earlier ages is also well known, and in the tenth and eleventh centuries a good mouser brought a high price." Although, however, our opinion coincides with that of Rüppel, and we think that we are indebted to the superstition of the ancient Egyptians for having domesticated the species mentioned by Rüppel, we have no doubt that since its introduction to this country, and more particularly to the north of Scotland, there have been occasional crossings with our own native species, and that the results of these crosses have been kept in our houses.

We have seen many cats very closely resembling the wild cat, and one or two which could scarcely be distinguished from it. There is, perhaps, no other animal that so soon loses its cultivation and returns apparently to a state completely wild. A trifling neglect of proper feeding or attention will often cause them to depend on their own resources; and the tasting of some wild and living food will tempt them to seek it again, and to leave their civilised home. They then prowl about in the same manner as their congeners, crouching among corn, and carefully concealing themselves from all publicity. They breed in the woods and thickets, and support themselves upon birds or young animals. Few extensive rabbit-warrens want two or three depredators of this kind, where they commit great havoc, particularly among the young, in summer. They sleep and repose in holes, and are often taken in the snares set for their prey. I once came upon a cat which had thus left her home; she had recently kittened in the ridge of an uncut cornfield. Upon approaching, she showed every disposition to defend her progeny, and beside her lay dead two half-grown leverets.

Looking towards Mr. Bell for an endorsement of these sentiments, we are disappointed. "It is not without much reflection," says he, "that I have come to the conclusion that this opinion of their intermixture is erroneous, and has its foundation in mistaken facts." M. Rüppel is as mercilessly handled as Mr. Jardine. "The Nubian cat," continues Mr. Bell, "to which the high authority of Rüppel has assigned the origin of the house-cat, is still farther

removed from it in essential zoological character than even the British wild cat, to which it had been previously so generally referred; and that, as in the case of so many of our domesticated animals, we have yet to seek for the true original of this useful, gentle, and elegant animal." We do not feel called upon to combat this great authority, but the Egyptian cat is much more like our domestic cat than even the British Wild Cat. Yet it cannot much matter after all. The fact remains that the cat was a domestic animal in Egypt, the cat is a domestic animal in England, the two species are much alike. So let us leave the disputed question.

148. **VARIETIES OF CATS.**—The varieties of the domestic cat are but few, and they are nearly all enumerated by the mention of the Tortoiseshell, the Chinese, the Blue, or *Chartreuse*, the Tabby, the Angora, and the Manx.

149. **THE MANX.**—The last-mentioned—the cat of Manx—is one of the most singular. Its appearance is not prepossessing; its limbs are gaunt, its fur close-set, its eyes staring and restless, and it possesses no tail, that is, no tail worthy to be so called; there certainly is, where the caudal appendage usually hangs, a sort of knob, suggestive of amputation in early kittenhood; but it is a well-authenticated fact that the Manx cat has no tail, and, so far as can be ascertained, never had one. As says a modern writer, "A black Manx cat, with its staring eyes and its stump of a tail, is a most unearthly looking beast, which would find a more appropriate resting-place at Kirk Alloway or the Blocksburg than at the fireside of a respectable household. It might fitly be the quadrupedal form in which the ancient sorcerers were wont to clothe themselves on their nocturnal excursions."

150. **THE ANGORA.**—The Angora cat is one of the most beautiful of cats. Its form is ample, its fur long and silky, and its tail remarkably full and brush-like. These cats are very intelligent, and, according to Mr. Wood's experience, possessed of capacious stomachs. While that gentleman was staying at a café in Paris, he made friends with a huge Angora that used to sit on the tables and assist the Englishman in the consumption of his biscuits. She devoured them with such apparent relish that Mr. Wood ordered her a plate of almond biscuits for herself. The plate was speedily emptied and replaced by another; this too was leisurely cleared, the Angora's eyes still beaming with expectation rather than satisfaction. Her worthy patron had, however, settled

the point that Angora cats will eat almond biscuits—a very great quantity of them—and was in no humour to experimentalize further.

Hiertro dello Valli makes mention of a cat discovered by him in Persia which exactly answers the description of the Angora. "There is," he says, "in Persia—particularly in the province of Charagan—a cat of the figure and form of our ordinary ones, but infinitely more beautiful in the lustre and colour of its skin. It is of a grey blue, and as soft and shining as silk. The tail is of great length and covered with hair six inches long, which the animal throws over its back after the manner of a squirrel."

151. **THE CHINESE CAT.**—The Chinese cat is of largish size, has fine glossy fur, and is remarkable for its pendulous ears. Some assert that this is not properly a cat at all, but a "Samxee," whatever that may be. Bosman, writing about the Chinese cat's drooping ears, remarks: "It is worthy of observation that there is in animals evident signs of ancestry of their slavery. Long ears, long and fine hair, are effects produced by time and civilization, whilst all wild animals have straight, round ears." His remarks would seem to apply only to such animals as, when in a wild state, depend in a measure for their safety on their acute hearing, but when reduced to domestication, and consequent non-reliance on their own exertions, an exquisite ear is no longer necessary, and so the organ, from sheer laxity, falls out of shape. The rabbit is a good instance of this, as are lap-dogs of various sorts; but it cannot be so said of the cat, whose ears, after centuries of domestication, are as stiff and alert as those of her ancestors, which ran wild in a wood and listened for the stealthy footfall of the rabbit or the rustle of the bird. So it is, again, with the horse, and evidently because that in domestication they have as much need of their ears as when in a wild condition.

152. **THE TORTOISESHELL, OR SPANISH CAT** may be known from its colours—white, black, and reddish brown—and from its elegant and delicate form. These cats are rather scarce animals, and, when procured, are not very good tempered to people they are not well acquainted with. They are, however, very friendly with their owners, and are good mothers to their kittens, as well as good mousers on their own account.

153. **THE BLUE, OR CHARTREUSE CAT** will be easily recognised by its elegant slate-coloured fur, and its bushy neck and tail. We once made the acquaintance of a Chartreuse cat, and had it entrusted to our care to carry home in a small hamper. We arrived safely, but the collie dog at the house tumbled the hamper

over and over, in his anxiety to find his new acquaintance. Pussie was very angry, but contented herself with hissing and growling at the dog. She speedily became a favourite.

154. **THE TABBY** is the most common of the house-cats. They are excellent mousers, and, as far as our experience goes, very affectionate. Our own cats have also displayed great intelligence, and, on one or two occasions, have saved us from great inconvenience, if not calamity, by timely warnings. There are four varieties of the Tabby; the silver-grey is a very pretty kind, but



the brown is perhaps the best of all. They are rather addicted to stealing, but all good mousers will occasionally thief. A great deal depends upon circumstances. If we will permit a cat to remain alone in the room with fish on the table, we must not be surprised if it tries to take some. Pussy nature is sometimes weak, as is human nature, and the temptation is too strong. But, as a rule, the tabby, if kindly treated and fed at *regular hours*, will not steal.

155. **THE BLACK CAT.**—This animal used to be held in terror in olden times, and there are many legends told of the animal. It is said that the Prince of Darkness tried his 'prentice hand at creation, and only succeeded in making a skinless cat; so St. Peter gave it a coat—black, we suppose; this is the reason why only the

fur of a cat was supposed to be of any value. The awe inspired by a black cat in England was at one time very great.

One is apt to smile when he reads that in Egypt, when the family cat gave up the ghost, it was customary for the entire household to shave off their eyebrows as a token of their poignant grief; but surely this was not nearly so absurd as to regard grimalkin as the most favourite form assumed by the Prince of Darkness when he happened to have business on the face of the earth. If there lived in any part of the country a solitary woman, who through ripe age had become wrinkled and lean and wizen-faced, it was to her the people looked when a cow died or a child took the croup, or the apple-trees were blighted. The old woman would be watched, and if it were discovered that the companion of her solitude was a cat, especially a *black* cat, no further evidence was required. She was a witch without a doubt; well versed in the black-art—thanks to the teachings of the black cat—and capable of performing equestrian exercise on a broomstick, or by a glance of her poor old bleared eyes of killing a cow at a longer range than could be accomplished by the most perfect of modern rifles. This seems like a joke now, but, in sober earnest, there was a time—Matthew Hopkins was then alive—when on no better proof of witchery than above given, many a grey-headed man and woman, has been suffocated by drowning or consumed by fire.

156. **TALES OF THE CAT.**—We need not in this place transcribe any of the many tales respecting the black cat, but we may mention that, as domestic animals, they are fine and elegant, uncertain as to their temper, and apt to let their angry passions rise, and “make the fur fly.” They are very good at rats, first-rate thieves, extremely cunning, graceful, and bold; so their good and bad qualities are about evenly balanced.

157. **THE WHITE CAT** is, as may be supposed, a somewhat colourless creature and delicate. It is very fond of being petted and nursed, is good tempered, and, as a rule, honest. For those who wish merely a house pet, the white cat is most suitable. It lacks the fire of the black cat, and many of the qualities of the latter. We are not much acquainted with white cats, and cannot therefore say much about them. We have many friends among tabbies and black cats, however, and have always found them good-natured and affectionate, and, a slight tendency to petty larceny being overlooked, very well behaved.



CHAPTER IV.

Diseases of Cats—Putting Cats out at Night—Keep Fur Clean—Diarrhoea
Cats—Delirium—Grass for Cats—Autumn and Spring Ailments—Cat and
Kittens—Cat Distemper.

158. **DISEASES OF CATS.**—The diseases of cats may here be briefly mentioned, with hints for their cure. One fundamental rule we must at once lay down, and that is *cleanliness*. Dirt provokes disease. Let everything be as clean as possible. A cat does all he or she can to be clean. He is unwearied in licking and dusting his coat, and rubbing or washing his face. Let us who keep cats remember to profit by the example, and keep the cat clean; clean food, clean plate (or saucer), and a clean bed. The animal can easily be taught to be clean in a house. A gentle correction after the first or second offence will be found sufficient, and then the animal will ask to go out when necessary, and the request should be at once complied with.

159. **TURNING CATS OUT OF DOORS.**—Cats should not be put out at night. They lose their domestic virtues, and become a nuisance to all within hearing. Some *will* roam; but if a comfortable bed be made up for him, a cat will seldom roam at night. Our own cat is a most domestic young man, and comes in regularly at half-past eight to his supper. Notwithstanding the statement in the song, that

“Cats don't know when it's half-past eight,”

we maintain that one cat, at any rate, does, and he is punctuality itself.

160. **TO CURE CATS.**—To cure a cat of her ailments it is in most cases necessary to administer physic in some shape or another. This, at the very outset, is enough to daunt at least nine-tenths of

the lady cat-owners in the kingdom. "As difficult as giving pills to a sick cat," is a familiar way of illustrating the extreme hardship of any task, and yet, when properly managed, a sick cat may be made to take pills or any other drug without risk of a severe scratching on your part, and danger of a dislocated neck on the part of suffering Grimalkin.

If the cat and yourself are on good terms you will experience no difficulty in approaching her, whatever be her bodily condition. Have ready a large cloth—a crumb cloth, for instance—and wrap the patient therein, wising the cloth round and round her body, so that every part of her except the head is well enveloped. Any one may then hold it between their knees while you complete the operation. Put on a pair of stout gloves, and then, with a firm hand, open the animal's mouth wide. Do not attempt to pour down the cat's throat too much at a time, or your object will be frustrated. A small spoon should be used, and no more poured into the mouth at a time than may be easily swallowed.

161. **THE FUR OF CATS.**—Be very careful to cleanse the fur of the animal's face and neck of any physic that may have been smeared thereon. The cat, of all things, dislikes a dirty coat, and as the nastiness of the medicine will prevent her licking herself clean, she will go about in a miserable condition, and one that will probably counteract the good effects of your doctoring. After the dose has been swallowed you may unsuath the patient and turn her into a quiet room, where there is something soft for her to lie on, and a cheerful fire. Do not offer her any food for at least two hours after the administration of the physic.

162. **DIARRHŒA IN CATS.**—Diarrhœa is a very common complaint with cats. It may be known by the animal's becoming thin, by her coat being dirty, and by her dull eyes. Unless this be checked dysentery will set in, and the cat's life be sacrificed. An ounce of fresh mutton suet, dissolved in a quarter of a pint of new milk, will, if the malady be taken in its earlier stage, effect a speedy cure; or a little castor oil, with two drops of muriate of morphia (*Stables*). The milk should only be warm enough to melt the shredded suet; and if the cat be too ill to lap, put one or two spoonfuls into its mouth every two hours. If the scouring do not abate, a spoonful of chalk mixture, with eight drops of tincture of rhubarb, had better be given, and two drops of laudanum between the doses three times a day.

163. **FITS.**—Fits of delirium sometimes attack cats. The animal

may be discovered, with staring eyes and bristling fur, rushing here and there in a way most terrible to see. Generally it finishes by plunging into the darkest corner it can find—into a lumber-room or the coal-cellar, may be—and will there remain to die, unless attended to. There are several remedies for this disorder, but that advised by Lady Cust is certainly the most efficacious. "Take a sharp pair of scissors and slightly slit one of the ears, but not to disfigure the cat; it must be in the thin part of the ear. Have ready some warm water, and hold the ear in it, gently rubbing it, and encouraging the blood to flow; a few drops give relief. The most timid lady need not fear to perform this slight operation, as during the attack the animal does not feel, nor does it resist in any way; but I always use thick gloves in handling animals myself, and I recommend them to others. When the attack is over keep the cat quiet, as you will observe it is very nervous after, and alarmed with the slightest sound; and let its food be rather less in quantity and less nutritious in quality till it is past the time of fits."

The lady above quoted makes some interesting remarks on the subject of grass eaten by cats. "Cats will never prosper without grass to eat! I have long observed and been convinced of this; and was ridiculed for my opinion when I asserted it, even by some learned members of the Zoological Society, who would not believe that grass was necessary to the feline tribe in general, or that they would even eat it, until they witnessed the voracity with which it was devoured, after a deprivation of it for a few days. I am perfectly certain it is essential for the maintenance of health and life in that species. In the first place, it cools the blood, preventing humours, and contributes to the healthy condition of the skin, rendering the fur fine and glossy. It has also a material effect on the general health. Everyone must have observed the constant licking bestowed on the coat, and the rough nature of the tongue. Consequently, the loose hair is conveyed to the stomach and intestines, where it remains in balls or long rolls, causing dullness and loss of appetite, and ending in death. The hair swallowed adheres to the rough grass, and is then digested, or, if the mass is too large (as is often the case in the moulting season, especially with Angora cats), it will be seen thrown up—long rolls of hair with grass, perfectly exclusive of any other substance; and the animal that a few minutes previous was dying, of all he relieved, and take its food as usual."

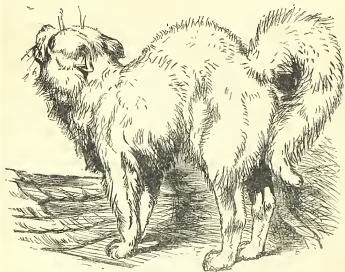
164. CHICKEN-POX IN CATS.—In the spring and autumn cats are frequently afflicted with a disease resembling chicken-pox in the human subject. The head and throat are the parts chiefly attacked, the hair falls off, and the animal's appearance is very miserable. Rub the places with flour of brimstone mixed with hogs' lard.

165. CAT AND KITTENS.—When the cat has kittens never be so hard-hearted as to carry off at one swoop the whole of her little family. There is no animal on earth that exhibits more affection for its progeny than the cat. It will go hungry that its young ones

may eat, and will face the most terrible dangers in their behalf. If her children are taken from her, she goes for days stalking about, a lean and wretched cat, filling the house with her melancholy mewings. Therefore be merciful. If the entire litter *must* be destroyed, take them away one at a time, allowing a day or two between. Motherless kittens may be reared by hand by sweetening new milk with brown sugar, and feeding them with the mixture several times a-day. The best substitute for the healthful licking afforded by the mother's tongue is a soapy sponge squeezed nearly dry.

"Cats have a very dangerous complaint," writes a lady, "which I call distemper, though it is different to the distemper in dogs. I do not think it occurs more than once; and it is well it does not, as it requires every care and attention to save the life of the sufferer. Sometimes it begins with constant vomiting of a bright yellow frothy liquid; diarrhoea then comes on, which ends in dysentery. If you see the yellow vomiting, give a small dose of salt and water; in this case it will act as an emetic. When the stomach is cleared, then, as the vomiting will continue from irritation, and reduce the strength to the last degree, very painful to witness, stop it as soon as you can, by giving half a teaspoonful of melted beef marrow, free from skin. One dose is generally sufficient; but if it is not, another half spoonful may be given in half an hour. To allay vomiting from irritation, I have never seen this simple remedy fail in either the human or animal subject. I have tried it upon all species of carnivora with equal success: the former should take it upon toast, with salt without pepper, overcoming the great repugnance it causes in sickness."





CHAPTER V.

Stories of Cats—Fondness of Music—Cat Charming—Cunning of Cats—The City Cats—Mr. Wood's Cats—French Cats—A Fight—The Monastery Cat—Sagacity of Cats—Anecdotes.

166. **STORIES OF REMARKABLE CATS.**—The writer has, in his time, made the acquaintance of some curious cats. When quite a little boy, there was attached to our house a gaunt black-and-white cat, whose sole recommendation was that he was a magnificent mouser; nay, to such lengths would he carry his passion for hunting that he regularly haunted a ditch in the neighbourhood, for the purpose of pursuing and capturing water-rats, which class of vermin he despatched in a manner that at once secured the death of the rat and his own immunity from the rat's teeth. Seizing the animal by the back of the neck, the cat, by a sudden wriggle, threw himself on his back, and at once transferred the custody of the rat from his mouth to his fore-paws, holding it neatly behind the shoulders, while with his hind talons he cruelly assailed the unlucky animal's loins and ribs, till it

ceased to struggle. I have stated that the cat in question was attached to our house, and that certainly was the extent of his intimacy, for he was attached to nobody residing there. Myself he particularly disliked, and although he never considered it beneath his dignity to steal any article of food from me, he would never accept my overtures of friendship. I have reason to believe that his special dislike for me arose out of a pair of boots I possessed at that period. They were creaky boots, and fastened with laces. Whether it was that the creaking reminded him of the squeak of rats, and not being a particularly tidy boy, the before-mentioned laces were sometimes allowed to trail rat's-tail-wise, aggravatingly heightening the illusion, I can't say; I only know that as sure as I happened to allow my small feet to swing loosely, while seated at breakfast or dinner, so surely would the black-and-white cat, if he were in the room, make a sudden dash at the hated boots, giving my leg a severe wrench in his endeavour to fling himself on his back, for the purpose of tearing the life out of them after his own peculiar mode, as before explained.

167. **FONDNESS OF CATS FOR MUSIC.**—My enemy was, however, finally subdued, and in rather a curious way. Someone bought me one of those difficult musical instruments known as mouth organs; and, delighted with my new possession, I was torturing it as I sat on a seat in the garden. Suddenly there appeared in a tree, just above my head, my foe, the black-and-white cat, with his tail waving from side to side, his eyes staring, and his mouth twitching in an odd sort of way. I must confess I was rather alarmed, and in my nervous condition I might be excused if I construed the expression of the cat's countenance to intimate, "Here you are, then, with another hideous noise—a noise that is even more suggestive of rat squeaking than your abominable boots; however, I've caught you by yourself this time, so look out for your eyes." I did not, however, cease playing my organ; my enemy's green eyes seemed to fascinate me, and my tremulous breath continued to wail in the organ pipes. Slowly the black-and-white cat descended the tree, and presently leapt at my feet with a bound that thrilled through me, and expelled a scream-like note from my instrument. But, to my astonishment, my enemy did not attack me; on the contrary, he approached the offending boots humbly, and caressed them with his head. Still I continued to play, and after every inch of my bluchers had received homage from the cat's hitherto terrible muzzle, he sprang

on to the seat beside me, and purred, gently mewed, and finally crept up on to my shoulders, and lovingly smelt at the mouth-organ as I played it. From that day hostilities ceased between us. He would sit on my shoulders for half an hour at a time, and sing, after his fashion, while I played; and I had only to strike up a tune to lure him from any part of the premises where he might happen to be.

There used to come to our house a young man who played the trombone, and who, having heard the story, insisted that there was nothing in it—that all cats liked music, and that savage as was our cat to strangers, he would be bound to conquer him with a single blast of his favourite instrument. Next time he came armed with the terrible-looking trombone, which our cat no sooner saw than—as I now knew her nature better than anyone else could—she took a violent dislike to it. Placing our cat in a favourable position, the young man blew a blast on the trombone. The effect was, as he prognosticated, instantaneous, though not perfectly satisfactory; the brazen note was immediately responded to by one equally loud from our cat, who appeared to regard it as a challenge to combat, and thickened his tail and bared his teeth accordingly, at the same time swearing and spitting dreadfully. I need not say that the trombone player was discomfited, while my fame as a cat-charmer was considerably augmented.

168. CAT CHARMING.—Apropos of cat charming, I have a vivid recollection of once “charming” a cat to within an inch of getting myself thoroughly well thrashed. There lived in our neighbourhood a kind-hearted old gentleman who was good enough to take a fancy to my ungrateful self and would frequently invite me—he was a bachelor—to dine with him. The dining part of the business I had not the least objection to, but after dinner, when we had chatted till he fell into a doze, it became to a boy nine years old rather tedious. It was on one such occasion that I behaved so disgracefully. The old gentleman was nodding, with his slippers feet crossed easily before the fire, and a fat tortoiseshell cat, his property, lay along the rug placidly asleep too. Had I been a good boy I should have sat still and turned the leaves of “Foxe’s Book of Martyrs” till my friend awoke. But I was not a good boy. I felt myself like a martyr, doomed to the dreadful torture of sitting still. I felt in my pocket for a top-string I had there, and for a minute or so amused myself by bobbing the button at the end of the string on to the nose of the tortoiseshell cat, till I had roused that lazy

animal to a state of extreme irritability. This sport after a while grew tame, so I shifted the string and allowed it to dangle within an inch of my host's feet. Really it was done with scarce a thought, but the result was rather astonishing. The tortoiseshell cat, who all the time kept her eye on the tormenting string, no sooner saw it at a distance convenient to spring at than she made a bound, and missing the cord, fiercely embraced one of the slippered members with her ten talons. For the moment I was too frightened to weigh the possible consequences of laughing, and laughed outright, which, with the sudden bound the old gentleman gave, so alarmed the tortoiseshell cat that she flew towards the door like a mad cat. I doubt, however, whether its utmost agility would have saved it from the tongs with which its outraged master pursued it, had I not ashamedly explained the matter and begged forgiveness.

169. CUNNING OF A CAT.—I have at the present time of writing about my house a cat that came into my possession under rather singular circumstances. Before we knew her, we had a cat that gave perfect satisfaction, was a good mouser, and an affectionate mother. In the rear of our house there is a shed commonly used as a wood store, and frequented at least once a day. It is by no means a secluded place, and the door, through a weakness in its hinges, is constantly ajar. One morning there was discovered in the shed not only a strange she cat but a strange kitten with its eyes open, plump, and about a fortnight old. The strange cat made no attempt to stir when the maid entered, but lay suckling her baby, and looking up with an expression that said as plainly as cat language could, "A persecuted cat and her kitten, at your service; don't drive us out, that's a good creature." More singular still, before the person appealed to could consider the case, our own cat peeped into the shed, and after deliberately walking up to the refugees and giving them a kindly touch with her nose, walked back to the servant and commenced to rub against her, purring the while as though to manifest her goodwill towards the strangers, and to recommend a favourable consideration of their case. So they were taken in.

As soon, however, as the novelty of the affair wore off, it began to dawn on us that we did not require a "houseful" of cats—though for that matter the four lived happily enough together. Which should we get rid of? The strange cat's kitten was too big to drown and too little to send adrift, our own "Topsy" and her daughter must of course be retained; so there was nothing left but

to send away the strange she cat. She was rather a good-looking cat, and that, coupled with her known cleverness, gave us good ground for supposing that she would soon find another home. It appeared, however, that we did not give her credit for being nearly so clever as she was.

It was arranged that she should be conveyed in a basket to a certain square about a quarter of a mile distant, and there left to seek her fortune. To the best of everybody's belief this arrangement was carried out to the letter; therefore the amazement of the entire household may be easily imagined, on reference being made to the cat-cupboard, to see how Topsy and her two young charges were getting on, to find no Topsy at all—only the strange cat and the two kittens. How the cheat had been accomplished it was impossible to say. That Topsy was not the cat placed in the basket was vouched for by two witnesses—one of whom had held the basket-lid open while the other pushed the animal in. Perhaps in my own mind I have little doubt how the business was so mismanaged, but I know that in certain quarters there exists a belief either that by some sort of witchery the strange cat put on so Topsical an appearance as to deceive her would-be smugglers, or that after she was basketed she managed to sneak out, and either by persuasion or force induced the unlucky Topsy to take her place.

However it came about, the result is that the strange cat alone reigns at our house, to the jealous exclusion of all her species. No one, I believe, has any particular affection for her, but that circumstance is not observed to prey on her mind, or to interfere with her appetite. She devours her rations with the air of a cat who is conscious that she has earned them, and as though she is aware, and rather gloried than otherwise in the knowledge, that she is regarded as a cunning and manœuvring beast, who first by hypocritical representations induced an honest cat to obtain for her a situation, and who afterwards ungratefully contrived to push out her benefactress and progeny, and install herself in their place.

170. **THE CITY CATS.**—In the form of a letter, a friend of the Rev. J. G. Wood furnishes that gentleman with some interesting particulars of two commercial cats of his acquaintance. "I must now tell you something about our Mincing Lane cats. Their home was the cellar, and their habits and surroundings, as you may imagine from the locality, were decidedly commercial. We had one cunning old black fellow, whose wisdom was acquired by sad

experience. In early youth he must have been very careless; he was then always getting in the way of the men and the wine-cases, and frequent were the disasters he suffered through coming into collision with moving bodies. His ribs had often been fractured, and when Nature repaired them, she must have handed them over to the care of her 'prentice hand,' for the work was done in rather a rough and knotty manner. This battered and suffering pussy was at last assisted by a younger hero, who, profiting by the teachings of his senior, managed to avoid the scrapes which had tortured the one who was self-educated. These two cats, junior and senior, appeared to swear (cats will swear) eternal friendship at first sight. An interchange of good offices was at once established. Senior taught junior to avoid men's feet and wine-cases in motion, and pointed out the favourite hunting-grounds, while junior offered to his mentor the aid of his activity and physical prowess.

"Senior had a cultivated and epicurean taste for mice, which he was too old to catch; he therefore entered into a solemn league and covenant with junior to the following effect. It was agreed between these two contracting powers that junior should devote his energies to catching mice for the benefit of senior, who, in consideration of such feudal service, was to relinquish his claim to a certain daily allowance of cats' meat in favour of junior. This courteous compact was actually and seriously carried out. It was an amusing and touching spectacle to behold young pussy gravely laying at the feet of his elder the contents of his 'game bag;' on the other hand, senior, true to his bargain, licking his jaws and watching junior steadily consuming a double allowance of cats' meat.

"Senior had the rare talent of being able to carry a bottle of champagne from one end of the cellar to the other, perhaps a distance of a hundred and fifty feet. The performance was managed in this wise. You gently and lovingly approached the cat, as if you did not mean to perpetrate anything wicked; having gained its confidence by fondly stroking its back, you suddenly seized its tail, and by that member raised the animal bodily from the ground, its fore-feet sprawling in the air, ready to catch hold of any object within reach. You then quickly bring the bottle of wine to the seizing point; pussy clutches the object with a kind of despairing grip. By means of the aforesaid tail you carefully carry pussy, bottle and all, from one part of the cellar to another,

Pussy, however, soon became disgusted with this manœuvre, and when he saw a friend with a bottle of champagne looming, he used to beat a precipitate retreat."

171. MR. WOOD'S CATS.—The rev. gentleman before quoted had at one time in his possession a marvellously clever little cat, which he called "Pret," and concerning which he relates a host of anecdotes. From them are culled the following:—

"Pret" knew but one fear, and had but few hates. The booming sound of thunder smote her with terror, and she most cordially hated grinding organs and singular costumes. At the sound of a thunder-clap poor Pret would fly to her mistress for succour, trembling in every limb. If the dreaded sound occurred in the night or early morning, Pret would leap on the bed and crawl under the clothes as far as the very foot. If the thunderstorm came on by day, Pret would jump on her mistress's knees, put her paws round her neck, and hide her face between them.

She disliked music of all kinds, but bore a special antipathy to barrel-organs; probably because the costume of the organ-grinder was displeasing to her eye as his doleful sounds to her ears. But her indignation reached its highest bounds at the sight of a Greenwich pensioner accoutred in those grotesque habiliments with which the crippled defenders of their country are forced to invest their battered frames. It was the first time that so uncouth an apparition had presented itself to her eyes, and her anger seemed only equalled by her astonishment. She got on the window-sill, and there chafed and growled with a sound resembling the miniature roar of a lion. When thus excited she used to present a strange appearance, owing to a crest or ridge of hair which used to erect itself on her back and extend from the top of her head to the root of her tail, which latter member was marvellously expanded. Gentle as she was in her ordinary demeanour, Pret was a terrible cat when she saw cause, and was undaunted by size or numbers.

She had a curious habit of catching mice by the very tip of their tails, and of carrying the poor little animals about the house dangling miserably from her jaws. Apparently her object in so doing was to present her prey uninjured to her mistress, who, she evidently supposed, would enjoy a game with a mouse as well as herself; for, like human beings, she judged the character of others by her own.

This strange custom of tail-bearing was carried into the privacy

of her own family, and caused rather ludicrous results. When Pret became a mother, and desired to transport her kittens from one spot to another, she followed her acquired habit of portorage, and tried to carry her kittens about by the tips of their tails. As might be supposed, they objected to this mode of conveyance, and, sticking their claws in the carpet, held firmly to the ground, mewing piteously, while their mother was tugging at their tails. It was absolutely necessary to release the kittens from their painful position, and to teach Pret how a kitten ought to be carried. After a while, she seemed to comprehend the state of things, and ever afterwards carried her offspring by the nape of the neck.

At one time, when she was yet in her kittenhood, another kitten lived in the same house, and very much annoyed Pret by coming into the room and eating the meat that had been laid out for herself. However, Pret soon got over that difficulty by going to the plate as soon as it was placed at her accustomed spot, picking out all the large pieces of meat, and hiding them under a table. She then sat quietly and placed herself sentry over her hidden treasure, while the intruding cat entered the room, walked up to the plate, and finished the little scraps of meat that Pret had thought fit to leave. After the obnoxious individual had left the room, Pret brought her concealed treasures from their hiding-place, and quietly consumed them.

Clever as Pret was, she sometimes displayed a most unexpected simplicity of character. After the fashion of the cat tribe, she delighted in covering up the remnants of her food with any substance that seemed most convenient. She was accustomed, after taking her meals, to fetch a piece of paper and lay it over the saucer, or to put her paw into her mistress's pocket and extract her handkerchief for the same purpose. These little performances showed some depth of reasoning in the creature, but she would sometimes act in a manner totally opposed to rational action. Paper and handkerchief failing, she has been often seen, after partly finishing her meal, to fetch one of her kittens, and to lay it over the plate for the purpose of covering up the remaining food. When kitten, paper, and handkerchief were all wanting, she did her best to scratch up the carpet, and to lay the torn fragments over the plate. She has been known, in her anxiety to find a covering for the superabundant food, to drag a table-cloth from its proper locality, and to cause a sad demolition of the superincumbent fragile ware.

172. **THE FRENCH CATS.**—A year or two since, the budget of the Imperial Printing Office in France, amongst other items, contained one for cats, which caused some merriment in the legislative chamber during its discussion. According to the *Pays*, these cats are kept for the purpose of destroying the numerous rats and mice which infest the premises and cause considerable damage to the large stock of paper which is always kept there. This feline staff is fed twice a day, and a man is employed to look after them: so that for cats' meat and the keeper's salary no little expense is annually incurred; sufficient, in fact, to form a special item in the national expenditure. Of these animals a somewhat interesting anecdote is related.

It appears that near to the Imperial Printing Office is situated the office of the Director of the Archives, and the gardens of the two establishments are adjacent. In that belonging to the latter gentleman were kept a number of choice aquatic birds, for whose convenience a small artificial river had been constructed. Their owner suddenly discovered one day that his favourites were diminishing in a mysterious manner, and set a watch to ascertain the reason. Soon it was discovered who were the marauders—the cats! The enraged Director, acting in the spirit of the law, thought he had a perfect right to shoot and otherwise destroy these feline burglars whenever he found them on his grounds, and accordingly did so. Traps were set, and soon half a dozen cats paid the penalty of their crimes.

The keeper of the cats, also, by this time found that the muster at meal-times was much scantier than usual, and reported to his superior, the Director of the printing office. At first the workmen were suspected of killing them; but the appearance, one day, of a cat with a broken snare round its neck, put the keeper on a fresh scent, and ultimately led to the discovery of the truth. The Director thereupon complained to his brother official, who only replied by pointing to the thinly-tenanted pond, and saying that he would not have his birds destroyed if he could help it. The result was that a fierce hostility reigned between the two establishments, until an arrangement was made by their respective heads. By this treaty it was stipulated that the Director of the Imperial Printing Office should, on his part, cause every outlet by which the cats gained access to the gardens of the Director of the Archives to be carefully closed, and every means taken to prevent such a contingency; while, on the other hand

Monsieur the Director of the Archives agreed never to molest any cat belonging to the Imperial Printing Office who should, by some unforeseen accident, obtain admittance into his garden. And thus, by this famous treaty, the horrors of civil war were averted!

173. **ATTACHMENT OF THE CAT.**—A curious instance of the attachment of animals totally dissimilar in habits is related in the *Leisure Hour*, as follows:—

“A lady of the writer’s acquaintance was once walking amid the scenery of the Isle of Wight when she observed a little kitten curled up on a mossy bank in all the security of a mid-day nap. It was a beautiful little creature, and the lady gently approached in order to stroke it, when suddenly down swooped a hawk, pounced upon the sleeping kitten, and completely hid it from her sight. It was a kestrel. Our friend was greatly shocked, and tried to rescue the little victim; but the kestrel stood at bay and refused to move. There he stood on the bank, firmly facing her; and all her efforts to drive him from his prey failed. The lady hurried on to a fisherman’s cottage which was near at hand, and told of the little tragedy with the eloquence of real feeling. But the fisher-folk were not so disconcerted, and laughingly said: ‘It is always so; that hawk always comes down if anybody goes near the kitten. He has taken to the kitten, and he stays near at hand to watch whenever it goes to sleep.’

“The case was so remarkable that the lady inquired further into its history, and learned that the kitten’s mother had died, and that the fisherman’s family had suddenly missed the little nursling. After some time they observed a kestrel hawk loitering about the cottage. They used to throw him scraps of meat, and they observed that he always carried off a portion of every meal, dragging even heavy bones away out of sight. His movements were watched, and they saw that he carried the stores to the roof of the cottage. A ladder was placed, someone ascended, and there, nestling in a hole in the thatch, lay the lost kitten, thriving prosperously under the tender care of its strange foster-father. The foundling was brought down and restored to civilized life; but the bandit protector was not disposed to resign his charge, and ever kept at hand to fly to the rescue whenever dangerous ladies threatened it with a caress.”

174. **SAVAGE NATURE OF A CAT.**—That a long course of domestic drill is insufficient to win a cat from its native savagery

is proved by the following scrap lately culled from the *Swansea Herald* :—

“A fight of more than ordinary interest took place on the bank of the canal near Kidwelly Quay a few days ago. A domestic cat, making her usual walk in search of prey along the embankment, was attacked by an otter of no small dimensions, and was in an instant tossed into the middle of the canal, and there had to fight, not for the ‘belt,’ but for her life, in an uncongenial element. But very soon they were observed by some sailors and shippers employed not far from the scene of contest, who hastened to witness the strange occurrence. Either from fear of the men or of its formidable antagonist, the otter relinquished its hold, and poor puss safely landed amidst hearty cheers and congratulations. But puss, not being content with the laurels she had won in the first contest, went out again on the following day, and, strange to say, the old combatants met again, and the otter, with undiminished pluck, attacked the cat on land. The contest became very severe, but ultimately the otter was glad to regain its watery refuge, and leave puss the victor the second time, without suffering very considerably from an encounter with such a formidable foe.

175. **THE TRAVELLED CAT.**—In a parish in Norfolk, not six miles from the town of Bungay, lived a clergyman who, having a cat, sentenced it to transportation for life, because it had committed certain depredations on his larder. But the worthy gentleman found it far easier to pronounce that sentence than to carry it into execution. Poor puss was first taken to Bungay, but had hardly got there when she escaped, and was soon at home again. Her morals, however, had in no way improved, and a felonious abstraction of butcher's meat immediately occurred. This time her master determined to send the hardened culprit away a distance which, as he expressed it, “she would not walk in a hurry.” He, accordingly, gave her (generous man!) to a person living at Fakenham, distant at least forty miles. The man carried her off in a bag, that she might not know by what road he went. Vain hope! She knew well enough the way home, as he found to his cost, when, directly the house-door was opened the next morning, she rushed out, and he saw no more of her.

The night after, a faint mewling was heard outside the minister's dwelling, but not being so rare an occurrence, no attention was paid to it. However, on opening the door next morning, there lay the very cat which he thought was forty miles away, her feet all

cut and blistered, from the hardness of the road, and her silky fur all clotted and matted together with dust and dirt. She had her reward. However her thievish propensities might annoy him, the worthy vicar resolved never again to send her away from the house she loved so well and had exerted herself so nobly to regain.

176. **THE MONASTERY CAT.**—There is a capital story told of a monastery cat, which, albeit an old one, will very well bear telling again. Perhaps, indeed, the secret of its freshness lies in the seasoning—like many another dish. The legend runs thus:—

In a certain monastery, in which a cat was kept, the cook one day, on laying the dinner, found one of the holy inmates' portions of meat missing, although he thought he had cooked the proper quantity; still the good man was willing to believe he had miscalculated, and, without making any ado about it, supplied the deficient dinner. Next day, however, the same thing happened again—another monk's meat was gone. The cook began now to suspect treachery, and resolved to watch. On the third day he took particular care in apportioning the dinners, which were cooked, and about to be served up, when he heard a ring of the gate-bell, and hastened out to answer it. On his return he discovered one of the dinners was gone; but how or by whom it was taken he could not imagine. He determined to discover the thief, and next day took the utmost precaution in seeing that the number of dinners was quite correct. When all was ready to dish up, the bell rang again. This time, however, he did not go to the gate, but only just outside the kitchen, and, peeping through the door, he saw the cat jump through the window, and, seizing a piece of the meat, make his exit from the same way as rapidly as he entered. So far the mystery was solved; but who rang the bell? The next day the vigilant cook found that this part of the performance was also played by the ingenious *felis domesticus*, whose *modus operandi* was first to jump at the bell-rope and pull it with its paw, then, watching the cook out of the kitchen, to swiftly spring through the window, seize the meat, and then, as swiftly, out again.

The cook told the story of the feline thief to the monks, and those holy brethren, in full conclave assembled, after hearing the evidence, came to the resolution that the cat should enjoy uninterrupted the fruits of its predatory art, so long as it chose to practise it; and that the wondrous tale should be published abroad. The result of this decision was that for a considerable time visitors continually poured to the monastery, and were, for a

small fee, admitted to witness the excellent comedy, which paid for the extra rations of the cat, and put a little money into the pockets of the monks as well.

177. **SAGACITY OF CATS.**—It is a curious fact that in countries liable to earthquakes the cat is able to predict the coming event; and a very singular instance of this occurred at the great earthquake at Messina. A short time before that awful catastrophe a merchant living in the town noticed that in the room in which he was sitting his two cats were running about and scratching at the floor and doors in a very excited manner. He opened the door and let them out; but they only scampered off to the next door, and there began scratching again in the same way. He was convinced that they wanted to get fairly out of the house; so the owner opened the other doors leading to the street, at all of which, while he was unfastening them, they exhibited the utmost impatience. Struck with their uneasiness, he determined to follow them and endeavour to find the cause of it. Once out in the street, they rushed off in a frantic state through the town, out of the gates, and never stopped till they were some distance out in the country. The merchant, who had followed them quietly, at last found them in a field, still very excited and scratching at the ground. In a few minutes the first shock of the earthquake came, which buried in its hungry jaws many of the houses in the town, that belonging to the merchant amongst the number.

178. **ANECDOTES OF A TABBY.**—We may conclude with two anecdotes of our own tabby. The kitchen boiler had somehow got out of order, and being self-filling from the cistern, the water came into the kitchen at a great rate. Puss was awake, and, very early though it was, she went to the door of the servants' room, and scratched and mewed till the cook, suspecting something wrong, came out and into the kitchen, to find it "all a-wash" and the fire-place deep in water. The overflow was at once stopped, and pussie was quiet as soon as she had called attention to the matter, which might have been more serious when the fire was lighted.

The other occasion was a fire. The remains of a candle had been left burning in the store-room, and had set light to some paper and other things. Puss set up a great mewing outside, and when we went to let him in, we perceived the light. Measures were taken, and the incipient fire was promptly extinguished. Had it not been for the cat, the fire would probably have remained undiscovered till too late to be checked.

To "fight like dog and cat" has been, and no doubt will be, a favourite illustration with mankind; but, like a great many other popular sayings, when examined it will be found to have little real foundation. We do not, of course, mean to imply that dogs and cats do not fight, for some dogs will worry cats just as men or boys will, from sheer cruelty or mischief. But when dogs and cats are brought up in a house properly we find that they agree perfectly well, and sometimes better than the dogs will behave to each other. As we said at the commencement of our remarks upon cats, we are of opinion that our domestic pussy has only to be more intimately known and considered to be more widely appreciated. A little training, a little temper, and some consideration for feline "feelings" and failings, will make puss as pleasant, if not as useful or as constant a companion, in some respects, as the dog. Our own cat is an instance of this. He will accompany us when we walk in the garden, and is never so happy as when "fetching" a ball or stone thrown for him, particularly in the semi-gloom of the evening, along the grass plot or garden walks. Cats only require to be kindly treated and taught to be clean, and they will, if encouraged, attach themselves with great affection to their owners.



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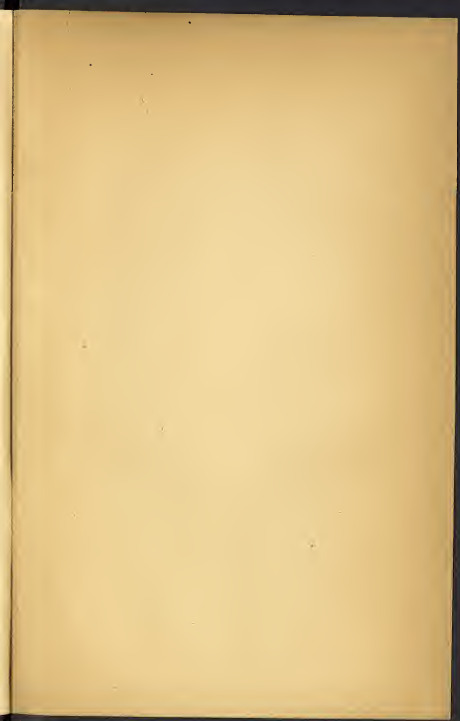
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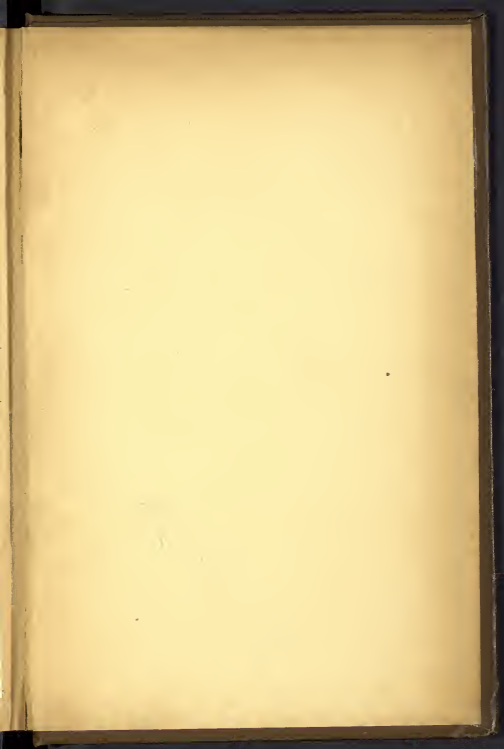
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