JOHN A. SEAVERNS

THE NEW

AMERICAN POCKET FARRIER

AND FARMER'S GUIDE

IN THE CHOICE AND MANAGEMENT OF

HORSES, NEAT CATTLE, SHEEP AND SWINE:

INCLUDING

A DESCRIPTION OF THEIR INTERNAL STRUCTURE
THEIR DIGESTIVE SYSTEM, THE DISEASES
TO WHICH THEY ARE LIABLE, WITH
THEIR CAUSES, SYMPTOMS,
AND MOST APPROVED
METHODS OF
CURE:

FROM THE WRITINGS OF

YOUATT, LAWRENCE, HINES, WHITE, CLAYTER,
AND OTHERS.

TO WHICH IS ADDED

A VARIETY OF AGRICULTURAL
AND
MISCELLANEOUS RECEIPTS.

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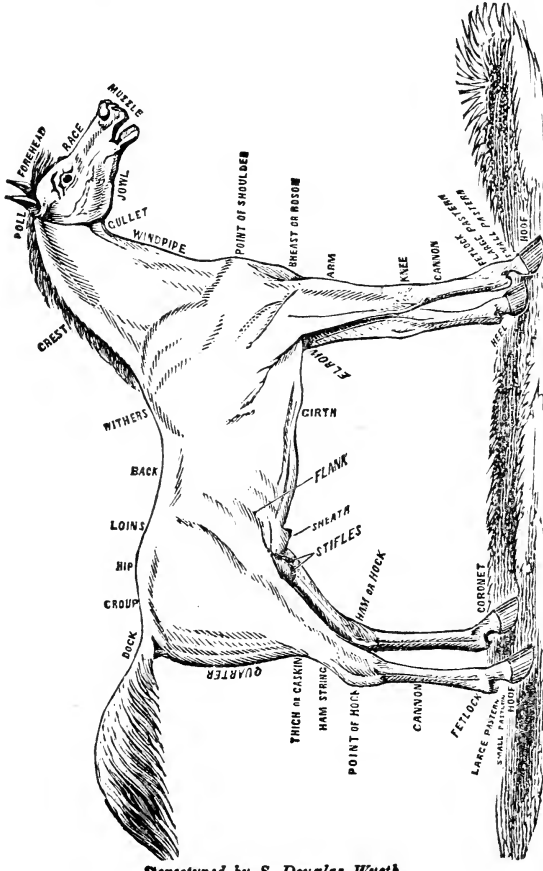


Terms commonly made use of to denote the external parts of the Horse.

Stereotyped by S. Douglas Wyeth, No. 7 Pear St., Philadelphia.

PREFACE.

In presenting to the public a comprehensive book on Farriery and the treatment of Cattle, we have determined to make the work complete; to embrace in it every subject useful to the farmer, the grazier, the dealer in horses, and others. Horses, neat cattle, sheep, and swine,—the management of them, the diseases to which they are subject, and cures for them,—all will be found in this book, carefully selected from the writings of Small, Youatt, White, Lawrence, Hines, Clayter, etc. As a book of advice and reference in regard to useful matters, we have so arranged it under different heads, that the reader by running his eye down the Contents will be enabled at once to find any particular subject upon which he may wish to inform himself.

"Ten minutes advice" is a short treatise compiled to guard the unwary from deceptions in the purchase of a Horse, as well as to refresh the memory of gentlemen already acquainted with the requisite qualifications of that noble animal. The remarks are drawn from long, and, in some instances, dear-bought experience, in the snares with which jockies and grooms beset those who are under the necessity of dealing with them. Having premised thus much, it is proper that we should introductorily remark, as a general guide, *viz:*

That a large shin-bone, that is, long from the knee to the pastern, in a foal, shows a tall horse.

Double the space in a foal, new foaled, between the knee and withers, will, in general, be the height of him when a complete horse.

Foals that are of stirring spirits, wanton of disposition, active in leaping, running and chasing, ever leading the way and striving for mastery, always prove horses of excellent mettle; those of a contrary disposition are most commonly jades.

There is one general rule which experience has proved to be a good one, and that is—*No Foot, No Horse.*

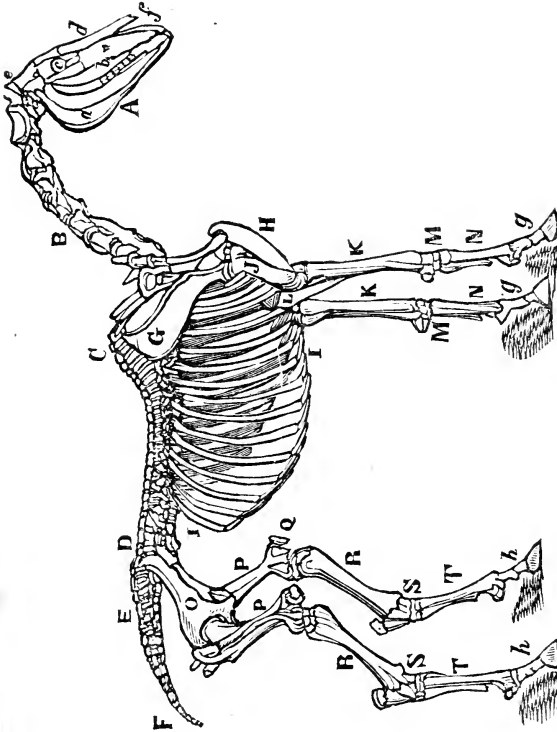
A horse's ability, and continuance in goodness, is known by his hoofs. If they are strong, smooth, hard, deep, tough, upright, and hollow, that horse cannot be a bad one.

THE POCKET FARRIER, commencing at page 39, contains a series of directions how to use a horse on a journey, with receipts and cures for the different diseases to which he is liable. The prescriptions have not been hastily jumbled together, but are experimentally efficacious, and have been proved by a practice of thirty years. By consulting these pages you will at once see, 1*st.* What methods are best to be used if your horses fall lame; 2*d.* What medicines are proper to give them when sick,—and 3*d.* How to direct the operations, and escape the impositions, of ignorant men.

Annexed to these, the reader will find directions for the management of Cows, Calves, Sheep, Swine, Agricultural Receipts, the management of the Dairy, Fruit-trees, Flax, Hemp, the improvement of waste lands, and miscellaneous useful information.

Philadelphia, June, 1845.

SKELETON OF A HORSE.



DESCRIPTION

OF THE

SKELETON OF A HORSE.

A The Head.
a The posterior maxillary or under jaw.
b The superior maxillary or upper jaw. Opposite to the letter is a foramen through which pass the nerves and blood vessels which chiefly supply the lower part of the face.
c The orbit, or cavity containing the eye.
d The nasal bones, or bones of the nose.
e The suter dividing the parietal bones below, from the occipital bones above.
f The inferior maxillary bone containing the upper incisor teeth.
B The Seven Cervical Vertebræ, or bones of the neck.
C The Eighteen Dorsal Vertebræ, or bones of the back.
D The Six Lumbar Vertebræ, or bones of the loins.
E The Five Sacral Vertebræ, or bones of the haunch.
F The Caudal Vertebræ, or bones of the tail, generally about fifteen.
G The Scapula, or shoulder blade.
H The Sternum, or fore part of the chest.
I The Costæ or ribs, seven or eight articulating with the sternum, and called the *true ribs*, and ten or eleven united together by cartilage, called the *false ribs*.
J The Humerus, or bone of the arm.
K The Radius, or bone of the fore-arm.
L The Ulna, or elbow. The point of the elbow is called the Olecranon.
M The Carpus or knee, consisting of seven bones.
N The metacarpal bones. The larger metacarpal or canon or shank in front, and the smaller metacarpal or splent bone behind.
g The fore pastern and foot, consisting of the Os Suffraginis, or the upper and larger pastern bone, with the sessamoid bones behind, articulating with the canon and greater pastern; the Os Coronæ, or lesser pastern; the Os Pedis, or coffin-bone; and the Os Naviculare, or navicular, or shuttle-bone, not seen, and articulating with the smaller pastern and coffin-bones.
h The corresponding bones of the hind feet.
O The Haunch, consisting of three portions, the Ilium, the Ischium, and the Pubis.
P The Femur or thigh.
Q The stifle joint with the Patella.
R The Tibia or proper leg-bone—behind is a small bone called the fibula.
S The Tarsus or hock, composed of six bones. The prominent part is the Os Calcis point of the hock.
T The Metatarsals of the hind leg.

TEN MINUTES' ADVICE

HOW TO BUY A HORSE.

It is a common observation that in the art of horsemanship, by far the most difficult part is that of giving proper directions for purchasing a horse free from fault and blemish. The deceptions in this branch of traffic being looked on in a less fraudulent light than they seem to deserve, and of consequence are more frequently practised, it shall therefore be our business, in the following brief remarks, to show, in the best manner we are able, the imperfections which, from either nature or mischance, every horse is liable to.

IN THE STABLE.

See the horse you are about to purchase, in the stable, and without any person being in the stall with him, and if he has any complaint in his legs he will soon show it, by altering the situation of them, taking up one and setting down the other; and this denotes his being foundered or over-worked.

On ordering him out, let no one be the last in the stable but yourself; you should also, if possible, be the

first in, lest the owner, or some of his quick emissaries, take an opportunity to fig him; a practice common among dealers, in order to make the tail show as if carried very high, when, in reality, the day after, he will, in appearance, be five pounds worse.

THE EYES.

This is the proper time to examine his eyes, which may be done in a dark stable, with a candle, or rather in the day time when he is led from the stall; cause the man who leads him to stop at the stable door just as his head peeps out, and all his body still within. If the white of the eye appears reddish at the bottom, or of a colour like a withered leaf, I would not advise you to purchase him. A moon-eyed horse is known by his weeping, and keeping his eyes almost shut at the beginning of the distemper: as the moon changes, he gradually recovers his sight, and in a fortnight or three weeks sees as well as before he had the disorder. Dealers, when they have such a horse to sell, at the time of his weeping always tell you that he has got a bit of straw or hay in his eye, or that he has received some blow: they also take care to wipe away the humour, to prevent its being seen; but a man should trust only himself in buying of horses, and above all, be very exact in examining the eyes. In this he must have regard to time and place where he makes the examination. Bad eyes may appear good in winter, when snow is upon the ground; and often, good ones appear bad according to the position of the horse. Never examine a horse's eyes by the side of a white wall, where the dealers always choose to show one that is moon-eyed.

The moon-eyed horse has always one eye bigger than the other, and above his lids you may generally discover wrinkles or circles.

If you observe a fleshy excrescence that proceeds from the corner of the eye, and covers a part of the pupil, and is in shape almost like the beard of an oyster, though seemingly a matter of no great consequence, yet it is what I call a whitlow in the eye, and if suffered to grow, it draws away a part of the nourishment of the eye, and sometimes occasions a total privation of sight: on the contrary, if the eyes are round, big, black and shining; if the black of the eye fill the pit, or outward circumference, so that in moving, very little of the white appears, they are signs of goodness and mettle. Large eyes are in general esteemed the best, but be sure to observe that the chrystaline be thoroughly transparent, for without that, no kind of eye can be said to be good.

The eye that is of a long oval figure is almost always weak, especially if the corners are narrow for a considerable way.

We may here observe that no animal is so subject to blindness as the horse. This arises from the great heat of his blood, and the constant feverish state in which his great exertions keep him, which occasions inflammation, and thickening of the extremely thin membrane that covers the eye.

Most people, in examining a horse's eyes, lead him under a shed and look sideways through the eye towards the light, to ascertain whether it be clear and transparent as it ought; but the best way is to make the observation when he first comes out of a dark stable into strong daylight; for if he has any weakness in his eyes, he will contract or wrinkle his brow and look upward to receive more light; and if, at the same time, the

pupil of the eye appears large, or does not contract, it is a bad sign; for that reason it is best to observe a horse's eyes first in the shade, taking notice of the dimensions of the pupil, for if that lessens on his coming into a stronger light it is a sure sign that his sight is good and likely to continue so.

Upon the whole, that eye is generally good where the eyelids are thin, the eye transparent and sprightly, and when the horse has a bold resolute look, and takes notice of the different objects that present themselves before him without fear.

One of the best signs of a good horse is the eyes wide apart.

COUNTENANCE.

After having carefully satisfied yourself as to his eyes, let him be brought out, and have him stand naked before you; then take a strict view of his countenance, particularly with regard to the cheerfulness of it, this being an excellent glass to observe his goodness and best perfections. Be careful you are not deceived by the marks in his face, as frequently a good-looking star is made of cat's skin. If his ears be small, sharp, short, pricked, and moving; or if they are long, but yet well set on, and well carried, it is a mark of goodness; if they are thick, laved, or lolling, wide set, and unmoving, they are signs of dulness, and of an evil nature.

The whole substance of the ears should be thin and delicate. They ought to be placed on the very top of the head, and their extremities or points when pricked up should be nearer than their roots. When a horse carries his ears pointed forwards he is said to have a bold, hardy, or brisk ear; and it is a perfection in a

ears when he is travelling to have them firm, mark every motion of his feet by a slouch of his ears like a hog.

A lean forehead, swelling outward, the mark or feather in his face set high, with a white star or ratch of an indifferent size, and even placed, or a white snip on the nose or lip, they are all marks of beauty and goodness; on the contrary, a fat, cloudy, or frowning countenance, the mark in his face standing low, as under his eyes, if his star or ratch stand awry, and instead of a snip, his nose be raw, and unhairy, or his face generally bald, they are signs of deformity.

THE STRANGLES.

This is a distemper to which colts and young horses are particularly liable. It begins with a swelling between the jaw-bones, which frequently extends to the muscles of the tongue, and is generally attended with great heat, pain, and inflammation.

In purchasing a horse, handle his cheeks or chaps, and if you find the bones lean and thin, the space wide between them, the thropple or wind-pipe big as you can gripe, and the void place without knots or kernels, and the jaws so great that the neck seems to couch within them, they are all signs of great wind, courage, soundness of head and body; on the contrary, if the chaps are fat and thick, the space between them closed up with gross substance, and the thropple little, they are signs of short wind and much inward foulness: should the void place be full of knots and kernels, beware of the strangles or glanders, the former of which may be easily discovered by the swelling between the two nether jaw-bones, which discharges a white matter. There is also

a disorder which is called the Bastard Strangles, which appears sometimes like, and sometimes different from the true strangles. The bastard strangles are what proves the horse has not thrown off his true strangles, but that some foul humours are still left behind; this disorder may come at four, five, six, or even seven years of age. A continual languor at work, and seemingly perpetually weary, without any visible ailment, is a certain sign that he is not clear of this disorder, which sometimes will affect the foot, the leg, the ham, the haunch, the shoulder, the breast, or the eye, and without care in this latter case, may corrupt the pupil of the eye, as the small-pox does in men.

MORE FOUNDERING.

There is also another disorder, much like the strangles, which is called Morefoundering, (the word is of French origin) and is used by farriers to distinguish those colds which a horse takes by being suffered to cool too suddenly after violent exercise—and may be known by a running at the nose.

GLANDERS.

A distemper in horses which too generally proves fatal, notwithstanding the many boasted remedies that are prescribed for its cure. In fact all horses that are said to die of the glanders, are victims to a pulmonary consumption, the lungs of all such being found diseased or destroyed.

This disease is known by a flux or running of corrupt matter from the nostrils, which is of different colours,

according as the disease is more or less inveterate, white, yellow, green, and sometimes almost black, and very fœtid, in which case it may be concluded that the bones are become foul.

In buying a horse, feel if he has any flat glands fastened to the nether jaw, which give him pain when you press them, and remember that a running at one nostril is worse than at both.

VIVES.

When the jaws are strait, that the neck swells above them, it is a sign of short wind; but if the swelling be long, and close by his chaps, like a whetstone, then be sure he has the vives, which only differs from the strangles in this, that the swellings of the kernels under the ears seldom gather or come to matter.

When these swellings appear in an old or full aged horse, they are signs of great malignity, and often of an inward decay, as well as forerunners of the glanders.

This is a distemper most frequent in high mountainous countries, especially to horses that are not used to the crudities produced in the stomach by the spring and fountain waters that rise in hilly grounds. Standing waters or those of very little current, are the least dangerous, and seldom cause the vives, but very deep wells are bad.

NOSTRILS.

If his nostrils be open, dry, wide, and large, so as upon any straining the inward redness is discovered, if his muzzle be small, his mouth deep, and his lips equally meeting, they are signs of health and wind; but should

his nostrils be strait, his wind is then little. Should you find the muzzle to be gross, his spirit will be dull. Nothing contributes more to a horse's breathing easy, and with freedom, than the wideness of his nostrils.

THE MOUTH.

If a horse's mouth be shallow he will never carry the bitt well, and if his upper will not reach his under lip, old age and infirmity mark him for carrion. When the mouth is cloven too much, there is a good deal of difficulty to bitt a horse so that he may not "swallow it," as horsemen term it. The compliance and obedience of a horse in the manége, is owing, in a great measure, to the tender, or quick sense of his mouth, which renders him fearful of being hurt by the bitt. A horse that has a very fine mouth will stop if his rider merely bends his body backward and raise his hand, without waiting for the check of the bridle.

AGE.

Respecting the age of a horse that is fit for work, he should have forty teeth; twenty-four grinders, which teach us nothing, and sixteen others, which have their names, and discover his age. As mares usually have no tusks, their teeth are only thirty-six. A colt is foaled without teeth; in a few days he puts out four, which are called pincers, or nippers; soon after appear the four separators: Next to the pincers, it is sometimes three or four months before the next, called corner teeth, push forth. These twelve colt's teeth, in the front of the mouth, continue, without alteration, till the colt is

two years, or two years and a half old, which makes it difficult, without great care, to avoid being imposed on during the interval, if the seller finds it his interest to make the colt pass for either younger or older than he really is; the only rule you have then to judge by is his coat, and the hairs of his mane and tail. A colt of one year has a supple, rough coat, resembling that of a water spaniel, and the hair of his mane and tail feels like flax, and hangs like a rope untwisted; whereas a colt of two years has a flat coat, and straight hairs, like a grown horse.

At about two years and a half old, sometimes sooner, sometimes later, according as he has been fed, a horse begins to change his teeth. The pincers, which come the first, are also the first that fall; so that at three years he has four horse's, and eight colt's teeth, which are easily known apart, the former being larger, flatter, and yellower than the other, and streaked from the end quite into the gums.

These four horse pincers have, in the middle of their extremities, a black hole, very deep; whereas those of the colt are round and white. When the horse is coming four years old, he loses his four separators, or middle teeth, and puts forth four others, which follow the same rule as the pincers. He has now eight horse's teeth, and four colt's. At five years old he sheds the four corner, which are his last colt's teeth, and is called a horse.

During this year also, his four tusks (which are chiefly peculiar to horses) come behind the others; the lower ones often four months before the upper; but whatever may be vulgarly thought, a horse that has the two lower tusks, if he has not the upper, may be judged to be under five years old, unless the other teeth show the contrary; for some horses that live to be very old

never have any upper tusks at all. The two lower tusks are one of the most certain rules that a horse is coming five years old, notwithstanding his colt's teeth may not be all gone.

Jockies and breeders, in order to make their colts seem five years old when they are but four, pull out their last colt's teeth; but if all the colt's teeth are gone, and no tusks appear, you may be certain this trick has been played. Another artifice they use, is to beat the bars every day with a wooden mallet, in the place where the tusks are to appear, in order to make them seem hard, as if the tusks were just ready to cut.

When a horse is coming six years old, the two lower pincers fill up, and, instead of the holes above-mentioned, show only a black spot. Between six and seven the two middle teeth fill up in the same manner; and between seven and eight the corner teeth do the like; after which it is said to be impossible to know certainly the age of a horse, he having no longer any mark in the mouth.

You can indeed only have recourse to the tusks, and the situation of the teeth, of which I shall now speak.

For the tusks you must with your finger feel the inside of them from the point quite to the gum. If the tusk be pointed flat, and has two little channels within side, you may be certain the horse is not old, and at the utmost only coming ten. Between eleven and twelve the two channels are reduced to one, which after twelve is quite gone, and the tusks are as round within as they are without; you have no guide then but the situation of the teeth. The longest teeth are not always a sign of the greatest age, but their hanging over and pushing forward, as their meeting, perpendicularly, is a certain token of youth.

Many persons, whilst they see certain little holes in the middle of the teeth, imagine, that such horses are

but in their seventh year, without regard to the situation the teeth take as they grow old.

When horses are young, their teeth meet perpendicularly, but grow longer, and push forward with age; besides, the mouth of a young horse is very fleshy within in the palate, and his lips are firm and hard: on the contrary, the inside of an old horse's mouth is lean both above and below, and seems to have only the skin upon the bones. The lips are soft and easy to turn up with the hand.

All horses are marked in the same manner, but some naturally, and others artificially. The natural mark is called Begue, and some ignorant persons imagine such horses are marked all their lives, because for many years they find a little hole, or a kind of void in the middle of the separators and corner teeth; but when the tusks are grown round, as well within as without, and the teeth point forward, there is room to conjecture in proportion as they advance from year to year, what the horse's age may be, without regarding the cavity above mentioned.

The artificial manner is made use of by dealers and jockies, who mark their horses, after the age of them is known, to make them appear only six or seven years old. They do it in this manner: They throw down the horse to have him more at command, and, with a steel graver, like what is used for ivory, hollow the middle teeth a little, and the corner ones somewhat more; then fill the holes with a little rosin, pitch, sulphur, or some grains of wheat, which they burn in with a bit of hot wire, made in proportion to the hole. This operation they repeat from time to time, till they give the hole a lasting black, in imitation of nature; but in spite of all they can do, the hot iron makes a little yellowish circle round these holes, like what it would leave upon ivory; they have therefore another trick to prevent detection,

which is to make the horse foam from time to time, after having rubbed his mouth, lips, and gums with salt, and the crumb of bread dried and powdered with salt. This foam hides the circle made by the iron.

Another thing they cannot do, is, to counterfeit young tusks, it being out of their power to make those two crannies above mentioned, which are given by nature. With files they may make them sharper or flatter, but then they take away the shining natural enamel, so that one may always know, by these tusks, horses that are past seven, till they come to twelve or thirteen.

[FROM THE AMERICAN FARMER.]

AGE BY FEELING.

A wonderful discovery recently made in an old Horse's age!!

Since the age of that noble animal, the horse, after a certain period of life, (that is to say) after the marks in his *incisors* and *cuspidati* are entirely obliterated, to be able to ascertain his age, with any tolerable degree of certainty, appears to the generality of "*horse age judges*," to be a subject of very much uncertainty, I now take the liberty of laying before the public, through the medium of your paper, an infallible method (subject to very few exceptions) of ascertaining it in such a manner, after a horse loses his marks, or after he arrives to the age of nine years or over; so that any person concerned in horses, even of the meanest capacity, may not be imposed upon in a horse's age, from nine years of age and over, more than three years at farthest, until the animal arrives at the age of twenty years and upwards, *by just feeling the submaxillary bone, or the bone of the lower jaw.*

This method I discovered, by making many anatomical observations on the skulls of dead horses and repeated dissections. In order, therefore, to elucidate the above, I must in the first place beg leave to remark ; that the submaxillary bone, or the lower jaw bone of all young horses, about four or five years of age, immediately above the *bifurcation*, is invariably thick and very round at the bottom ; the cavity of said bone being very small, contains a good deal of marrow, and generally continues in this state until the animal arrives at that period which is generally termed an " aged horse," or until the animal acquires his full size in height or thickness ; or *according to sporting language, is completely furnished*, with very little variation. But after this period, the cavity as aforesaid becomes larger, and more marrow is contained therein. Hence the submaxillary bone becomes thinner and sharper a little above the *bifurcation.*

This indelible mark may always be observed in a small degree in horses above eight years of age ; but at nine years old it is still more perceptible. It continues growing a little thinner and sharper at the bottom until twelve years of age. From thence until fifteen, it is still thinner, and about as sharp as the back of a case knife near the handle. From this period until the ages 18, 19, 20, and upwards, it is exceedingly so ; and is as sharp, in many subjects, as the dull edge of that instrument.

RULES.

1st. Put your three fingers about half an inch or an inch immediately above the bifurcation, and grasp the submaxillary bone, or the lower jaw bone. If it is thick at the sides, and very round indeed at the bottom, the animal is most certainly under nine years of age.

2d. If the bone is not very thick, and it is perceivably not very round at the bottom, he is from nine to twelve years old, and so on. From twelve to fifteen, the bone is sharper at bottom, and thinner at the sides, the bottom is generally as sharp as the back of a case knife; and from 15 to 18, 19, 20, and upwards, without many exceptions, the bone, when divested of its integuments, is as sharp as the dull edge of that instrument.

3d. Allowances must always be made between heavy, large western or wagon horses, or carriage horses, and fine blooded ones. By practising and strictly attending to the above rules, upon all descriptions of horses, the performer in a little time will become very accurate in the accomplishment of his desires, more especially if he attentively observes the lower jaw bone of dead horses."

THE BARBS, THE LAMPAS, GIGGS UPON THE LIPS, AND GAGG-TEETH.

As the defects of the mouth may destroy a horse without any distemper, it will here be proper to give information as follows:

For the *barbs*, look under the horse's tongue, and see if he has not two fleshy excrescences on the under palate, like little bladders. It seems to be a mere trifle, but these, however, will hinder a horse from drinking as usual; and if he does not drink freely, he eats the less, and languishes from day to day, perhaps, without any one's taking notice of it.

The *lampas* is known by opening the horse's mouth, and looking at his upper palate, to see if the flesh comes down below the inner teeth: this gives him pain in

eating his oats, and even his hay, when it is too harsh; though he can very well manage bran, grass, or kind hay. The lampas causes a horse to look rueful and fall away.

When you have looked into the horse's mouth, without finding either the lampas or the barbs, turn up his lips both upper and under, and perhaps you may find what are termed *giggs*, consisting of small swellings or pustules on the inside of the lips, which will sometimes increase to the size of a large walnut, at which advanced state they are so painful that the horse will let his meat fall out of his mouth, or keep it there unchewed, sooner than attempt to eat it. This defect may be felt with the finger, and is what hinders horses from eating as usual; and this is what is called giggs upon the lips.

Gagg-teeth does not often happen to young horses, though sometimes it is met with; and is to be discovered by putting the colt's-foot into the mouth, and looking at the large grinders, which in this case appear unequal, and in eating catch hold of the inside of the cheeks, causing great pain and making them refuse their food.

THE BREAST.

The breast of a horse should be full and large, and you should look from his head down to his breast, and see that it be broad, outswelling, and adorned with many features, for this shows strength: the little, or small breast shows weakness, as the narrow one is apt to stumble.

THE ANTICOR, OR ANTICOW.

This is a malignant swelling in the throat and breast

of a horse, extending in some cases to the very sheath under the belly, and is mortal to horses if they are not soon relieved.

In going to purchase, put your hand between his fore-legs, and you can very readily feel if he has or has not such a swelling. Anticor proceeds from different causes, viz. the remains of an old distemper which was never perfectly cured, or after which the horse was too soon put to labour; from too much heat contracted in the stable, by being kept up a long time without airing, or from having lost too large a quantity of blood in what part soever the vein was opened. When you touch a swelling of this kind, the impressions of the fingers remain for some time, as if you had made them in a bit of puff paste, filling up again by degrees as the paste would rise. This swelling contains bloody water, that insinuates between the flesh and the skin, and proves that all the blood in the veins is corrupted.

THE THIGHS AND LEGS.

See that the fore-thighs be rush grown, well horned within, sinewed, fleshy and outswelling; those being signs of strength, as the contrary are of weakness. If his knees bear a proportion to each other, be lean, sinewy, and close knit, they are good; but if one is bigger or rounder than the other, the horse has received mischief; if they are gross, he is gouty, and if he has scars, or the hair be broken, beware of a stumbling jade, and perpetual faller.

The hind parts, from the hip-bone to the hock, should be of great length; the hind legs should be full of sinew, clear of knots, and rather crooked than straight in the hock. Be careful to avoid buying a horse knock-kneed,

or with feet turned in or out, for a horse of this make never can be sure footed, and he moves ugly.

SPLINTS.

This may be looked upon as a disorder of the fore-legs, though occurring on the hind ones at times.

Look down his legs to his pasterns, and if you find them clean, lean, flat, sinewy, and the inward bought of his knee without seams, or hair broken, it shows a good shape and soundness; but if on the inside of the leg you find hard knots, they are splints, of which there are three sorts. The simple splint, which appears within the leg under the knee, remote from the great nerve and the joint of the knee, ought not to hinder a man from buying a good horse, for it gives him no pain, is only disagreeable to the sight, and goes away in time of itself. All the three sorts of splints are known by the same rule; for whenever you see a tumour upon the flat of the leg, whether within or without, if it be under the knee, and appears hard to the touch, it is a splint; and when it is situated as above described, it signifies nothing; but when it comes upon the joint of the knee, without any interval, it loses the name of splint, and may be called a fusee; it then, as one may easily conceive, makes the leg of a horse stiff, and hinders him from bending his knee; consequently it obliges him to stumble, and even fall, and after a violent exercise makes him lame. Rest alone cures the lameness, but not the fusee.

The third kind of splint, whether within or without, is when you feel it between the nerve and the bone, and sometimes even at the end of the nerve; this is called a nervous splint, and is the worst of all the kinds; besides

that, the horse is never here so firm footed, but that he limps at every little degree of labour.

OSSLETS.

There are also three kinds of osslets, which are of the same nature as splints, and some persons take them for the same thing; but there is this difference however between them, that splints come near the knees, and osslets near the fetlocks. Their seat is indifferently within or without the leg.

The first is the simple osslet, which does not grow near the joint of the fetlock or the nerve.

This need not hinder any man from buying a horse, because it puts him to no inconvenience, and very often goes away of itself without a remedy. The second is that which descends into the fetlock, and hinders the motion of that joint; this occasions a horse to stumble and fall, and with a very little work to become lame. The third has its seat between the bone and the nerve, and sometimes upon the nerve; it so much incommodes a horse, that he cannot stand firm, but limps on every little occasion.

WINDGALLS.

There are also three kinds of windgalls, which appear to the eye much like osslets, but are not, however, just in the same places; nor do they feel like them, for osslets are hard, but windgalls give way to the touch. Some horses are more liable to these than others, and that for several reasons. Some proceed from old worn-out sires, and others by being worked too young. A simple windgall is a little tumour, between the skin and

the flesh, round the fetlocks: when it appears at a good distance from the large nerve, it does not lame the horse; and if he has but age on his side, that is, be under ten years old, at most, he will be as useful as before, provided the work you put him to, be not of the most laborious kind; however, a horse is much better without, than with even this sort of simple windgall, which consists of thin skins, full of red liquid, and soft to the touch. The nervous windgall answers the same description, only, as the simple ones come upon the fetlock, or a little above it, upon the leg bone, in the very place of osslets, nervous ones come behind the fetlock, upon the great nerve, which makes them of worse consequence, for they never fail to lame a horse after much fatigue. These windgalls may happen upon any of the legs, but some of them are more dangerous than others, in proportion as they press the nerve, and are capable of laming the horse; and take notice by the way, that windgalls are more troublesome in summer than in winter, especially in very hot weather, when the pores are all open. The third sort is the bloated windgall, and is of the worst sort when they come over the hind part of the fetlock, between the bone and the large nerve, and make the horse so lame at every little thing he does, that he can scarce set his foot on the ground: they appear on both sides the leg, without as well as within; and when you touch them with your hand or finger, they feel like a pig's or cow's bladder full of wind. If under his knees there are scabs on the inside, it is the speedy or swift cut, and in that case he will but ill endure galloping; if above the pasterns, on the inside, you find scabs, it shows interfering; but if the scabs be generally over his legs, it is either occasioned by foul keeping, or a spice of the mange.

It is seldom that a horse is found entirely clear of

windgalls, particularly about the hind legs, if he be much used.

THE PASTERN AND PASTERN-JOINT.

Take care that the pastern-joint be clear and well knit together, and that the pastern be strong, short and upright; for if the pastern-joint be big or swelled, beware of sinew strains; if the pastern be long, weak or bending, the limbs will hardly be able to carry the body without tiring. Indeed the experience of every one will tell you that horses with long pasterns cannot travel near so well as those with short ones.

HOOFS.

The hoofs should be proportioned to the size of the horse, black, smooth, tough, nearly round, deep, hollow, and full-sounding; for white hoofs are tender, and carry a shoe ill, and a brittle hoof will carry no shoe at all: a flat hoof, that is pumiced, shows foundering; and a hoof that is empty, and hollow-sounding, shows a decayed inward part, by reason of some wound or dry founder. If the hair lie smooth, and close about the crown of the hoof, and the flesh flat and even, then all is perfect; but should the hair be there rough, the skin scabbed, and the flesh rising, you may then be apprehensive of a ring bone, a crown scab, or a quittor bone.

Some horses' hoofs are not round, but broad, spreading out of the sides and quarters; such have, for the most part, narrow heels, and will at length come to be flat-hoofed, neither will they carry their shoes long, nor travel far, being apt to surbate or founder. Horses with crooked hoofs are splay-footed, and consequently go with

their joints so close together, that they cannot travel without cutting or interfering, or, what is still worse, without striking one leg so hard against the other as to produce lameness.

CIRCLED FEET.

Circled feet are very easy to be known: they are, when you see little excrescences round the hoof, which enclose the foot, and appear like so many small circles. Dealers who have such horses, never fail to rasp round their hoofs, in order to make them smooth; and to conceal the rasping, when they are to show them for sale, they black the hoofs all over; for without that, one may easily perceive what has been done, and seeing the mark of the rasp, is a proof that the horse is subject to this accident. As to the causes, it proceeds from the remains of an old distemper, or from having been foundered; and the disease being cured without care being taken of the feet, whereupon the circulation of the blood not being regularly made, especially round the crown, between the hair and the horn, the part loses its nourishment, and contracts or enlarges itself in proportion as the horse is worked. If these circles were only on the surface, the jockies' method of rasping them down would then be good for nothing; but they form themselves also within the feet, as well as without, and consequently press on the sensible part, and make a horse limp with ever so little labour. One may justly compare a horse in this situation, to a man that has corns on his feet, and yet is obliged to walk a long way in shoes that are too tight and stubborn: a horse therefore is worth a great deal less on this account.

BOW LEGGED.

After having well examined the feet, stand about three paces from his shoulders, and look carefully that he is not bow legged, which proceeds from two different causes; first, from nature, when a horse has been got by a worn out stallion; and secondly, from his having been worked too young; neither in the one case nor the other is the horse of any value, because he never can be sure-footed; it is also a disagreeable sight if the knees point forwards, and his legs turn in under him, so that the knees come much further out than the feet; it is what is called a bow legged horse, and such a one ought to be rejected for any service whatsoever, as he never can stand firm on his legs; and how handsome soever he may otherwise be, he should on no account be used for a stallion, because all his progeny will have the same deformity.

THE HEAD.

Stand by the horse's side and take particular notice that his head be well set on; for if thick set, be assured it will cause him to toss up his nose for want of wind, which causes a horse to carry his head disagreeably high, and occasions a ticklish mouth.

His face should be rather of the Roman order than straight.

The head of a horse should be narrow, lean, and not too long.

THE NECK AND THE MANE.

The neck of a horse is a part that adds greatly to his beauty or deformity.

His neck should be small at the setting on of his head, and long, growing deeper to the shoulders, with a high, strong, and thin mane, long, soft, and somewhat curling. The upper edge should form the half of an arch, gradually falling in height and shape from the head to the shoulders. A well-shaped neck contributes greatly to the horse's going light on the hand, as a coarse ill-shaped one does to making him go heavy.

Much hair on the mane shows dulness, as too thin a mane shows fury; and to have none, or if it be shed, is a proof of the worm in it, the itch, or manginess. The mane should be moderately thin, and in length half the width of the neck.

To have a short thick neck, like a bull, to have it falling on the withers, shows want of strength and mettle.

THE POLL-EVIL.

This is a large bigness or swelling in the nape of the neck, and the gentleman going to purchase can easily see by the size of the horse's neck whether he has it or not. It proceeds from some blow, bruise or external injury, and its consequences are much to be dreaded. John Hinds, a distinguished English farrier says, "the most prolific cause of poll-evil I am inclined to attribute to the low stable door-way, whereby the animal gets many a trivial hit at going in and coming out."

THE SHOULDERS.

The shoulders of a horse should be sharp and narrow at the withers, and thrown far back, for experience has proved that such as have low shoulders with high rumps,

never show to advantage, and seldom make good saddle or race horses.*

In showing a horse, a dealer, or jockey, will generally place him with his fore feet on a higher ground than his hind ones, in order that the shoulder may appear further in his back, and make him higher in sight than he really is; but be sure to cause him to be led on level ground, and see that his shoulders lie well into his back; for an upright shouldered horse carries his weight too forward, which is disagreeable, and unsafe to the rider. Have his fore legs stand even, and you will then have it in your power to judge of his shoulders. If you do not observe this, the dealer will contrive that his near leg stands before the other, as the shoulders, in that position, appear to lay further in the back. If his knees stand nearly close, and his toes quite in a line, not turning in, nor yet turning out, be assured he will not cut; if he takes his legs up a moderate height, and neither clambers, nor yet goes too near the ground, he will most likely answer your purpose.

BACK, BODY, &c.

Observe that the chine of his back be broad, even and straight, his ribs well compassed, and bending outward, his fillets upright, strong, short, and above an handful between his last rib and his huckle bone; his belly should be well let down, yet hidden within his ribs, and his stones close thrust up to his body, those being marks of health and goodness. Be careful in observing that he has no swelling in his testicles, a disorder that

* Eclipse is the only instance, we believe, on record to the contrary. "The shoulder of Eclipse was a low one."

usually proceeds either from some strain in working, or from the horse's having continued too long in the stable, or from his putting one leg over any bar, and being checked by the halter, or, in a word, from any other accident that confines a horse, makes him kick or fling, and bruise his cods, and there is no other way of knowing this distemper, but by some outward swelling upon the part.

The coming down of the testicles proceeds from the same causes, with this difference only, that it is a long time of discovering itself; whereas the other may come in one night. If his chine be narrow, he will never carry a saddle well; and to have it bending or saddle backed, shows weakness. If his ribs be flat, there is but small liberty for wind. Should his fillets hang low, or weak, he will never climb a hill, or carry a burden well. A belly that is clung up, or gaunt, and stones hanging down loose, are signs of sickness, tenderness, foundering in the body, and unaptness for labour. His buttocks should be round, plump, full, and in an even level with his body: the narrow, pin buttock, the hog or swine rump, and the falling and down-let buttock, shows an injury in nature. The horse that is deep in his girthing place, is generally of great strength. His hinder thighs or gastains, should be well let down even to the middle joint, thick, brawny, full, and swelling, this being a great sign of strength and goodness; lank and slender thighs show disability and weakness. From the thigh bone to the hock it should be pretty long, but short from the hock to the pastern. Observe the middle joint behind, and if it be nothing but skin and bone, veins and sinews, rather a little bending than too straight, it is perfect as it should be; on the contrary should it have chaps or sores on the inward bought, or bending, it is a fallender.

A narrow-chested horse can never have a good body, nor breathe well, and such horses as have straight ribs, and are at the same time great feeders, will soon distend their bellies to such a degree that it will be impossible for their entrails to be contained within their ribs, but they will press down, and form what is called a cow's belly. A man should never purchase a light-bellied and fiery horse, because he will quickly destroy himself; but in this case, care should be taken to distinguish between fierceness and vigour. Light-bellied horses are apt to be troubled with spavins.

SPAVINS.

A permanent cure of the spavin can rarely be made, and we consider a spavined horse as a ruined one.

A spavin is a lump or swelling on the inside of the hock, that benumbs the limbs and destroys the free use of the hind legs. It makes the horse go extremely lame, and causes him much agony.

Should the joint be generally swelled all over, he must have had a blow or bruise; if in any particular part, as in the pot, or hollow part, or on the inside, the vein full and proud, and the swelling soft, it is a blood spavin; you cannot therefore take too much care in examining the hocks of delicate horses, for let the swelling appear ever so small upon the flat of the lower part of the hock, within side, though the horse may not limp, you ought to be apprehensive that in time, and with but little labour, the spavin will increase on him.

The fat spavin comes almost in the same place as the other, but is larger.

A third kind is the ox spavin, and this is thought the worst of the three. If the swelling be hard, it is a bone

spavin; you should examine a horse thoroughly, therefore, before you buy him, and, in particular, see if all the joints of his legs move with equal freedom. Most horses that have the bone spavin are very apt to start when you go to take up their legs, and will hardly let you touch them with your hand; examine them well, therefore, with your eye, and see if between the fetlock and the crown, the leg descends even and smooth; for if you see any protuberance between the flesh and the skin, that looks like a sort of knot or kernel, you have found the defect.

In purchasing a horse, much regard should be paid to his bringing up his hind parts well, for a spavined horse never makes a full step with the leg that is affected.

A CURB.

If you observe the swelling to be exactly before the knuckle, it is a curb, which is an accident that may happen in different manners; such as a strain in working, slipping his foot in a hole, or in marshy ground, &c., out of which he pulls it with pain, and by that means wrenches his hock, without dislocating any thing, and yet, without speedy care he may be lamed.

A RAT'S TAIL.

There is also a defect which is more common in the ind than the fore legs, though the latter are not quite xempt from it, and it is called the Rat's Tail, and is thus known. When you see, from the hind part of the fetlock, up along the nerves, a kind of line or channel that separates the hair to both sides, this is a rat's tail;

and in summer there appears a kind of small dry scab along this channel; and in winter there issues out a humidity, like the water from the legs. A horse may work notwithstanding this disorder, for it seldom lames him, it sometimes occasions a stiffness in the legs, and makes them trot like foxes, without bending their joints. The hind legs should be lean, clean, flat, and sinewy; for if fat, they will not bear labour; if swelled, the grease is molten into them; if scabbed above the pasterns, it is the scratches, and if he has chaps under the pasterns he has what is generally called the Rains. If he has a good buttock, his tail cannot stand ill, but will be broad, high, flat, and couched a little inward.

A WALK AND TROT IN HAND.

Having with care examined the horse, let him be run in hand a gentle trot; by this you will soon perceive if he is lame or not. Make the man lead him by the end of the bridle, as in this case you cannot be deceived by the man's being too near him. The far fore leg, and near hind leg, or the near fore leg, and far hind leg, should move and go forward at one and the same time; and in this motion, the nearer the horse takes his limbs from the ground, the opener, the evener, and the shorter is his pace.

FORGING

If he takes up his feet slovenly, it shows stumbling or lameness; to tread narrow, or cross, shows interfering, or failing; to step uneven, shows weariness, and if he treads long, you may be apprehensive he forges, by which I mean, that when he walks, or trots, he strikes

the toes of his hind feet against the corners of his shoes before, which occasions a clattering noise as you ride; and this proceeds generally from the weakness of his fore legs, he not having strength in them to raise them up sufficiently quick to make way for the hind ones. A horse of this kind is not near so serviceable as the horse exempt from it, and the dealers, to get rid of him, will make abundance of pretences: if he has been just shoed, they will say the farrier has put him on too long shoes; if his shoes are old, they will tell you he is just come off a long journey, and is much fatigued; you must not therefore be over credulous to any thing a jockey or dealer affirms, for what they say in this manner, is too often with intent to deceive; and it is very certain that a horse who forges can never be sure-footed, any more than one who has tottering or bow-legs.

WALK AND TROT MOUNTED.

On his being mounted, see him walk. Observe his mouth, that he pulls fair, not too high, nor bearing down; then stand behind him, and see if he goes narrower before than behind, as every horse that goes well on his legs goes in that manner. Take notice that he brushes not by going too close; a certain sign of his cutting, and tiring in travelling. Have nothing to do with that horse who throws his legs confusedly about, and crosses them before: This you may observe by standing exactly before or behind him, as he is going along. In his trot he should point his fore legs well, without clambering, nor yet as if he were afraid; and that he throws well in his hind legs, which will enable him to support his trot, and shoot his fore parts forewards.

A CANTER OR GALLOP.

In his canter, observe he does not fret, but goes cool in this pace; and in his gallop, he should take his feet nimbly from the ground, and not raise them too high, but that he stretches out his fore legs and follows nimbly with his hind ones, and that he cuts not under his knee, (which is called the swift or speedy cut) that he crosses not, nor claps one foot on another, and ever leads with his far fore foot, and not with the near one. If he gallops round, and raises his fore feet, he may be said to gallop strongly, but not swiftly; and if he labour his feet confusedly, and seems to gallop painfully, it shows some hidden lameness; for in all his paces, you should particularly observe that his limbs are free, without the least stiffness.

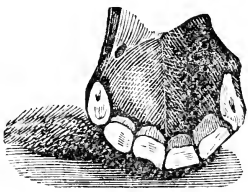
TOTTERING LEGS.

Now that he has been well exercised in those different paces, it is your time to examine for an infirmity, not easily discovered, and that is what we call Tottering legs; you cannot perceive it till after a horse has galloped for some time, and then, by letting him rest a little you will see his legs tremble under him, which is the disorder we mean: however handsome soever the legs of such a horse may be, he never can stand well on them; you are therefore not to mind what the jockey says when he talks of the beauty of the limbs, for if you oblige him to gallop the horse, or fatigue him pretty much, (which is commonly done in order to try the creature's bottom) you will in all likelihood discover this defect, unless you suffer the groom to gallop him to the stable door and

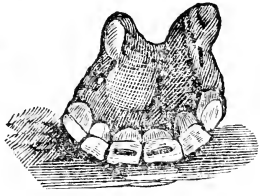
put him up in a moment, which he will certainly endeavour to do, if he is conscious of it, while the master has another horse ready to show you, in order to take off your attention from what he is afraid you should see.

Thus having to the best of our judgment, gone through every requisite observation relative to the purchase of a horse, studiously avoiding its being drawn into an unnecessary length, yet at the same time being as careful to avoid an affected brevity; the gentlemen to whom many of our observations are familiar, will please to observe, that we have endeavoured, as much as possible, to write for the information of the person entirely unacquainted with the qualifications which form a complete horse; in the purchase of which, the person should particularly consider the end for which he buys, whether for running, hunting, travelling, draught, or burden; and it is therefore almost unnecessary to remind him, that the biggest and strongest are fittest for strong occasions, burdens, draught or double carriage, as the middle size is for hunting, pleasure, general employments, and the least for summer hackney.

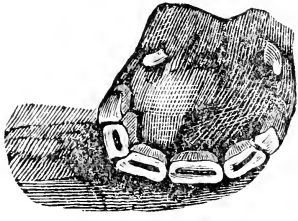
THE AGE OF A HORSE BY HIS TEETH.



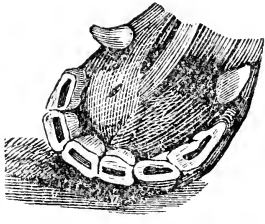
Two and a half years old.



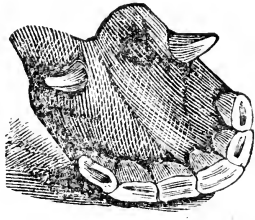
Rising three years.



Four years old.



Five years old.



Seven years old.

POCKET FARRIER.

TRY BEFORE YOU BUY.

If you meet with a horse you like and are desirous of buying him; do not fall in love with him before you ride him, for though he may be handsome, he may start or stumble.

TO DISCOVER A STUMBLER.

If you go to buy of one that knows you, it is not unreasonable to desire to ride him for an hour. If refused, you may expect he has some faults; if not, mount him at the door of the stable where he stands; let him neither feel your spurs, nor see your whip; mount him easily, and when seated, go gently off with a loose rein, which will make him careless; and if he is a stumbler, he will discover himself presently, especially if the road in which you ride him be any way rough.

The best horse indeed may stumble, (a young one of spirit, if not properly broken in, will frequently; and yet, if he moves nimbly upon the bit, dividing his legs true, he may become a very good saddle horse) the best horse, I say, may stumble, but if he springs out, when he stumbles, as if he feared your whip or spur, depend upon it, he is an old offender. A horse should never be struck for stumbling or starting: the provocation, I confess, is great; but the fear of corrrection makes him worse.

In the purchase of a horse, examine four things, his teeth, his eyes, his legs and his wind.

TO KNOW HIS AGE.

Every treatise on farriery has instructed us to know a horse's age, by the mark in his mouth; but not one in five hundred (a dealer excepted) can retain it in his mind. Let this then be sufficient: with your finger and thumb, raise his upper lip, and if his teeth shut close, you may suppose him young; but if they point forward, and the upper and under edges do not meet even, you may suspect he is old. And the longer his teeth are, (the gums being dry and shrunk from them, looking yellow and rusty) the older he is.

There are some exceptions to the above rule, but by a due attention you will seldom be deceived.

You may indeed examine his tush, and if it be pointed and grooved, that is, hollowish on the inside, he cannot be judged to be above seven years old. Crafty jockeys will sometimes burn holes in the teeth, to make them appear young, which they call bishoping, but a discerning eye will soon discover the cheat. Mares have no tushes, so that it is more difficult to know their age, but if the roof of the mouth be fleshy, and almost as proud as the teeth, she is young.

EYES.

If a horse's eyes are lively and clear, and you can see to the bottom, and the image of your face be reflected from thence, and not from the surface of the eye, they are good; but if muddy, cloudy or coal black, they are bad.

LEGS.

If his knees are not broken, nor stand bending and trembling forward, (which is called knuckling) his legs may be good; but if he steps short and digs his toes in the ground, it is a sign he will knuckle. In short, if the hoof be pretty flat and not curled, you need not fear a founder.

WIND.

If his flanks beat even and slow, his wind may be good; but if they heave double and irregular, or if (while he stands in the stable) he blows at the nostrils, as if he had just been galloping, they are signs of a broken wind. Deceitful dealers have a draught which they sometimes give, to make a horse breathe regularly in the stable: the surest way to judge of his wind, is to give him a good brushing gallop, and it is ten to one, if his wind be broken or even touched, that he will cough and wheeze very much, and no medicine can prevent his doing so.

REGIMEN FOR A BROKEN WIND.

This is a disease in every respect similar to the asthma in the human species. The symptoms are a hollow cough, which is increased by exercise, and attended with a wheezing, or difficulty of breathing, and a working of the flanks. This disorder is commonly brought on by voracious feeding, which distends the stomach inordinately; by violent exercise when the belly is full; by being driven into water when he is sweated and hot; or from a cold, not well cured. Horses that eat their

litter, and what other hard substances they come near, are predisposed to broken-wind, by the great distension of the stomach and inability of inspiring a sufficiency of air to fill the lungs.

Cure there is none for broken-wind, but a horse that has it may be rendered very useful by proper attention to regimen. Of course, particular care should be taken to avoid exposing him to *fresh cold*, and not push him too hard on a full stomach. The horse should have good nourishment, but condensed in bulk—not quantity enough to distend his bowels, but rich and nutritious, what there is of it. Water should be given him sparingly. Give him rather plentifully of corn, but little hay, and that little wet with water. Some advise that water given him should every day be impregnated with half an ounce of salt-petre and two drachms of sal-ammoniac.

When the cough is particularly troublesome, or the animal seems to labour much in respiration, give the following. Dried squills, powdered, 1 drachm; gum ammoniacum, 3 drachms; opium, 10 drachms; with mucilage sufficient to form the ball.

Broken-winded horses have been greatly relieved by drinking daily a bucket of water poured off from quick-lime. A horse supplied with water thus prepared, and kept in the stable five or six weeks, will recover his wind in a great degree and his cough will be much abated.

A DRAUGHT HORSE.

A horse with thick shoulders and a broad chest, laden with flesh, hanging too forward, and heavily projecting over his knees and feet, is fitter for a collar than a saddle.

A SADDLE HORSE.

A horse with thin shoulders, and a flat chest, whose fore-feet stand boldly forward and even, his neck rising semicircular from the points of those thin shoulders to his head, may justly be said to have a light forehand and be fitter for a saddle than a collar. As most horses in the hands of farmers are drawn while they are young, which, notwithstanding their make, occasions them to move heavily, if you desire a nimble-footed horse, choose one that has never drawn.

In buying a horse enquire into four other things, viz. biting, kicking, stopping, and starting.

STARTING AND SHYING.

Starting is when a horse grows wanton or skittish, and takes every object he sees to be different from what it is. It is one of the worst habits a horse can have, and tends to reduce his value much, for as good a rider as a person may be, he cannot be on his guard against a starting horse.

If you would ascertain that a horse starts, mount him yourself, ride first slowly and then fast towards and along by objects that you discover are offensive to his eye, and you will soon assure yourself whether or not he has this bad habit.

Horses that have been kept pampered in the stable for some time, without regular airings or exercise, are liable to start when first ridden out, but are in general easily cured.

Some horses will observe particularly all objects they meet, and sidle a little, or shy from it, but a starting

horse that all at once leaps from one side to the other, is neither safe nor agreeable, and we would advise the owner of such an animal, if he has any consideration for his own neck, to get rid of him as soon as possible, for whoever undertakes to break a horse of this trick endangers his life to an imminent degree.

When riding a horse of this kind, however, in all cases treat him with the utmost gentleness; neither beat him nor speak harshly to him during his fright, but make him advance gently to the object—this treatment will in time (with some horses) give them confidence and free them from their foolish fears.

TO CURE THE SPLINTS.

The splint is a fixed hard excrescence or knob, growing upon the flat of the in or outside (and sometimes both) of the shank bone; a little under, and not far from the knee, and may be seen and felt.

Splints when buried within the tendons are apt to lame a horse seriously; but, if situated on the plain bone, unless very large, they seldom do injury; and if a splint be early attended to it is not very difficult to remove.

Some practitioners rub the splint with a round stick till the part is almost raw, and then touch it with oil of origanum. Others lay on a pitch plaster, with a small quantity of sublimate or arsenic, to corrode and eat the substance away. Others again use butter of antimony, or oil of vitriol, and some tincture of cantharides. All of which methods have at times succeeded; but they are most, if not all, apt to leave an ugly scar behind, with the loss of all the hair on the part. Blaine recommends the swelling to be rubbed night and morning for

five or six days, with a drachm of mercurial ointment, rubbing it well in; after which apply a blister, and at the end of a fortnight or three weeks another.

THE SPAVIN.

The Spavin is of the same nature, and appears, in like manner, on the instep bone behind, not far below the hock.

The destruction of the horse has often occurred by letting out the contents of these tumours. This must not be, but the sides of the tumours must be strengthened by pressure or by stimulants. The best stimulant is the strong liquid blister of the Veterinary Pharmacy, as—Spanish flies, in gross powder, 1 oz; oil of origanum, 2 drachms; oil of turpentine, 4 oz; olive oil, 2 oz; steep the flies in the turpentine three weeks, strain off and add the oil. Bandages assist greatly, when well applied.

WINDGALLS.

Windgalls are several little swellings just above the fetlock-joints of all the four legs; they seem, when felt, to be full of wind or jelly, but they never lame a horse; the splint and spavin always do. They all three proceed from one and the same cause, which is hard riding, travelling too far in one day, or carrying too great a weight when young.

Blistering is the general remedy applied to these. In most cases, where there is no greater inconvenience arising from them than what is visible to the eye, it will be better to let them alone, as there have been many instances of horses being totally lamed and rendered unfit for service by wounding the tendons in an operation.

SETTING OUT ON A JOURNEY.

Having premised thus much of the qualities necessary to a good horse, we now proceed to give such directions in regard to a journey on horseback as will be found to be of the utmost importance to the traveller.

Whenever you intend to travel, hunt, or only ride out for the air, let your horse's feet be examined some time before, to see that his shoes are all fast and sit easy on his feet, for on that depends the pleasure and safety of your journey.

DIRECTIONS FOR MOUNTING.

Before you mount, look round your horse, to see if his bridle, curb, saddle, and girths are all fitted in their proper places. Always accustom your horse to stand firm and without a motion, till you are fixed in your seat and your clothes be adjusted.

DIRECTIONS FOR GOING.

When you would have him go, teach him to move, by pressing close your knees, or speaking to him, without using whip or spur; for a horse will learn any thing, and a good quality may as easily be taught him as a bad one.

CORRECTION ILL-TIMED.—CORRECTION WELL-TIMED.—AN EASY REIN.

Most men whip and spur a horse, to make him go faster, before they bid him; but it is cruel treatment, to

beat a generous creature, before you have signified your mind to him, (by some token which he may be taught to understand) who would obey you if he knew your pleasure; it is time enough to correct him when he refuses, or resists you. Do not haul his head about with too tight a rein, it deadens his mouth; besides, he will carry you safer, and take better care of his steps with an easy hand, than a heavy one; much depends on the quietness of the bridle hand. Keep in your elbows steady, and you cannot hurt his mouth. Again, nothing discovers a bad horseman (even at a distance) so much as throwing his legs and arms about; for it is easier to the horse and rider, and he can carry you further by ten miles a day, when you sit as steady upon him as if you were a part of himself.

CUTTING.

If he cuts either before or behind, look that his shoes stand not with an edge beyond the hoof, and feel that the clinches of the nails lie close; but if cutting proceeds from interfering, that is, crossing his legs in his trot, it is a natural infirmity and can only be a little helped by care. Horses will sometimes cut, when leg-weary, which they will recover of by rest. If you would not have a horse that cuts, buy not one who stands with his toes turned outwards, nor one who, in trotting, carries his legs too near each other.

LAMENESS.—A POULTICE.

If (as he stands in the stable) you observe him to point one foot forwarder than the other, either before or behind, seeming to bear no weight on it, you may reasonably conclude he is not easy: if the shoes is the

cause, the farrier can remove it presently, but if the foot is not hurt by some unknown accident, make *a poultice of any sort of greens, such as lettuce, cabbage, marsh-mallow leaves, turnip tops, or turnips themselves, the best of all; boil them tender, squeeze the water out, chop them in a wooden bowl, with two or three ounces of hog's lard or butter;* put this poultice into a cloth, and tie his foot in it all night, as hot as you can.

In the morning, when the farrier comes to take off his shoe, he will find his hoof cut soft and easy, so that he will soon discover (in paring with his buttrice) whether he is pricked or bruised.

GRAVELLED.

A misfortune that sometimes happens to a horse on a journey: it consists in little pebbles getting between the shoe and the hoof and settling there, so as to get to the quick and fester. The only way to cure it is to take off the shoe, and then draw the place with a drawing-iron till you come to the quick; this done, pick out the gravel and squeeze out the matter and blood that is found collected there. Then wash the parts well with simple tincture of myrrh, and stop up the hole with hurds wet in the same. After which let the shoe be carefully put on again, and in two or three times thus dressing, he will get well. But do not travel, or work him, before he is so, nor let his foot go into the wet, which would greatly retard his cure.

PRICKED.

A horse's foot is pricked by having a nail driven too far into it at the time of shoeing, so as to reach the quick, or press the vein, and cause lameness. When a

horse is pricked in the foot, whether it be by the negligence of the farrier in driving the nails, or from any other accident, they should be drawn out immediately on the discovery thereof; otherwise the wound will fester and break out into an open sore. It is easily discerned that a horse is pricked by his going lame, but with more certainty by trying round the hoof with a pair of pincers, for when you come to the aggrieved place he will cringe and draw away his foot. The shoe should at once be taken off, and the horse turned out to grass, if possible, without applying anything external to it. But if turning him out cannot be complied with, rub frequently on his foot a little ointment of elder.

LAME IN THE HEEL OR HOOF.—THE CURE.

If your horse is lame with a hole in his heel, or any part of his hoof, be it ever so deep, occasioned by an over-reach of his hind-foot, or a tread of another horse, though gravel be in it, put his foot into the aforesaid poultice, [*See page* 53.] and repeat it mornings and evenings, till it is well; for it will suck it out, fill it again with sound flesh, and make the hoof grow over it, much sooner than any other method or medicine whatsoever.

CUTS, TREADS, AND BRUISES CURED.

All cuts, treads and bruises are cured by this poultice; not only quick and sure, but without leaving any mark.

THE HORSE-OINTMENT.

Into a clean pipkin, that holds about a quart, put the bigness of a pullet's egg of yellow rosin; when it is melted over a middling fire, add the same quantity of

bees' wax ; when that is melted, put in half a pound of hog's lard ; when it is dissolved, put in two ounces of honey ; when that is dissolved, put in half a pound of common turpentine ; keep it gently boiling, stirring it with a stick all the time ; when the turpentine is dissolved, put in two ounces of verdigris ; you must take off the pipkin, (else it will rise into the fire in a moment) set it on again, and give it two or three wambles and strain it through a coarse sieve, into a clean vessel for use, and throw the dregs away.

This is an extraordinary ointment for a wound or bruise in flesh or hoof, broken knees, galled backs, bites, cracked heels, mallanders, or when you geld a horse, to heal and keep the flies away ; nothing takes fire out of a burn or scald in human flesh so soon ; I have had personal experience of it. I had it out of *Degrey*, but finding it apt to heal a wound at the top, before the bottom was found, I improved it, by adding an ounce of verdigris.

HEAT-BALLS.

If, upon a journey, any little bumps called heat-balls should rise on your horse's shoulders or any part of him ; upon coming to your inn, order the hostler to rub them often with hot vinegar, which will disperse them. They are owing to the heat of the body in hard riding. If they are not dispersed, they will burst and look ugly, and it will be some time before the hair comes on upon the part again.

SWELLED AND CRACKED HEELS.—CURE.

If his legs and heels should swell and crack and become stiff and sore, so that he can hardly be got out of

the stable in the morning, and perhaps did not lie down all night; you may travel on, but walk him for the first mile or two, very gently, till the swelling falls, and he begins to feel his legs.

When you end the day's journey, wash his sore legs with warm water, and a great deal of soap; or foment his heels, (first cutting away the hair very close) with old urine, pretty warm, for a quarter of an hour, by dipping a woolen cloth, or an old stocking, into the urine, squeezing it, and then applying it to the part affected, having first well washed it with the urine. You may then prepare the poultice, as in page 53, and tie it on hot, as soon as it can be got ready, letting it stay on all night. Feed him as usual, and offer him warm water in the house. About nine or ten o'clock (that is, an hour or two after he is put up for all night, and fed) give him a ball composed of *half an ounce of ethiops mineral. Ditto of balsam of sulphur terib. Ditto of diopente or powdered aniseeds mixed and made into a ball with honey or treacle.* You may give him a pint of warm ale after it.

Do not stir him out of the stable on any account whatever, till you mount him the next morning for your journey, and give him a draught of warm water in the stable before you set out (that being proper on account of the ball.) When you are on the road, he may drink water as usual.

The next night omit the ball, but continue the poultice.

The third night give the second ball.

GREASING HEELS.

The fifth night give the third ball, and still continue the poultice till his heels are well: but if you can get

no sort of poulticing, then, melt hog's lard, or butter, and with a rabbit's foot or a rag, grease his heels with it very hot.

If he is a young horse, and the distemper new, you will hear no more of it; but if he is old, and hath had it a long time on him, it will require further repetition.

N. B. During this operation, you must not gallop on the road, but ride moderately, for sweating will retard the cure. You must consider, that wet weather, and wet roads are by no means proper for this regimen.

Travelling indeed is an improper time for this cure, except in cases of necessity; if you can give your horse rest, his heels will get well sooner by turning him out to grass, and renewing the poultices; but he should be kept in the stable while he takes the medicine.

If the greasy poultice does not effect a cure, which may sometimes be the case; after fomenting the legs with urine, anoint his heels well with the following ointment warm every night. *Take ten eggs, boil them very hard, put them in cold water; when cold, separate the yolks from the whites, put all the yolks into a frying pan, bruise them with a spoon over the fire, till they turn black and yield a fetid oil, which decant off, and mix it, while warm, with two ounces of honey, and two ounces of white lead in powder, and then keep it for use. It should be beaten into a horse's hoof, with a fire shovel.* The heels in the day time should be constantly well rubbed.—This ointment exceeds any thing that can be applied for a burn or scald in the human body, if applied soon after the accident, and the part affected be anointed for an hour after, by times, with a feather.

I have often cured a horse of greasy heels by giving him only an ounce and a half of saltpetre pounded fine, or dissolved and mixed with his corn, morning and even-

ing. But this must be continued for a month or more, till his legs are well; but they should be kept washed as above. If you give a horse five or six pounds of saltpetre, in this manner, it will not hurt him, it will free him from all sorts of humours, and put him into excellent spirits.

MALLENDER, AND CURE.

The mallender is a crack in the bend of the knee, it oozes a sharp humour like that at the heels or frush; a horse dare not step out for fear of tearing it wider; it is so painful it takes away his belly; it makes him step short, and stumble much.

The same method, medicine, greasing and poulticing, which you used for swelled or cracked heels, will cure it.

SELLENDER, AND CURE.

The sellender is a crack in the bend of the hock; and must be cured with the same things, and after the same manner.

SORE BACK, AND CURE.

If the saddle bruises his back, and makes it swell, a greasy dish-clout laid on hot, and a cloth or rag over it, bound on, a quarter of an hour (with a surcingle) and repeated once or twice, will sink it flat. If it is slight, wash it with a little water and salt only: but you must have the saddle altered, that it press not upon the tender part, for a second bruise will be worse than the first. If his furniture does not fit and sit easy, it will damp him; but if nothing wound or hurt him, he will travel with courage.

ADVICE FOR WATERING.

Make it a standing rule to water on the way before you arrive at the baiting place, be it noon or night; if there is no water by the way, do not (when once you have entered the stable) suffer any man to lead him out to a river or horse-pond, to wash his legs or drink, but give him warm water in the house.

If you ride moderately, you ought to let your horse drink at any time on the way; you may trust him, he will not take harm, but always refresh himself; but if he has been long without water, and is hot, he will then overdrink himself, and it may spoil him, because a load of cold water greedily swallowed while he is hot, will certainly chill and deaden the tone of the stomach; but two or three go-downs are really necessary to cool his mouth, and may be allowed him at any time on the road.

DIFFICULTY OF STALING.

Sometimes a horse cannot stale, and will be in great pain; to ease him, *take half an ounce of aniseeds beaten fine in a mortar, one handful of parsley roots, boil these in a quart of old strong beer, and strain it off, and give it him warm.*

Staling (a suppression thereof) may be brought on a horse by being kept high and having too little exercise, as well as by hard travelling. The signs of this complaint are as follows,—the creature will roll and tumble about with the violence of the pain under which he labours, and while on his legs will continually be straining and putting himself in a position to stale, but without being able to do anything more than void a few drops, or perhaps none at all.

DIABETES.

A morbid copiousness of urine, or making water in too great quantities, which disorder is very common in horses, and frequently terminates in their death. It is generally the result of old disorders, such as surfeits and excessive hard driving. The horse soon loses flesh and appetite, his hair grows rough and staring. A horse thus affected should not be allowed too much water. If the following remedy is applied when the disease first makes its appearance, by proper attention the cure will be almost certain. One drachm of opium, two drachms of asafœtida, two drachms powdered ginger, one ounce powdered red oak bark, with enough of any kind of syrup to make two balls for one dose, which must be given to him three times a week, and especial care taken not to let him drink much water.

Some persons use the following receipt: one ounce gum arabic, one pint of red wine, and a pint of water, mixed and given as a drench three times a week.

Moderate exercise and nourishing food will assist much in effecting the cure.

SURFEIT AND MANGE.

The surfeit is common among horses that have not been judiciously treated. Sudden changes from warmth to cold frequently cause it. Over-feeding also produces it. When a horse is surfeited, his coat will stare and look rueful, notwithstanding all proper care has been taken to keep him clean, and the skin will be found full of scales and scurf, lying thick like meal among the hair, and constantly supplied with a fresh succession of

that being cleared away; the horse is disturbed by a constant itching; the hair of both the mane and tail rubs off, and the little that remains stands erect.

Surfeit, when it first appears is easily removed by a cooling purgative; but if the pulse be high he should be bled also. Promote perspiration by means of a diaphoretic. If the animal be fat he must be reduced. Give a mash of one gallon of bran, a table spoonful of saltpetre, a table spoonful of sulphur, and a quart of hot sassafras tea, well mixed together, three times within a week. When the mash is taken, be careful not to let him drink for six hours. Change his litter frequently, keep his stable clean, and do not permit him to get wet. An ointment of hog's lard and sulphur applied once a day on the places where the surfeit appears worst, will be found to be of great benefit. Remember that his food during this treatment must be light and easily digested, and fail not to observe towards him the kindest treatment.

The *Mange* sometimes succeeds an ill-cured surfeit; and is moreover an original disease, arising from beastliness, hard living, ill-usage, and the consequent depravation of the humours. It partakes of the nature of itch in man, is communicable by means of the touch, by using the same harness, clothing, &c., and probably by standing in the same stall that a diseased horse may have left. The horse, as he is with the surfeit, is constantly rubbing and biting himself.

There are at present a variety of prescriptions in use. The following is effectual. Bleed copiously, and during a week give him three mashes like that for the surfeit; and rub the part affected twice a day with an ointment of hog's lard and brimstone in equal parts. Keep his stable scrupulously clean and furnished with a nice bed of straw.

HARD RIDING.

If you ride hard, and go in hot, your horse will be off his stomach; then is your time to guard against a surfeit, which is always attended with the grease, the farcy, or both; the symptons are *staring of the coat*, and *hide-bound.*

Staring of the coat will appear the very next morning. To prevent which, as soon as you dismount rub him well, cover him, pick his feet, throw a handful or two of beans before him, and litter him deep. Go immediately and boil, for a cordial, *half a pound of aniseeds in a quart of ale, pour it upon half a pound of honey, into a bowl or bason; brew it about, till it is almost as cold as blood, then give it* (with a horn) *seeds and all.*

To cure him, feed as usual, but keep him warmly clothed; give him warm water that night, and next morning. A mash will do well that night, and lest the cordial should not have force enough to carry off the surfeit, you must give him (after all, and just before bed time) one of those balls directed in page 51.

To prevent stiffness: supple and wash his legs with greasy dish-wash, or water and soap, as hot as a man can bear his hand in it, with a dish-clout, and by no means take him out of the stable that night. Grease his hoofs, and stop his feet with the following ball; it is safe and innocent: *two or three handfuls of bran put into a little saucepan with as much grease of any kind as will moisten it. Let it cool, and put a ball of it into each fore foot.*

Cover each ball with a little tow or straw, and put a couple of splints over that, to keep it in all night. This do every night if you please throughout your journey, it is good at any time if he lie still; but these balls are

not necessary in the winter, or when the roads are full of water.

Ever avoid all stuffings made of cow-dung, clay and urine, which you will find ready mixed in a tub, in the custody of almost every hostler; such cold stuffings benumb the feet to that degree, that the horse fumbles and steps short for two or three miles, till he gets a little warmth and feels his feet again.

HIDE-BOUND.

A horse is said to be hide-bound when the skin sticks so closely to the back and ribs that it cannot be laid hold of, or raised by the hand without great difficulty.

The treatment in this case should be plenty of light food and a stable kept perfectly clean, with strict attention to keeping him supplied with a fresh litter. Bleed him, take from his neck half a gallon; and at night give him a mash made the same as that given for the surfeit and mange.

On the second day, take two spoonfuls of copperas; one quart of warm sassafras tea; and one tea spoonful of saltpetre; mix and give them as a drench. Have the horse rubbed well, and he will be entirely relieved in a few days.

THE SHOULDER-SLIP.

The shoulder wrench or slip may happen to a horse in various ways, as by stopping and turning too suddenly upon unlevel ground, or by sliding or slipping down, either in the stable or the field, or by running suddenly through a door or gate, &c. If, while on the road, you wrench his shoulder, mix *two ounces of the oil of spike*

with one ounce of the oil of swallows, and half an ounce of turpentine, and, with your hands, rub a little of it all over the shoulder. It will be best to warm the oils well with a broad-mouthed fire shovel, or plate of iron, hot. Then bleed him, and let him rest two days. This will cure a slight strain. Should he continue lame, you may travel on, but slowly, and he will grow well upon the road; but repeat the oils.

STIFLE.—THE CURE.

If you strain your horse in the stifle, a little bone upon the thigh bone, above the inside bend of the hock; (you find such another in a leg of mutton) the turnip poultice will infallibly cure it, but you may rub in the oils first, as ordered for the shoulder-slip. By its situation, you will find a difficulty to keep the poultice on, yet it may be done with a few yards of list.

If it is not well, or very much mended, in two or three days, examine the hip, perhaps you may find it there; but this may be cured by oiling, as in a shoulder-slip, for the poultice cannot be fastened on there.

A CLAP IN THE BACK SINEWS.

When lameness arises from a clap in the back sinews, which is a relaxation of the sinews from a strain, take a spoonful or two of hog's lard, or rather goose-grease, melt it in a saucepan, and rub it into the back sinew very hot, from the bend of the knee to the fetlock; make (as you are directed in page 53) a turnip poultice and tie it on hot, from the fetlock to above the knee, and let it stay on all night; thus, first tie the cloth

about the fetlock, then put in the poultice, and raise the cloth and the poultice together, till you get it above the bend of the knee; twisting the list or string round his leg as you rise, and fasten it above the knee; take it off in the morning, and put on a fresh one; at night do the same. Two or three of these poultices will cure a new strain; five or six, an old one.

HOW TO KNOW A SHOULDER-SLIP, FROM A STRAIN IN THE BACK SINEWS.

This lameness, by ignorant farriers, is frequently taken for a shoulder-slip; and in consequence of this, they proceed to blowing, boring, and rowelling, and thus make your horse useless for a long time. Be not imposed on; be sure it is in his shoulder, before you admit the operation.

If it is in his shoulder, he will drag his toe on the ground, as he walks.

If in the back sinew, he will lift it off and step short, though downright lame.

There does not happen above one shoulder-slip, to fifty back-sinew strains.

A COLD—A RUNNING OF THE EYES AND NOSTRILS.

You may know if your horse has caught cold by a running at his eyes, and a little gleeting at his nostrils; though it is impossible to know exactly how he came by it; (for standing near a hole, a window or door, a damp new-built stable, and many other ways may do it) yet I would warn you against one practice in particular, too much in use, which seldom fails to give a horse cold.

That is, taking him out of a warm stable, and riding him into a river or horse-pond, at an unseasonable hour, either too late or too early. A horse should never be taken out of a warm stable on a journey, till you mount him for travel.

A CAUTION TO PREVENT FOUNDERING ON THE ROAD.

It is the opinion of most grooms, that a horse heats his legs and feet upon a hard road, especially if he is a heavy horse, or carries a great weight, and that he should be refreshed and cooled by washing. To which I agree; but then it must be with warm water, for that cools best. This will not only open the pores, and make his legs perspire, but it will clear his fetlock joints best of any gravel that may get in within the wrinkles, and thus fret and inflame his legs; cold water naturally contracts the skin, and binds any gravel, there may chance to be, the firmer. Stop his feet also with the ball directed in page 57, but make it pretty warm.

Note.—A horse in this case ought to have a large stall, that he may stretch his legs. Young horses require larger stalls than old ones; for an accustomed old horse will ease himself in a stall of five feet wide, as well as in one of two yards.

A COUGH.—THE CURE.

If (after a day or two) you perceive a running at his eyes, and a little gleeting at his nostrils, you may expect to hear him cough. In that case, take a pint of blood from his neck, in a morning, (a horse will travel notwithstanding, if you do not exceed it) and at noon give an additional feed, to make amends for the loss of blood.

At night give him a mash, over and above his usual allowance. The next night give him the aniseed cordial as before.

If his cough continues three days, you must take another pint of blood from his neck, and try to remove it with abler medicines. Therefore, to keep it off his lungs, give him, just before you go to bed,—*Liquorice powder, an ounce. Sweet oil, a spoonful. Æthiops mineral, an ounce. Balsam of sulphur, half an ounce.* Made into a ball with a little honey.

Clothe and keep him warm. Repeat the ball next night, which will be sufficient to cure any new-gotten cold or surfeit.

KNOTTED BETWEEN THE JAWS.—CURE.

Feel between his jaws, and if his kernels are swelled, do not let the farrier cut them out with a pair of red-hot scissors (as some of them do) but dissolve them with two or three or more turnip poultices, and continue the aniseed cordial till he is well.

If the almonds of a man's ears were down; that is, if the glands were swelled, and a surgeon proposed to cut them out for a cure, you would treat him with great contempt for his ignorance. It is the same with respect to a horse.

Note.—The horse's throat ought to be kept warm with cloths, till the swelling is either dissolved or come to a head; if the latter, any common farrier may open the tumour with a sharp pen-knife, and when the matter has free discharge, the wound will easily heal, by the use of *the horse ointment* applied warm.

I will next mention the eyes, for it is as bad for a horse to be blind as to be lame.

A COLD IN THE EYES.—ITS TREATMENT.—A CAUTION IN BLEEDING.

When a horse has got cold, it sometimes falls into his eyes, which you may know by the symptoms beforementioned in page 60; (a running or a thick glare upon them) put your hand to his nostrils, and if you find his breath hotter than usual, it will then be necessary to take a little blood from his neck.

It is a common thing with some farriers to take two, three, and sometimes four quarts of blood away at one time. I am very much against that practice; because you rob a horse of more animal spirits than you can restore in a long time, without much rest and high-feeding; the latter of which is diametrically opposite to the cure.

Therefore, a pint or quart at most (unless it is very thick and very hot) will be sufficient; it is safer to take a gallon at five or six bleedings, than two quarts at once, for the reason above. Let me advise you also to take it by measure, I mean in a pint or quart pot; for when you bleed at random upon the ground, you never can know what quantity you take, nor what quality his blood is of. From such violent methods used with ignorance, proceed the death of half the horses in the nation.

What proof must a farrier, a groom or a coachman give of his skill, to administer to a horse a comfortable drink (as they call it) composed of diapente, long pepper, grains of paradise, and the rest of the hot ingredients, at a time when his blood is boiling in his veins? It is like giving a man burnt brandy in a fever. I say, by knowing the true state of your horse's blood, you can better judge what medicines are most proper to give him.

Therefore, a pint of blood, for the first time, is enough, and you may repeat that, as you see occasion; but you cannot easily restore (as I said) the blood and spirits you have been too lavish of.

A POULTICE FOR THE EYES.

After you have taken a pint of blood, *get a quartern loaf, hot out of the oven, cut away the crust, and put the soft inside into a linen bag large enough to cover his forehead and temples; press it flat, and bind it on by way of poultice, as hot as may be, without scalding; at the same time, fasten something of a cloth about his neck to keep his throat warm.* Let the poultice stay on till it is almost cold, and repeat it once or twice; then prepare the following eye-water.

EYE-WATER.

Into half a pint of rose or spring water, put one drachm of tutty, finely prepared, one drachm of white sugar-candy powdered, and half a drachm of sugar of lead. With a feather put a drop into each eye, mornings and evenings.

The next day (if needful) repeat the poultice; and for want of a hot loaf at any time, make a poultice of bread boiled in milk, continuing the eye-water every day. You may use the turnip poultice, but you must not put grease into it.

Never let grease or oil come near the eyes.

A FILM.—THE CURE.

If a film grows over the eye, put a scruple of white vitriol and a scruple of roche-alum, both finely powdered,

into half a quartern of spring-water; and with a feather put a drop into each eye mornings and evenings, and it will eat it clean off in three days or thereabouts; but be not prevailed on to blow flint and glass (pounded together) into the eyes; because the sharp points of the glass wound all the tender blood-vessels, and cause an inexpressible painful inflammation, not much inferior and full as insignificant as the farriers' way of burning a thousand holes in his skin with a red-hot poker, to cure the farcy.

Gelding and docking are but little helps to bad eyes.

Blistering the temples, cutting out the haws, and taking up the veins, weaken the optics and hasten blindness.

OBSERVATIONS ON WASHY HORSES.

It is observed, some horses carry a good belly all the journey, others part with their food before it is well digested, and scour all the way; which makes them so thin and lank, that they are ready to slip through their girts; they are called washy. Such horses must be chiefly fed with dry meat, that is, oats and beans, and but seldom with bran. They also will eat as much or rather more than other horses, and you should feed them oftener, for being too soon empty they require it; and if you will allow them enough, they will perform a tolerable good journey; but I do not recommend such a one.

REMEMBER TO FEED.

If you do not gallop your horse off his wind, I will venture to say, it is not the journey that hurts him, but your neglect of him when you dismount. Consider he is tied up, and can have nothing but what is brought to

him, for he cannot help himself; and if you do not cause him to be properly attended, a dog that wanders about fares better than the horse that carried you so well; and since he cannot ask for what he wants, you must supply every thing.

DIRECTIONS FOR FEEDING.

When you end the day's journey, fill your horse's belly as soon as you can, that he may go to rest, and he will be the fresher for it in the morning. It is an old observation, that young men eat and sleep better than old; but old horses eat and sleep better than young.

Give two or three little feeds instead of a large one; too much at once may cloy him.

A CORDIAL FOR FAINTING ON THE ROAD.

If you perceive your horse travel faintly, you may give him at any time a pint of warm ale with a quartern of brandy, rum or gin in it, or an ounce of diapente in it. Diapente will comfort his bowels, drive out cold and wind, and may cause him to carry his food the longer.

THE GRIPES.

This is a disorder to which horses are very subject, and if improperly treated is not unlikely to prove fatal.

The attack is sudden, and is never preceded, and seldom accompanied, by any symptoms of fever. The horse lies down and rolls upon his back.

Some horses are naturally disposed to colic, whilst others, with even improper treatment, are never attacked with it. If your horse becomes restless, frequently pawing, making many fruitless attempts to stale, and

voiding his excrement in small quantities, and looking round towards his flanks, groaning, kicking at his belly, and other marks of great agitation, you may be sure he has an attack of the gripes.

Do not bleed him (unless his breath is very hot) but clothe him warm immediately, and (with a horn) give him *half a pint of brandy, and as much sweet oil mixed;* then trot him about until he is a little warm, which will certainly cure some horses. If it does not yours, *boil one ounce of beaten pepper in a quart of milk, put half a pound of butter, and two or three ounces of salt, into a bowl or basin, and brew them together, give it rather warmer than usual;* it will purge him in half an hour or thereabouts, and perhaps remove the fit. If it does not, omit half the pepper, and give the same in quantity and quality by way of clyster, adding (as it cools) *the yolks of four eggs.*

If this has the good effect that is wished for, you must nurse him up till he gets his strength again; but if neither will do, *boil a pound of aniseeds in two quarts of ale, brew it upon a pound of honey; when it is almost cool enough, put in two ounces of diascordium,* and give it (with a horn) at three doses, allowing about half an hour between each dose.

If his fit abates, give him time to recover himself.

WORMS OR BOTTS.

If all this does not give him ease, and if you have a suspicion of worms or botts breeding in his guts, (which indeed may be the cause) for they sometimes fasten in the passage from the stomach into the great gut, and stop it; and so torment him till he dies; (I have seen it in dissections,) then give him *two ounces of Æthiops*

mineral made into a ball, with an ounce of the powder of aniseeds, and a spoonful of honey.

N. B. But you must not give this to a mare with foal. You may bleed her in the roof of the mouth.

Dr. Morgan, of New Jersey, has the following remedy for botts. Take a table spoonful of unslaked lime, and let it be given with the feed of the horse, at night and morning, regularly, for three, four, or five days, and it will completely expel them.

Dr. Loomis, of North Carolina, has a drench, composed of half a pint of new milk, a gill of molasses, an ounce of copperas, two spoonfuls of common salt, and half a pint of warm water. Give this to the horse once or twice a day for a few days, and it will cure him.

THE STAGGERS, OR APOPLEXY.

Do not let your horse stand too long without exercise, it fills his belly too full of meat, and his veins too full of blood. From hence the staggers, and many other distempers.

Upon an attack of this, the horse drops down suddenly, and lies without sense or motion, except a working of his flanks, which is occasioned by a motion of the heart and lungs, and which never ceases entirely while any spark of life remains. The previous symptoms are, drowsiness, moist watery eyes, which sometimes appear full and inflamed, a disposition to reel, feebleness, want of appetite, an almost continual hanging down of the head; when the horse thus falls down, the case is desperate indeed; few, if any, recover.

There are many distinctions of this disease, as, the *sleepy* staggers, *mad* staggers. The mad staggers is that affection of the brain, which causes the animal to

kick, to tumble, and plunge about. This and the sleepy staggers are both occasioned by a diseased stomach, brought on by inflammation of that organ, or simply by the retention of a great mass of indigestible food there and in the intestines. Constipation attends every species of staggers, and in some cases the hardened dung may be felt by feeling at the proper part. The breath is offensive, the respiration impeded, and the pulse high and sharp in *mad staggers*, whilst in *the sleepy* it is slow, heavy and full, without vibration. When these latter symptoms continue a long time, the blood determines towards the head, and the pulse increases, if the animal be one in good condition.

The remedy is to bleed and purge.

Farm horses that live much in the straw yard, and work hard on bad hay, will sometimes stand still at once, as if struck motionless, in the midst of their work, which is a sure sign that some great leading function has been suspended for the moment by reason of great exertion. The driver has nothing more to do in this case than to let the tired creature rest for the space of a minute or two, and then proceed in his work more leisurely. Prevention is better than cure.

In all ordinary cases of staggers, simply opening the bowels will effect a cure nine times out of ten.

GRAZING.

Thin skinned horses that have been well kept and clothed should never be turned to grass above three months in the year, viz. from the beginning of *June* to the end of *August*.

Thick skinned horses have strong coats, which keep out the weather, and (if well fed) will lie abroad, and

endure hard hunting all the year, better than stable horses. For, walking about to feed, prevents stiffness in their limbs; and treading in the grass keeps their hoofs moist and cool: but they should have a hovel to come to at night, or when it snows or rains.

Never purge a horse just taken from grass; it dissolves or loosens some tender fat or humours which fall into his legs or heels. But after six days you may bleed him once, under a quart; and at night give him the aniseed cordial, see page 57, which is a gentle opener.

NO COLD WATER WITH PHYSIC.

If you needs must purge your horse (for which I would have a good reason given) let him not touch cold water within or without, till the day after it has done working; but you cannot give him too much warm water. I wish he would drink enough, for the sake of dilution.

A PURGE.

Aloes, one ounce. Jalap, two or three drachms. Oil of cloves, ten drops: made into a ball with honey.

CAUTION AGAINST COLD WATER.

Some obstinate grooms will work it off with cold water; and tell you the sicker he is, the better the purge works. I deny it; for cold water checks the working of all physic, and causes gripings. Make that groom drink cold water gruel with his next pills, and that will convince him.

A purge may work the first day, but commonly does not till the second. I have known one lie two, nay three days in a horse, and work well off at last.

Sometimes it works by urine only, and then the purge steals off unobserved by his keeper; upon which, he makes haste to give him a second, which (he says) is to carry off the first purge that has not worked with him. After giving the second, he takes him out of a warm stable, and trots him abroad (be the weather hot or cold) till he warms him and opens all the pores of his body to make the physic work. I do not think it possible for a horse with a purge or two in his belly to escape catching cold by such a method, and must impute great injuries to it; for by such carelessness, and the want of better understanding, some horses lose an eye, others have irrecoverable lamenesses settled in their limbs, and many die. Then they tell you his liver was rotten, and his lungs (upon opening) all inflamed.

PURGE WITHIN DOORS.

How can any gentleman be satisfied for the loss of a good horse with such an ignorant account, so contrary to the rules of physic and even common sense? An understanding man, when he has given his horse a purge, will not stir him out of the stable till it has done working; for there is really no need of exercise during the operation, because every purge will carry itself off, if you keep him warm, and supply him with warm mashes, and as much warm water as he pleases to drink, and as often.

TO STOP VIOLENT PURGINGS.

When a purge works too long, or too strong upon him, which will weaken him too much, give him *an ounce of Venice molasses, in a pint of warm ale*, and repeat, if needful, to blunt the force of the aloes.

All the keepers at *Newmarket* bleed and purge the

running horses pretty often; and all the gentlemen in *England* agree with them in doing so. The reason given for it, is to carry off the humours which cause their legs to swell and grow stiff, and to clean them. The reason is good, because no horse is fit to run that is not clean; but bleeding and purging weakens both man and beast; besides the hazard of a horse's life in every purge (as I have demonstrated.) Would it not therefore be a good amendment to get quit of those superfluous humours another way, so as to prevent stiff and swelled legs without bleeding and purging? Would not a horse come into the field with better advantage, who, instead of bleeding and purging, only once a week takes a medicine that effectually cleans his body; keeps his legs from swelling and stiffness; mends his wind by opening his lungs, and preserves him in his full vigour? I am sure all this can be done with very little bleeding, and no purging; which I would willingly insert here, did it properly belong to this treatise, which (as I said) is intended only for the use and convenience of travellers.

IF A HORSE LOOKS ILL.—THE LAMPAS.—THE CURE.

If your horse (who once looked fat and sleek) is brought to you with a staring coat and hollow flank, open his mouth, look on the roof, and if the gums next his fore teeth are swelled higher than his teeth, it will hinder his feeding and make him fall off his flesh. Let a smith burn it down with a hot iron; that is a complete cure for the Lampas.

If that is not the cause, you should never cease enquiring till you have found it, for the horse cannot speak; and if the groom is in fault, he will not tell.

TAKE CARE OF YOUR HAY AND OATS.

If you suspect that the groom does not give him your allowance, it behooves you to take care, that you have thirty-six trusses in each load of hay, as well as eight bushels in every quarter of oats; and that they are not brewed; for there are some men that can turn oats into ale.

A CAUSE OF BROKEN WIND.

If a groom gallops his horse when he is full of water, he will tell you it is to warm the water in his belly; from hence often comes a broken wind. Make that fellow drink a full quart of small beer or water, and force him to run two or three hundred yards upon it: I believe it will cure him of that opinion.

BAD GROOMS.—HOW TO DETECT THEIR TREATMENT OF YOUR HORSE

If a horse in his stall (when the groom comes towards him) shifts from side to side, and is afraid of every motion the man makes about him, it is a shrewd sign that the groom beats him in your absence; and a fellow that will beat a horse, will sell his provender.

ROWELS.

A rowel is a kind of issue made in a horse for inward strains, hard swellings, &c. But there is a wrong judged custom amongst farriers concerning them. If a horse is sick, they bleed him, right or wrong, give him a drench and put a rowel under his belly; without

enquiring of his master or keeper, what usage he has lately had which might occasion the illness. Rowels are absolutely necessary in some cases, but are absolutely unnecessary in others, and serve only to disfigure and torment a horse.

The rowel in the navel for grease is very wrong; because rowels in a horse that is greased, promote too great a discharge from the blood and animal spirits, which weakens him to a degree of irrecoverable poverty. I have put five rowels in a horse at one time, thinking (by them) to let the grease run off; but the more the rowels ran, the more he ran at the heels, till the texture of his blood was so broken, that I could not recover him. This convinced me it was the wrong way to cure the grease. I have heard it said amongst learned physicians, that too many setons or issues will draw a man into a consumption. In my opinion, rowels will do the same thing by a horse, as they are of like nature and effect.

GLANDERS AND FARCY.

The glanders is the opprobrium medicorum, for hitherto no attempts have succeeded in the cure of more than a few cases. By some peculiar anomaly in the constitution of the horse, although conclusive proofs are not wanting that this and farcy are modifications of one disease, and can each generate the other; yet the one is incurable, while the other is cured every day.

The marks of glanders are a discharge of purulent matter from ulcers situated in one or both nostrils, more often from the left than the right. This discharge soon becomes glairy, thick and white-of-egg-like: it afterwards shows bloody streaks, and is fœtid. The glands of the jaw of the affected side, called the kernels, swell from

an absorption of the virus or poison, and as they exist or do not exist, or as they adhere to the bone or are detached from it, so some prognosis is vainly attempted by farriers, with regard to the disease; for in some few cases these glands are not at all affected, and in a great many they are not bound down, by the affection, to the jaw. As there are many diseases which excite a secretion of matter from the nose, and which is kept up a considerable time; so it is not always easy to detect glanders in its early stages. Strangles and violent colds keep up a discharge from the nostrils for weeks sometimes. In such cases, a criterion may be drawn from the existence of ulceration within the nose, whenever the disease has become confirmed. These glanderous chancres are to be seen on opening the nostril a little way up the cavity, sometimes immediately opposed to the opening of the nostril; but a solitary chancre should not determine the judgment. The health often continues good, and sometimes the condition also, until hectic takes place from absorption, and the lungs participate, when death soon closes the scene.

The following method is recommended as the best.

Dissolve one pound of glauber salts in warm water, set it in a bucket in his manger, and he will drink it; take half a gallon of blood from his neck vein; give a mash of two quarts of wheat bran scalded with sassafras tea, after which offer him lukewarm water, to drink, and do not suffer him to drink any other kind for that day; next morning take the same quantity of blood as before, give a mash as before, with the addition of half an ounce of saltpetre dissolved in it; let his food be wet, and of a weak kind—a run at grass after the first two days would be of service.

The *farcy* is a disease more easily cured than the

glanders, of which our daily experience convinces us; farcy, or farcin, attacks under distinct forms, one of which affects the lymphatics of the skin, and is called the bud or button farcy: the other is principally confined to the hind legs, which it affects by large indurations, attended with heat and tenderness. A mere dropsical accumulation of water in the legs sometimes receives the name of water farcy; but this has no connection whatever with the true disease in question: farcy is very contagious, and is gained from either the matter of farcy or from that of glanders.

Treatment of farcy.—The distended lymphatics or buds may often be traced to one sore, which was the originally inoculated part, and in these cases the destruction of this sore, and that of all the farcied buds, will frequently at once cure the disease, which is here purely local. But when the disease has proceeded farther, the virus must be destroyed through the medium of the stomach; although even in these cases, the cure is rendered more speedy and certain, destroying all the diseased buds, by caustic or by cautery. Perhaps no mode is better than the dividing them with a sharp firing iron; or if deeper seated, by opening each with a lancet, and touching the inner surface with *lapis infernalis*. The various mineral acids may any of them be tried as internal remedies with confidence; never losing sight of the necessity of watching their effects narrowly, and as soon as any derangement of the health appears, to desist from their use; oxymuriate of quicksilver (corrosive sublimate) may be given in daily doses of fifteen grains; oxide of arsenic may also be given in similar doses. The subacetate of copper (verdigris) may also be tried, often with great advantage, in doses of a drachm daily. It remains to say, that whatever treatment is pursued will be rendered doubly efficacious

if green fodder be procured, and the horse be fed wholly on it; provided the bowels will bear such food; but if the medicines gripe, by being joined with green food, add to the diet bean-meal. When green meat cannot be procured, carrots usually can; and when they cannot, still potatoes may be boiled, or the corn may be speared or malted. As a proof of the beneficial effects of green meat, a horse, so bad with farcy as to be entirely despaired of, was drawn into a field of tares, and nothing more was done to him, nor further notice taken of him, although so ill as to be unable to rise from the ground when drawn there. By the time he had eaten all the tares within his reach, he was enabled to struggle to more; finally he rose to extend his search, and perfectly recovered.

POLL EVIL.

An abscess near the poll of the horse, formed in the sinews between the noll bone and the uppermost vertebræ of the neck. If this malady originates in blows (as it generally does) the best way will be to bathe the swelling as soon as it is perceived, frequently, with hot vinegar, and if the hair is fretted off with a kind of acrid humour oozing through the skin, make use of two parts of vinegar and one of wine. But if there be an itching, with great heat and inflammation, the safest way is to bleed freely, and apply a red oak poultice, which method of proceeding, with the assistance of two or three doses of purgative physic, will disperse the tumour and arrest the disease. If, however, in spite of this precaution, the swelling increases, and has all the signs of containing matter, the only way left is to bring it to a head as soon as possible, that it may be discharged either by the tumour bursting of itself, or being opened with a

knife. In the latter case, however, great care should be taken by the operator not to injure the tendinous ligaments which run along the neck, under the mane. When matter lies on both sides, the opening must also be on each side, that the ligament may remain undivided. The following poultice should be used in bringing the tumour to a head; marsh-mallows, corn-meal, hog's lard, and oil of turpentine. If the matter flows in great quantities, resembling melted glue, and is of an oily consistence, the cavity of the wound should be carefully examined by the finger or probe, and further laid open by the knife and dressed with spirits of turpentine, honey and tincture of myrrh, until a light and thick-coloured matter appears. Cleanse the sore well with a sponge dipped in soap-suds; then take half an ounce of verdigris, four ounces oil of turpentine, two ounces blue stone and half an ounce green copperas, which mix together and hold over a fire until the mixture is as hot as a horse can endure; then pour it into the abscess and stitch it up. This must remain several days, without any other application except bathing with spirits of wine. When the matter becomes of a whitish colour and decreases in quantity, a cure is rapidly advancing.

RAT'S TAIL.

This is a malignant kind of disease in horses, resembling scratches. It proceeds sometimes from too much rest, and the keeper's negligence in not rubbing and dressing them well; also by reason of being highly kept and not properly exercised. This disease makes its appearance on the back sinews, and may be known by the part being without hair, and from two or three fingers' breadth below the ham to the very pastern-

joint. Sometimes the scabs are dry, at other times watery. The moist sort generally is cured by drying applications; and the dry hard sort mostly yields to strong mercurial ointment.

Coach horses of a large size, that have their legs loaded with flesh, hair, &c., are more frequently attacked by this than horses with legs of a different description; but they may easily be cured by paying attention to the following directions—in the first place, ride the horse pretty smartly till he is warm, which will make the veins swell; then bleed him freely in the fetlock veins on both sides. Next day wash the sores well with warm water, and clip away all the hair from about the affected parts, and apply this ointment: green copperas and verdigris, of each four ounces; of common honey, half a pound; well mixed together.

ANTICOR

Consists in an inflamed swelling of the breast near the heart, and the name is extended to any other swelling from this part back under the belly, even to the sheath, which also swells: in this event anticor is decidedly dropsical.

The cause of it is full feeding without sufficient exercise. Hard riding or driving, and subsequent exposure, or giving cold water to animals that are fleshy in the forehand, combined with a vitiated state of the blood, produce those extended swellings that partake somewhat of the nature of swelled limb in grease, and yet terminate in abscess when the case is a bad one.

The symptoms are an enlargement of the breast, that threatens suffocation. The animal appears stiff about the neck, looks dull and drooping, refuses his food, and trembles or shivers with the inflammation, which may

be felt. The pulse is dull and uneven. If the disease owes its origin to dropsy, each pressure of the finger will remain pitted a few moments after the finger is withdrawn.

To repress the swelling, bleed copiously; give purgatives and clyster him; give bran mashes, and let the chill be taken off his water. Foment the throat and breast with bran mash or marshmallows, every four or five hours; and when these have reduced the symptoms, give an alterative ball of 2 drachms tartar emetic, and half an ounce Venice turpentine, mixed with liquorice powder enough to make the ball for one dose. Give one every eight-and-forty hours.

If the swelling depend upon dropsy, let a fleam or horse-lancet be struck into the skin at four or five places distant from each other, and in the lowest part of the swelling. From these punctures a watery discharge will take place, that relieves the patient hourly, and the issue of the matter is to be promoted by keeping open the sores with a seton, the tape being daily saturated in a mixture of 2 oz. spirits of wine, and 1 scruple corrosive sublimate. This will keep open the orifice until the offensive matter has run off, and is succeeded by the more healthy issue of thicker consistency and nearly white. On this appearance the seton is to be withdrawn, and the parts dressed with digestive ointment, the animal physicked once or twice with a moderate *purging ball* or six or seven drachms of aloes, and the cure will complete itself with the ordinary dressings.

THE STRANGLES.

This, as the name imports, is first indicated by a coughing and difficulty of swallowing, as if the animal would die of strangulation. It is a disorder of youth,

(like our hooping-cough), is inherent to the nature of the animal, (as is our small-pox) once only, and its virulence may be abated by inoculation. It is sometimes attended with high fever; the appetite fails, the horse dwindles away very fast and wears a dejected look.

The symptoms are—a swelling commences between the upper part of the two jaw-bones, or a little lower down towards the chin, and directly under the tongue. A cough, and the discharge of a white thick matter, follow; with great heat, pain, and tension of the tumours, and of all the adjacent membranes, to such a degree that the animal can scarcely swallow. The eyes send forth a watery humour, and the lid is nearly closed: this is mostly the case when it happens that the two larger glands under the ear are affected also, which frequently happens.

This disorder is seldom fatal; but when this does occur, the animal dies of suffocation; he stands with his nose thrust out, the nostrils distended; the breathing is then exceedingly laborious and difficult, and accompanied by rattling in the throat.

For this last mentioned extreme case, no other remedy is found than making an opening in the windpipe, through which the animal may breathe.

On the contrary, the disorder being constitutional, that is to say, an effort of nature to relieve itself of noxious matters, the treatment is very simple. Horses that may be in good condition at the time of the attack, and withal highly feverish and full of corn, will only require opening medicine; whilst a brisk purgative might do harm by lessening the access of matter to the tumour. Give the following laxative ball:—Aloes and Castile soap, each 3 drachms; Ginger 1 scruple; mixed for one dose. If difficulty of swallowing is already perceivable, a laxative drench must be given instead, viz. Castor oil 6 oz, water gruel 1 qt, and salts 6 oz, mixed.

The essence of this disease consists in the formation and suppuration of the tumour under the jaw, and our principal aim should be to hasten it to a head, to do which it should be actively blistered. A blister not only secures the ripening of the tumour, but hastens it by many days. Do not be premature in using the lancet, but give time for the *whole matter* to collect; when this period arrives, the swelling will be soft and yielding—it should then be deeply and freely lanced. It is bad to let the swelling burst of itself, because a ragged ulcer is formed, very slow to health and difficult of treatment. If the incision is deep enough no second collection of matter will form. Suffer that already formed to ooze slowly out, without, however, any pressure of your fingers. It should be kept clean, and you should daily inject into the wound a small quantity of friar's balsam.

If after this there is much fever and an affection of the chest, bleeding should be resorted to; but in most cases bleeding will be unnecessary—not only so, but injurious,—because it will retard the suppuration of the tumour and increase debility. Nitre, tartar emetic, and cooling medicines should be administered; and he should have green food, such as fresh-cut grass or tares, if they are to be had, and bran mashes; if not to be had, such as is light and not difficult to digest. If the complaint lasts long and extreme debility is produced, malt mashes should be substituted for bran.

VIVES.

This disorder bears a near affinity to the strangles. The symptoms are swellings or kernels under the ear, that occasion manifest pain when touched; the animal coughs more than one which has the strangles, and a difficulty of swallowing soon is evident. Stiffness of the

neck follows, and the horse makes frequent efforts to swallow the saliva, but is unable.

The cure of the vives that arises from a simple is very easy, but not so that which is connected with a general bad habit of the body. Oftentimes it happens that the vives depend upon glanders or farcy, and will only subside when the virulence of these is reduced.

Foment the part with warm water, and after it has been well dried, clothe the head so as to keep off the air. Much of the pain and tension of the tumour will be alleviated by this treatment, even, and a slight attack will be entirely removed by following it up with fomentations of marshmallows; or anoint the parts with ointment of marshmallows, and cover the head with clothing. A bread poultice affords relief, and bleeding in stubborn cases is often necessary, with purgatives. The body, in fact, should be *opened*, whether we bleed or no: always leave open the main road for such humours to escape by. This alone will carry off a recent attack, provided the head clothing be kept on at the same time, nature performing the remainder by absorption. Low diet, a plentiful supply of water gruel, and bran mashes, to which an ounce of nitre may be added daily, will reduce that thickened state of the blood which ever attends this species of tumour.

False vives, or imperfect ones, that are hard and insensible, sometimes cause a good deal of needless trouble. They neither come forward nor recede, do not seem to cause any particular pain, but still continue an *eye-sore* and give reason to apprehend disagreeable consequences; and always prevent an advantageous sale of an animal. Stimulating embrocations are well calculated for reducing these hard tumours, and the blistering liniment, made of cantharides and oil, never fails.

BARBS.

Barbs are excrescences or knots of superfluous flesh, found under the tongues of horses, and are to be easily discovered by drawing them to one side. The cure is to be effected by cutting them close off, and afterwards washing the part with salt and water or brandy, nor should the cure be postponed or neglected when a discovery has been made of the disease, for though it may appear as a trifling matter, it will hinder a horse from drinking, and if he does not drink freely, he cannot eat heartily, but will languish from day to day without any one perhaps taking any notice of it.

GIGGS UPON THE LIPS.

Giggs, otherwise called Bladders, or Flaps; are a disease in the mouth of a horse, consisting of small swellings or pustules with black heads, on the inside of his lips, under his great jaw teeth, which will sometimes increase to the size of a large walnut, at which advanced state they are so painful, that the horse will let his meat fall out of his mouth, or keep it there unchewed, sooner than attempt to eat it. These bladdders are generally produced from foul feeding, and are to be cured by opening them with a sharp knife, and thrusting out the kernels, or corruption, and afterwards washing the place with vinegar and salt, or with alum water. But if they should degenerate into the canker, it will be the best way to dress them two or three times with honey of roses, and spirits of vitriol, mixed in such proportions as to be pretty sharp of the latter ingredient.

RINGBONE.

A hard swelling on the lower part of a horse's pas-

terns, that generally reaches half round on the fore part, and derives its name from the resemblance it bears to a ring. It often arises from bruises, strains, &c., and, when it comes behind, which is sometimes the case, from the animal's being put frequently upon his haunches while too young, for in that attitude a horse throws the weight of his body as much (or more) upon his pasterns than upon his hocks.

When a ringbone appears distinctly round the pastern, and does not run down the coronet, so as to affect the coffin joint, it is easily cured; but if it takes its rise from some strain or affection of the joint itself, or if a callosity is formed under the round ligament that covers the joint, the cure is at best doubtful, and frequently impracticable, as in this case it too frequently degenerates into a quittor, and forms an ulcer upon the hoof. Those ringbones that appear on colts, &c., will frequently go away of themselves, without any application at all, and when the substance remains, a blister or two will in general remove it, except, by being let alone too long, it has acquired a great degree of hardness and callosity, in which case it will perhaps require both blistering and firing.

To ensure the success of the last mentioned operation on ring bones, it should be performed with a much thinner instrument than what is commonly made use of for that purpose, and the lines or rases should be made at little more than a quarter of an inch distance, crossing them obliquely; and when this is done, a mild blister should be applied over the whole, and the horse turned out to grass.

FISTULA.

A kind of ulcer, which is long, narrow, and winding, and generally has a callous inside. The seat of a

fistula is in the cellular membrane, and is known to be present when there is a small aperture or opening on the surface of the body, from which a sanious or other matter, either flows spontaneously, or may be pressed out; its depth and direction is discovered by introducing a probe, or if its directions are various, as is sometimes the case, warm water may be injected therein, which will show the course it takes, if that is near the skin, by elevating it; and if it is too deeply seated to be thus observed, the quantity of water thrown in will be a criterion whereby to judge of the size of the cavity. The probe will indeed discover whether or not the sinus runs upon a bone, or if the bone be carious, which water will not do. The various parts in which these ulcers are seated, and the different circumstances which attend them, constitute the chief difference betwixt one fistula and another. As to prognostics, the thicker the cellular membrane is, or the more strata, or layers of muscles one over another, the more mischievous a fistula will prove. While it is simple, and extends no farther than it can be wholly come at by a knife, it may be easily cured, but when it is situated in parts that render the use of the knife hazardous, or when it is complicated with a caries of the bone, the cure is often difficult if not impossible. When fistulas which are not yet become callous, are complicated with ulcers, the most expeditious relief is obtained by laying them open to the bottom, if it can be done without running any great risk, after which they are to be cleansed and healed as simple wounds. Another method of effecting a cure, is by pressing their bottoms towards their orifices by the help of a proper compress, which must be applied to its bottom after the ulcer is cleansed, and proper applications have been put into the fistula. Some practitioners reprobate all kind of injections, but when they lie so deep that their lower parts

cannot be cleansed by any other means, detergent injections must of course be used, such as a decoction of birtwort mixed with honey, or with the simple tincture of myrrh. These, or something else of a like nature, must be injected warm at every dressing, and retained for a little time, at the same time compressing gently the bottom and orifice of the fistula, that the peccant matter may be the more effectually washed away; and this method must be continued until the bottom of the fistula begins to be conglutinated; then dress with some mild digestive, to which is added a little of the balsam of Peru or capivi.

Should this method fail of effecting a cure, the manual operation must be attempted, but even this is not to be depended on, unless you can make the incision to the very bottom of the ulcer. Nothing is better adapted to perform this operation than the knife, but whatever instrument is made use of, the skin and flesh that cover the diseased part, must be divided to the bottom; for when fistulous ulcers are laid thoroughly open, the corrupted matter is not only better discharged, but proper medicines are more commodiously applied. If, upon making the incision, a large quantity of blood is discharged, you may fill the wound with dry lint, and when the callosities are either pared away with the knife, or wasted by the use of eschorate medicines, the cure will be effected in the same manner as other simple wounds. As for the corrosive injections, which are recommended by some authors, they can be of no use whatever. Indeed, any person who is acquainted with the manner in which such things operate on the body, will be convinced, that instead of being serviceable, they must aggravate the disease, by making the callosity and hardness of the sides greater and more difficult to be removed.

THE YELLOWS OR JAUNDICE.

A distemper with which horses are frequently affected. It is known by a dusky yellowness of the eyes; the inside of the mouth and lips, the tongue, and the bars of the roof of the mouth looking yellowish at the same time. The horse is dull and droops his head; his excrements are hard and dry and of a pale yellow, or pale green colour; he stales with pain and difficulty, and his urine is of a dark brownish colour, and leaves on the ground an appearance of blood.

Young horses and fat ones are easily cured.

Purge him; give him bran mashes, green food, and succulents, according to the season. Bleeding is seldom necessary or proper, which the state of the pulse will show.

STRING-HALT.

String-halt, in horses, is a sudden twitching or snatching up of the hind legs much higher than the other, to which imperfection the most spirited and mettlesome horses are unfortunately the most subject. It is generally brought on by sudden colds after hard riding or severe labour, particularly by washing a horse, while he is very hot, with cold water, a practice that cannot be sufficiently reprobated. It may likewise be occasioned by a blow or bruise near the hock.

The opinions of authors about the cure of this complaint are various; some recommend cutting a tendon which lies under the hinder vein of the thigh; others the use of liniments, ointments, fomentations, &c.; but in general the cure is difficult, and seldom effected.

RUNNING THRUSH.

Running Thrush, in horses, is an ulcerated or varicous state of the frog, attended with a discharge of acrid corrosive ichor, which sometimes quite destroys it. This complaint is generally occasioned by inattention, and in its earliest stages is by no means hard to be cured. In all cases it will be prudent, and even necessary, to pare away as much as possible of the diseased parts, and wash away any filth that may be lodged on the adjoining ones, with a lather of soft soap and water, after which the feet should be constantly stopped with cow-dung, or something of a similar nature. Should the complaint not give way to this treatment, there may be reason to apprehend that it is owing to a vitiated state of the fluids, in which case a few doses of alterative physic may be useful; but, perhaps, turning the horse out to grass for a month or two, if the season admits thereof, is by far the best method of attempting the cure.

CORNS.

Causes.—An entire series of disorders, as canker, sand-crack, corn, and founder, may be referred to the same original causes; namely, a heated or inflammatory state of the blood, which accident may concur to bring forward in one or other form, according to circumstances. Distortion and undue pressure on the *sensible sole* occasions that irritation which brings on inflammation of its edge, where the shuttle-bone, or *heel-bone*, presses down upon it at every step, and causes the utmost bending that the minute elasticity of the hoof allows of; but contraction of the heel, which accompanies hot, brittle, and inelastic hoof, prevents its bending duly and

truly, and lateral pressure upon the quarter follows. The sole being thus unduly pent up, the circulation is obstructed in its passage to and from the cavity of the coffin-bone, and a deposit of blood, which soon becomes offensive matter, is the consequence. Bad shoeing, whereby the heels are pinched, also when the ragged hoof is left, which may have contained particles of sand, will cause irritation, and end in *corn*, or *figg*.

Symptoms.—The mischief thus commenced within, shows itself between the bar and the crust, or wall of the hoof, in a foxy or dirty-red tumour, with greatly increased heat. *Lameness*, in a degree proportioned to the badness of the corn, is usually the first symptom that directs our attention to the sole. *Figg* is but another name for the same kind of corn when situated close to the bar of the frog, a little farther back in the hollow of the sole. Pain, very acute on the touch; or, when the horse treads on a hard substance, he issues a moan, or grunt: it is that sound in which his *voice* is aptly likened to the *complaint* of the human sufferer.

Cure.—Although oftentimes very troublesome, returning again and again when the *farrier* apprehends he has cured it *radically*, yet no affection is easier of a *partial* remedy, or effected by more ordinary means. Deceived by the name, perhaps, resembling the hard excrescence called a corn on the human foot, they proceed at once to "pare the corn out to the quick, *till the blood starts*," but they heedlessly put on the same shoe upon the same thick heel and hard hoof which first brought about the malady, and the lameness returns. Let the heel of the shoe be cut off on the side that is afflicted, or if both sides have corns, a bar shoe is recommended as giving pressure to the frog. The heels are then to be rasped away free from any contact with the shoe; if they are thick and hard, this will give them

play—if thin and tender, they will thus be freed from pressure. The *thick heel* is most commonly affected, and should be softened by an extensive poultice that is to cover the whole foot, after the *corn* has been pared and treated with *butter of antimony*. *Tar* is then a very desirable application, or *Friar's balsam;* and if inflammation is again discovered, poultice the foot once more. *Fire* is applied by some, but the hoof is permanently injured by the actual cautery; and whatever good is achieved is thus counterbalanced by the evil. Vitriolic acid mixed, *carefully*, with tar, in the proportion of one-tenth of the former to nine-tenths of the latter, will promote the absorption upon which the cure depends.

But in some desperate bad cases the matter has already formed within, most offensively, and discharges at the coronet by means of that curious process of nature which affords the coronet the material for forming new horn to supply the wear and tear of the hoof. Upon paring away the horny sole, which now becomes necessary, the offensive matter will be found to have spread itself underneath the sensible sole, which will ooze forth and give immediate relief to the coronet. Let so much of the horny sole as lies loose from the sensible sole be pared away, and a dressing of tar, or of Friar's balsam, be applied as before directed; and if inflammation is again discovered, apply a bread poultice; should the growth of horn be found too luxuriant, discontinue the tar.

Where it has been necessary to remove much of the corn, the horse should be suffered to remain in a loose place, or be turned out to grass until the horn is regenerated.

A FEVER.—A CURE.

Would you know when a horse is in a fever? There is a pulse a little above the knee, in the inside of his leg,

which may be felt in thin-skinned horses, but the best and surest way, is to put your hand to his nostrils, and discover it by the heat of his breath.

Fever is a disease that frequently attacks horses, the symptoms of which are, extreme restlessness, the creature ranges from one end of the rack to the other, his flanks beat, his eyes are red and inflamed, his tongue parched and dry, his breath hot and strong, he loses his appetite, and nibbles at his hay, but without chewing it, and is frequently seen to smell at the ground. The whole body is hotter than common, though not parched, as in some other disorders; he dungs often, but little at a time, and that is generally hard and in little bits. When he stales it is frequently with difficulty, and his urine is high coloured; he appears thirsty, but drinks only a small quantity at a time, though often, and his pulse beats full and hard, and fifty or more strokes in the space of a minute. The first thing to be done when the disorder is clearly ascertained, is to bleed to the quantity of two quarts, if the horse is strong and in good condition, after which give him a pint of the following drink four times a day, or an ounce of nitre made into a ball with a little honey may be given twice or three times a day instead of the drink, if it should be better approved of, and washed down with three or four horns of gruel, or some other diluting liquor:

Take baum, sage, and chamomile flowers, of each an handful, liquorice root, sliced thin, half an ounce, salt prunel or nitre, three ounces; infuse the whole about an hour in two quarts of boiling water, then strain off the liquor, and squeeze into it the juice of two or three lemons, and sweeten it with a little honey.

As the principal ingredient to be depended on in this drink is the nitre, it might, perhaps, in some respects, be as well given in water alone; but as a horse's stomach

is soon palled, and he requires medicines that are somewhat palatable, the other things may in some respects have their share of utility. Some recommend for the same purpose, to dissolve two ounces of cream of tartar, and one of sal ammoniac in two quarts of water, which is afterwards to be mixed with a bucket of common water, and given the horse for his drink, adding a handful of bran or barley-meal, to take off the unpleasant taste, and render it more palatable. The following drink is also good in fevers:

Take Russian pearl ashes, one ounce, distilled vinegar a pint, spring water a quart, honey four ounces, and when mixed, give a pint three or four times a day.

This neutralized mixture, and the nitre mixture before prescribed, may be taken alternately; they are both efficacious medicines, and in some cases may, with propriety, be joined to the camphorated julap. While horses are taking these medicines, their diet should be scalded bran, given in small quantities at a time; and should they refuse that, let them have raw bran sprinkled with water, and a handful of picked hay may be put into the rack, which they will frequently eat, while they refuse every other species of food. Their water should not be much warmed, but should be given them often, and in small quantities. Their clothing must be light, as too much heat and weight on a horse that has a fever would be improper. If in a few days the horse that is thus treated begins to eat his bran, and pick a little hay, this method only need be pursued, and in a few days the danger will be over. But if he refuses to feed, and the other symptoms still continue the same, or rather increase, it will be necessary to take away more blood: after which, the drinks may be continued with the addition of about three drachms of saffron, avoiding at present all hotter medicines: the following clyster may

likewise be given, every day or oftener, if there should be occasion, particularly if his dung be hard and dry:

Take marshmallow leaves, two handfuls, half as many chamomile flowers, and fennel seed, an ounce; boil the ingredients in three quarts of water, till it comes to about two, then strain it off, and add four ounces of honey or treacle, and a pint of linseed oil.

Two quarts of water-gruel, or fat broth, with the treacle and oils may be substituted in the place of the above, to which a handful of salt may be added, and these sort of clysters are much more proper in such cases, than those which consist of strong cathartic ingredients. The following opening drink is sometimes very effectual, and may be given every other day, when the clyster should be omitted:

Take cream of tartar and glauber's salts, of each four ounces, dissolve them in barley-water or gruel: an ounce or two of the lenitive electuary, or a drachm of jalap in powder, may be added to quicken the operation, where the case is urgent.

The diet should be very regular, and no kind of corn should be given, but let scalded or raw bran sprinkled with water be the principal food, with now and then a little hay, which should be picked and given out of the hand, if the horse cannot lift his head to the rack, as is frequently the case. After he has been treated in this manner for about a week, and the fever begins to go off, he may have a cordial ball given him once or twice a day, with an infusion of liquorice root sweetened with honey, to which may be added (when he is troubled with tough phlegm, or a dry husky cough) a few ounces of salad oil, and syrup or oxymel of squills.

There is every reason to expect that a speedy recovery will be effected when the fever is found to abate, the mouth to be less parched, and the grating of the teeth but little heard; when the horse begins to eat, and

lay himself down, when his skin feels kindly, and his eyes appear lively. But, on the other hand, if the appetite gets no better, or if worse, and the heat continues to increase, the case is dangerous. Sometimes there is a running at the nose, which is generally of a reddish or greenish dusky colour, and a clammy consistence, sticking to the hairs within the nostrils. Now, whenever this running becomes clear and watery it is a good sign, but if it continue thus tough and ill coloured, the horse at the same time sneezing frequently, his flesh continuing flabby, and he feeling hide bound, or if his weakness increases, and the joints swell, the kernels under the jaws feeling loose, though they are swelled, or if the tail is lifted up with a kind of convulsive quivering motion, you may conclude that death will soon step in to his relief.

Intermitting fevers will rarely admit of bleeding, at least the quantity of vital fluid taken away should not be great; the best way of attempting the cure being to give an ounce of Peruvian bark in fine powder every fourth hour during the absence of the fever, and should that run off with a purging, a little diascordium, or other gentle astringent may be added to prevent that effect. In case of any other fever's coming to intermit regularly, it may be treated in the same manner as though it had been a regular intermittent from the beginning.

The low, or putrid kind of fever, seldom admits of bleeding; but if from any symptoms that appear at the time, it should be thought necessary, the utmost caution and circumspection should be used, as the symptoms which seem to call for this evacuation will soon subside, from the nature of the disease itself. However, if the horse is young and vigorous, and his vessels appear filled with rich dense blood, a little may with propriety be taken away in the beginning of the disease.

Whether or not it is thought necessary to take away blood in the beginning of epidemical and contagious fevers, the following cordial saline mixture should be given as soon as the disorder manifests itself to be of that description:

Take mindererus's spirit four ounces, camphorated julap a pint, Virginian snake-root, half an ounce, and saffron reduced small, three drachms, to which add a pint of weak cinnamon water, and give half of it night and morning.

If, notwithstanding the use of this medicine, his complaint appears to gain ground, let the following cordial ball be added to each dose of the mixture:

Take bark finely powdered, an ounce, Virginian snake-root half an ounce, camphor a drachm, and with a sufficient quantity of honey make a ball.

If the horse is costive, laxative clysters should now and then be given, or in their stead some gentle purges, to clear the bowels from any putrid matter that might lodge there and feed the disease; but if a purging comes on, and seems to weaken him much, it must be checked with opiates, and gentle astringents; though, if it is moderate, it may as well be let alone, such gentle evacuations being frequently efforts of nature to carry off the disease. Many more prescriptions for fevers might have been selected from various authors, for the cure of fevers, but the above seem to be the best adapted for the purpose: where the methods here recommended fail, or where any other ingredient is thought necessary, the judicious practitioner will find a variety of drugs described in the course of the work, and their natures and properties explained, so that he may vary his medicines in such a manner as circumstances may require, and indeed every practitioner that pays a proper regard to the subject, will find such a method of proceeding frequently necessary: nothing being a more positive proof

of ignorance and stupidity, than to suppose the same disorder will, in different constitutions, always submit to the same mode of treatment.

The following fever powders are used: 1. Two drachms of tartar emetic and five drachms of nitre.—2. Two drachms of antimonial powder, and four drachms each of cream of tartar and nitre.

The following fever drink can be recommended: one oz. spirits of nitre, six oz. minderus spirit, and four oz. of water.

SWELLED NECK.—CURE.

If a farrier, in bleeding, miss the vein, do not let him strike his fleam a second time into the same place; because it sometimes makes the neck swell, and proves troublesome to cure: and as the extravasated blood infallibly makes the neck swell, and the jugular vein rot quite away from the orifice up to the jaw-bone, and downward almost to the shoulder, (which may prove the loss of your horse;) he should take care, in the pinning, that he leaves not a drop of blood between the flesh and the skin.

Note.—The nearer the throat you bleed him, the better. The vein is not so apt to swell into a knot, as if bled lower.

The turnip poultice makes the best cure; but if the neck should happen to be extremely bad and a tumour should form, when you feel matter fluctuate under your finger, it is best to open it and give a free discharge, and dress it with the horse-ointment, keeping the neck elevated.

A horse after bleeding should not eat hay for half a day, lest the motion of the muscles should bring on an inflammation and swelling.

DOCKING.

It seldom happens that we dock a horse upon a journey, but permit me to give a caution on that subject here. In docking a horse, never put under his tail the knife or instrument which is to cut it off; because then you must strike the tail, which will bruise it, and it will be apt to mortify; but lay his tail next the block, and (at one blow) drive the knife through a joint, if possible; stand prepared with a hot iron to sear the end of the dock and stop the bleeding.

FLIES—HOW TO KEEP THEM OFF.

Rub your horse every morning with walnut leaves: it is certain to secure them from flies and other insects.

I have now mentioned most of the common accidents, and have taken care, that under some of those heads, you may find a great deal of help by the analogy they have to one another: and having added more than is necessary on a journey, I beg leave to end.

There is no drug or composition put in here, but what is very cheap, and may be had almost in every country village you travel through; so I hope I have left no difficulty on any body. But if I should be condemned by some, for presuming to leave the beaten paths of all the well known authors that wrote before me, how could I answer to others, had I neglected an improvement which may turn to the general good of man and beast?

I have read all I could find, and have tried their receipts with great attention and expense; and can say, it was experience alone that led me into the knowledge of contracting overgrown receipts, hastening cures, and moderating costs.

OF THE MANAGEMENT OF COWS

BEFORE, DURING, AND AFTER

CALVING.

BREEDING is an important process in the animal economy; and in most of the domestic animals it is encouraged by mankind as a source of profit. To none can this remark be more applicable than to the cow; for not only does she produce an offspring whose worth is a matter of consequence; but she also continues to enrich her keeper by abundantly yielding her rich lactiferous store—converted by his interest from being the source of nourishment to her progeny into a source of profit to himself.

This same feeling, of making the most of the animals in his possession, often urges the inconsiderate owner to attempt to outstrip, or rather, to force nature; but the attempt in such case recoils on himself—for instead of obtaining the daily golden egg, he too often finds his premature haste has destroyed his bird, eggs and all.

These remarks apply with greatest force to those inconsiderate persons who, anxious to anticipate their most sanguine hopes, injure their stock by putting their heifers prematurely to breed, and who, did they but endure another season of necessary delay, would give time for nature to perfect her work of maturity, and ensure a healthy offspring; but those persons, by an injurious and injudicious haste, destroy the stamina of

the animal's constitution, entail a feeble and unhealthy issue, exhaust the powers of the devoted animal, and not only shorten her life, but occasion many and serious disorders.

Heifers should not on any account be put to bull before they have passed the second year of their existence; indeed if three years be allowed, the much better condition of the calves will amply repay the one year's delay. Cows may be expected to produce a calf every year, but if an occasional year be allowed to pass without their breeding, it will much improve their condition; as over breeding, like over working, exhausts the powers of the animal's constitution. The general rule with regard to milch cows, is, not to put them again to bull before they cease to give milk; cows that are not in calf are generally in heat every three weeks; at which time, and at the moment they are most in heat they should be put to the bull, as they will conceive more readily. There are cows which continue in heat only a very short time: with such this attention is the more necessary. They are known to be in heat by the following signs: they are continually lowing, and mounting each other, or upon the bull; they are restless, and often running about; there is also an elevation of the tail, a swelling of the genital parts, and a slight discharge of white glairy matter from the shape. After they have taken the bull, they should be taken away, and not brought to him again, unless they are again in heat.

There are cows that never conceive, but yet continue to be in heat about every third week; and it has been observed, that weak, flat sided cows, or such as are consumptively disposed, are often in heat again, after being bulled. Various reasons may be assigned to account for these circumstances; but as they are

rather hypothetical than practical, we shall merely observe what experience has proved, that cows which are kept from breeding for several years sometimes fall into a consumption; and become thereby ever afterwards incapable of producing issue, although more and oftener inclined to receive the bull.

The cow goes nine months with calf; some give milk during the whole time; others lose it about the seventh or eighth month: it is, however, adviseable, as a general rule, to cease to milk them at seven months, unless the udder should swell; in this case only half the quantity in the udder should be drawn off, and that more from relief to the animal than from any service to which the milk can be applied; as it is now of little value, and necessary to the nourishment of the fœtal calf.

Cows that are with calf should be kept in fields where the ground is nearly level, and where there are no large ditches; as abortion is often a consequence of their leaping over ditches, or slipping on very hilly or steep ground, when driven into the stable at the time the fields are laid up, or in situations where it is necessary to employ dogs to keep them.

Pregnant cows, and especially such as are near calving, ought to be fed with better and more substantial food than usual. Grain of any kind is now useful, but *it must be bruised, or crushed;* barley and oats are the best kinds. Some good soft fragrant hay of the second crop, or skimmings, should be reserved for this purpose.

When pregnant cows are kept together in the same pasture, they should be carefully watched, as they are very apt to quarrel and hurt each other, and even to cause warping or slipping the calf.

Cows are more liable to abortion than any other do-

mestic animal; perhaps this may result, in a great measure, from the want of exercise, the great size of the rumen, or first stomach, and the hardness of the third; it is also sometimes caused by the stomach being too much distended with improper food; straw and bad hay being very injurious, and, if not always the cause of abortion, is generally productive of difficult labour. Impure or unwholesome water, fog-grass, coarse tough grass in wet situations, too much exposure to cold and wet, fighting with each other, and leaping over eminences or ditches, are all likely to produce abortion: too much care cannot, therefore, be used in looking after pregnant cows, in order to secure them against either of these accidents. Above all, give them sufficient gentle exercise, treat them kindly and soothingly, and feed them with food that is easy of digestion, and which contains a good deal of nutriment in a small bulk; giving it them a little at a time, and that little, often. Straw, chaff, and bad hay, afford but little nourishment, load the stomach and bowels, impede the gradual growth of the calf in the womb; and when the calf has acquired a moderate size, the pressure of a loaded stomach causes its death, and sometimes endangers the life of the mother also.

The approach of calving is known by the cow bellowing, the enlargement of the udder, the restlessness of the animal, and the falling of the flank and croup. The cow should then be constantly watched, that she may have assistance, if necessary, at the time of calving.

The most common manner in which the calf comes forth from the womb, or the natural presentation, as it is termed, is with the head and two fore-feet foremost. From the causes before noticed, however, this natural presentation is often changed; sometimes the

hind legs and tail present: in either of these cases the calving may take place without assistance. But if only a single leg present itself, or the head only, or any other single part, the cow should not be left to her own unavailing efforts to expel the calf, but the veterinary surgeon or experienced dairyman should be immediately called in, to give the necessary assistance.

Never, however, be in too much haste in affording manual assistance for the delivery, as there is often mischief done by violent and ill-timed interference. Violence of any kind should indeed always be avoided: when the presentation is natural, the efforts of nature and the labour pains are generally sufficient for the expulsion of the calf; and where unnatural, more effectual service is rendered by care and prompt assistance than any kind of violence can afford. Besides, violent efforts of extraction often prove fatal to the cow, or cause a prolapsus, or falling down of the womb, and is infallibly fatal to the calf. When the calf-bladder appears, it should be sufficient to break it, and let the water flow out of its own accord; and then the only assistance proper is, to draw the calf very gently at those times that the labour pains are observed to be on, *but at no other period.*

It is of importance, also, to abstain from giving the cow any kind of heating drench, such as wine with sugar and nutmeg, which are often given to hasten the discharge of the after-birth; but which rather retard it by the irritation they excite: drenches should only be given when the animal appears very enfeebled, and then only by the advice of a competent judge.

If the labour be tedious, and continue for some time, unaccompanied with any other more unfavourable symptoms, it will be sufficient to give small quantities

of nourishing food, such as oatmeal gruel, warm, and a little salted. Take care that there be an ample allowance of litter, that the calf may not hurt itself in falling, for cows almost always calve standing. Calving often happens in winter; it is then necessary to cover the cows, and not let them go out for some days, and especially not to expose them to cold and rain.

Cows being in a good condition during the period they are with calf, may be considered as a presage of a fortunate delivery; it also indicates good management on the part of the proprietor, and renders any particular assistance seldom necessary. By good condition, we do not mean full of flesh, by feeding to satiety; on the contrary, we mean that healthful habit which invariably results from giving them a proper quantity of good food, such as is most easy of digestion, and which contains a sufficiency of nutriment in a small compass, and by allowing or gently urging them to moderate exercise.

Immediately after calving, the cow should have a little warm water, in which a few handfuls of meal have been stirred; when the thirst is considerable, which is often the case, a little more of this thin gruel should be given in half an hour, and repeated from time to time, taking care not to load the stomach.

It is a common practice, as soon as cows are delivered, and the umbilical cord, or naval-string is broken, to attach a small weight to it, to prevent its return into the womb. Though this is, perhaps, seldom necessary, it may, nevertheless, sometimes facilitate the expulsion of the after-birth, and prevent its being retained too long. It may, therefore, be done, especially in feeble cows, which, when exhausted by calving, make

but weak efforts for the expulsion of the after-birth or cleansings.

The after-birth, or *placenta*, is a large bladder which encloses the calf in the womb; and being a body foreign, after delivery, to the cow herself, it cannot remain without the most serious consequences to her. A quick expulsion of the after-birth, however, although very desirable, is not an essential condition of a good or natural calving. In general, when cows go their full natural time, and the delivery happens without accident, the after-birth comes away with scarcely any effort of the cow, in about from two to fifteen hours, more or less. These efforts are not always the same; they resemble labour pains in some measure, being weak at first, then gradually increasing, becoming longer and more considerable; at last a more violent and prolonged effort than those preceding accomplishes the discharge, or cleansing, as it is termed.

When the animal is in health, the cleansing should be left entirely to nature; *and on no account, without the most positive advice, and that of an experienced person, should the hand be introduced, in order to hasten the discharge.* Cases might be enumerated, where days, even a week, have passed, without the cleansing being expelled, and not the least danger result to the animal; notwithstanding that in the latter instance, the proprietor used the most earnest entreaties, that the veterinary surgeon who attended should draw it off. It is sufficient to pull the umbilical cord which hangs out of the part, gently, *whenever there is a labour pain*, but not to continue to draw it after the pain has ceased; and the force with which it is drawn should accord with, or be in proportion to, the effort which the animal makes: if it is too weak, it will be of no use, and if too violent, there is danger of break-

ing the cord, and losing this resource for assisting nature in the discharge of the after-birth, while, at the same time, it tends to weaken the cow. It is only when the animal appears ill and depressed, and when the natural efforts are evidently insufficient, that it becomes necessary to introduce the hand for the purpose of drawing off the after-birth; *but this must be done with great care, and should not be attempted except by an experienced person.*

It is improper to administer any heating drench, such as that composed of urine, wine, savin, and rue, (given as cleansing drenches,) by some ignorant people, as they often excite fever and inflammation of the uterus; there are very few cases indeed in which it is at all safe to give them, nor should such ever be employed except when prescribed by an experienced veterinary practitioner. Inflammatory affections of the intestines and womb, are invariably the result of such bad management in or after calving; and if we would prevent these, we must be content to follow nature and reason, and not be always striving to force the one, and outrage the other.

Gentle walking exercise, when the weather is favourable, often repeated; and brushing the body, especially the loins and under the belly, with a whisp of hay or straw, or a piece of cloth, will promote the expulsion of the after-birth.

When cows are weak, or too long in cleansing, the only thing to be given is toast and weak wine, good cider, or perry. If wine be preferred, mix it with an equal quantity of water. This toast should consist of four pints of wine and water, and about a pound and a half of bread toasted: cows generally eat this freely: an infusion of two handsful of camomile flowers in two quarts of water, with the addition of half a pint

of wine, if there appear to be occasion for it, and given as a drink every two or three hours, is sometimes given with success. Some hours after, half a pailful of warm water with a little meal or fine bran stirred into it. This blanched water, as it is termed, should be continued for five or six days, and if the cow be very weak, and there is great difficulty in restoring her, the wine or cider toast may be given for a few days.

It is necessary, also, in such cases, to administer clysters, daily, of red wine and water, or of an infusion of camomile flowers in water. And some of the same liquor may be injected into the womb. These clysters and injections give that tone or strength to the uterus, and parts connected with it, which is required for the expulsion of the after-birth.

It is of importance not to confound the weakness which is the consequence of the exhaustion of vital power or strength with that which results from oppression only. In the former case, all the external parts are relaxed and cold; the eyes are pale, there is but little heat in the mouth and *vagina;* the muzzle is cold and moist, the pulse small and weak, and the respiration slow; in this case, the strengthening toast and wine beforementioned is necessary; but in the second case, on the contrary, the breath from the mouth and nostrils is hot; the eyes are red and rather fierce; the mouth hot, dry, and parched; the muzzle dry; the thirst excessive; breathing very quick; the vagina red and inflamed; the skin dry and tight; the pulse hard and quick; this is a real inflammatory fever, which can only be subdued by bleeding, cooling drinks with nitre, acidulated drinks with honey, and by emollient clysters. These are the only means that can be employed under such circumstances to promote

the discharge of the after-birth. Some persons suffer the cow to eat the after-birth: this we consider an absurd custom, and best prevented.

It sometimes, but very rarely happens, that cows have two calves, which they do not bring forth at the same time, but after some interval. After the first is born, it may be known that another is in the womb, by the cow continuing very restless or agitated, looking continually round to her flanks, having labour pains, and appearing to pay little or no attention to the calf already born. If she continue a considerable time in this state, it will be necessary to assist nature by giving the animal a pint of strong warm ale; and by irritating the nostrils with a pinch of snuff, or by tickling, so as to excite sneezing. If those means fail, the veterinary surgeon should be called in.

It sometimes happens that toward the latter end of gestation, or immediately after calving, the vagina comes out, and sometimes the womb follows it; this is generally caused by using improper force in extracting the calf, or after-birth. In this case, it is necessary to call in the aid of a person who has been accustomed to put back the parts; as it is an operation not easily performed by an inexperienced person. When the vagina only comes out, it will generally be sufficient to raise the hind part of the cow considerably, by means of litter, or otherwise, and keep the foreparts as low as they can be.

HOW TO EXTRACT A CALF WHEN IT PRESENTS IN A WRONG POSITION.

Farmers and dairymen, or other persons who have the care of milch cows, ought to be well acquainted

with the manner in which a calf should present itself, when in a natural or proper position.

When the calf is presented with the head and fore-feet first, and its back towards the cow's back, it is termed a natural position; all others are unnatural, and are attended with more or less danger both to the cow and the calf, unless immediate and skilful assistance be rendered.

Sometimes, however, this assistance may not be at hand when wanted. In this case the best that can be obtained must be resorted to. We shall, therefore, give a few of the most common wrong positions, with directions how best to avert any danger therefrom.

1.—When the waters are broke, and *only the head and one foot presented*, lay hold of the calf's head, and wait till the throes are off, then gently push it back, and rectify the other foot: It may be then extracted without danger.

2.—*If the head only present itself, and both feet are left behind*,—the head must as in the former case be pushed back with a gentle hand as soon as the throes are off, and the feet properly placed with the utmost care, or you will wound and tear the arteries.

3—*If all the four feet be turned where the back ought to be, towards the top of the uterus*, in this situation it will be impossible to extract the calf until it be put in a proper position. The hind parts of the cow must be raised with straw, or with bags of that or other soft material that is soft and easy to lie on, and properly placed under her. By this means the person will be very much assisted in putting the calf in a suitable posture for extraction; afterwards wait the return of the cow's throes, and then give nature your best assistance. In operations of these kinds, every thing depends upon the management and activity of the

person employed in putting the beast in a favourable position.

4.—*When the hind legs makes the first appearance*,—it will be found better to extract the calf in this position with care, than to attempt to turn them.

5.—*The shoulder sometimes first presents itself.*—This is a difficult case, and requires the hand to be introduced in search for the fore legs: or the hind legs may be brought forward, if they appear most conveniently placed: but this must be left to the care and judgment of the party employed.

These are the most usual cases of unnatural presentations: and may, with care and a little experience, be surmounted; but *when the calf is dropsical in the head*, which may be known by the largeness of that part, and the wasting away of the others, or if it be dead, instrumental aid will then be necessary, and prompt and experienced assistance must be obtained: it will be worse than useless, therefore, to give any directions in cases where the slightest error would be fatal, and where no other aid than that of the most experienced veterinary surgeon can be of the slightest avail.

HOW TO TREAT THE NAVAL STRING AFTER EXTRACTION.

When the calf is taken from the cow, and been properly cleaned, either by the animal licking it, or with a clean linen cloth, let the umbilical cord or naval string be properly secured, with a ligature in the following manner:—

Tie a waxed thread of several thicknesses, several times round the naval string, about two inches from the body; secure it with a double knot, then take a

pair of scissors, and clip it off a little below the tied part. Be careful not to tie the thread so tightly, that it cut the naval string, or it will cause an effusion of blood which may prove difficult to stop, and perhaps endanger the life of the young animal. If the animal's strength appear exhausted, the following restorative drink will be found servicable:

RECIPE No. 2.

Peruvian bark in powder, 2 drams;
Ginger, fresh powdered, 2 drams;
Mix, and give it in half a pint of new milk.

THE FALLING DOWN OF THE CALF-BED.

This is a complaint, or rather an accident, of frequent occurrence among cows, at the time of calving, and consists in the calf-bed being turned inside out, and falling down. It frequently proceeds from the force employed in extracting the calf in laborious parturition and drawing away the cleansing immediately afterwards, before the womb has had time to contract, or lessen itself.

In these cases it will be proper to support the calf when just out of the shape, and then tie the naval string a few inches from the naval, with a little thick twine, and to let the cleansing be subsequently expelled by the throes of the beast.

We would advise the adoption of this plan in laborious parturition, where no manual force has been used. For when a cow has once had this complaint, she is always liable, at any future period, either to slip her calf, or to a recurrence of the accident.

Cows that rise considerably on the small of the

back, in the form of a curve, and begin to lower towards the tail, with the hip, rump, and sirloin for the most part straight, are the most liable to this complaint. Cows thus formed denote great weakness in those parts; and, without great care and proper management at the time of calving, are almost sure of having this complaint.

By observing the following rules, this may, generally, be prevented.

The floor or pavement of the cow-house should be made level at the time of calving; and it will be greatly to the advantage of some cows, if they be placed so that they stand *higher behind* than before for a considerable time before calving; as that position will enable them, when down, to rise with more ease, and with less danger of straining themselves.

If the falling-down of the calf-bed be suspected, the cow ought to be carefully watched, particularly at the time of calving, and it should be prevented, as far as possible, by the means above mentioned.

Treatment.—As soon as the falling down of the calf-bed takes place, care should be taken to have in readiness a clean sheet well-aired, to put underneath and around the calf-bed, if she lay down; or to support it, if standing; and likewise to protect it from particles of dirt, or straw adhering to it, as also from the effects of air. Then, if any portion of the cleansing adheres to the womb, it must be removed in the gentlest manner possible, lest you tear the calf-bed. Then bathe the exposed parts with diluted spirits of wine, or any kind of spirits will do, if they can be procured almost immediately; if not it will signify very little. As soon as the parts have been bathed, endeavour to return them to their natural position by the method following:

The calf-bed is to be raised, and the person who replaces it should clinch his hand, or have a large sponge in it, and press gradually in the middle part of the womb, until it is returned into its proper situation. He must throw it forwards, as far as he can possibly reach, and turn his hand round to feel that it is properly replaced, and hold it there for some time; which will stimulate the womb to contract, and prevent it, in in a great measure, from falling down again.

When the calf-bed is properly replaced, the following strengthening drink may be given to the animal, to assist her, and remove those violent after pains, to which cattle in this state are particularly liable.

RECIPE No. 3.

Gentian, fresh powdered,	1 ounce;
White ginger, ditto,	1 ounce;
Aniseeds, ditto,	2 ounces;
Solid opium, cut small,	1 dram;
Treacle,	4 table spoonsful.

Pour a quart of hot ale upon the ingredients, in a pitcher; and give it to the cow when new-milk warm.

This drink should be repeated once a day, or every other day, for two or three times. Warm meshes, and proper management, must strictly be attended to.

ABORTION, OR SLIPPING OF THE CALF.

Abortion, or slinking or slipping the calf, is a misfortune to which cows are particularly subject, in the early periods of gestation; and occasions not only a serious loss to the owner, but produces a weakness in the cow herself, which is often injurious to her constitution to the latest period of her existence.

Some few of the causes to which slipping the calf is generally attributable, have been already given; we

shall add one or two more, equally producive of this misfortune. Cows are most liable to slink their calves towards the latter end of the year, while feeding on fog, or autumnal grass, or on low marsh and fenny ground. In such situations, the air towards the end of autumn becomes too moist for the right performance of the animal functions; the body in consequence becomes relaxed and debilitated, the perspiration diminished, and the blood watery, which frequently produce a preternatural determination of blood to the calf-bed, that impairs the healthy actions of that organ, and occasions abortion. It appears to originate, in these instances, from the same causes as the red water does; only in the one, the calf-bed is affected; in the other, the kidneys.

At other times, it has proceeded from the smell of carrion, either exposed on the pasture, or buried too slightly in the earth. The sense of smelling in horned cattle is remarkably acute; any very disagreeable scent annoys them sadly, and, if it be not removed, will produce abortion.

Treatment.—Cows that are in danger of slipping their young, should be taken from the pasture or stable the over night, and from two to three or four quarts of blood should be taken from each beast, which, unless the weather be damp, ought to stand in the open yard, or open shed, till next morning: then give the following purging drink:

RECIPE No. 4.

Epsom salts,	1 pound;
Nitre,	2 ounces;
Ginger and aniseeds, in powder,	1 ounce, each;
Treacle	4 ounces.

Pour three pints of boiling water upon the ingredients, and give when new-milk warm.

After it has operated give her the following:

RECIPE No. 5.

Alum, in powder	4 ounces;
Nitre,	1 ounce;
Grains of paradise, and aniseeds, fresh powdered,	1 ounce each;
Solid opium, cut small,	½ a dram;
Treacle,	4 table spoonsful.

Mix for one drink.

Put the drink in a pitcher, and pour a quart of boiling water on it; cover it down till new-milk warm, and then give it the beast.

Repeat this in about eight or ten days, and there is little doubt of its producing the desired effect.

Some cows are constantly a bulling every two or three weeks, during summer: a better drink cannot be given to put a stop to this than No. 2, and also to make her hold to the bull. It should be given to her about two hours after bulling: it strengthens and braces the parts of generation: if she be in good condition, let two quarts of blood be taken from her.

If a cow should slip her calf, separate her immediately from the herd, or she may possibly affect them; and give her the following drink:

RECIPE No. 6.

Spermaceti,	2 ounces;
Spirits of turpentine,	1 ounce;
The yolk of one egg.	

Beat them in a marble mortar till well incorporated; then add

Grains of paradise, and carraway seeds, fresh powdered,	1 ounce, each;
Treacle,	4 ounces.

Mix the whole in a quart of warm gruel, add a wine-glass full of gin, and give it new-milk warm. Repeat this drink every third day for about three times.

ON THE

MANAGEMENT OF YOUNG CALVES,

AND THE

TREATMENT OF COWS AFTER DELIVERY.

Care should be taken that the cow, after the extraction of the calf, should have a suitable place to lie down in; and one that will also easily enable her to lick her calf, which not only the better excites her maternal feelings, but the friction of her tongue puts the young animal in motion, and enables it to rise much sooner than it otherwise would. If she should shew any aversion to this action, which she should, and generally does do, very shortly after calving, it will be necessary to sprinkle on the calf a little salt, rubbed up with crumb of bread, or bran.

It is a prejudice very generally entertained, that the first milk is injurious to the calf, on account of its supposed bad quality. This is acting contrary to nature, which has provided at first serous and yellowish milk, termed beestings, of a laxative or opening quality, in order to carry off from the stomach and bowels of the calf an injurious dark, viscid matter, termed *meconium*, which has collected in them while in the womb. It is therefore essential that the calf have instant and free access to the cow. If the calf does not readily take the teat, put it into its mouth; but do this gently and with great care.

If, however, the first milk of the cow should not pro-

duce the desired evacuation from the bowels of the calf, recourse must be had to medicine; the following will be suitable for this purpose:

RECIPE No. 7.

Castor oil,	1 ounce;
Prepared kali,	½ a dram;
Ginger in powder,	1 tea spoonful.

Mix, and give it in half a pint of warm milk.

This drink may be repeated the next day, if the bowels are not sufficiently open.

The diet and treatment of cows, at the time of calving, must be regulated according to the season of the year. It is, however, considered of consequence to the dairy, that cows should not drop their young too early in the season; as when that happens, they fall off their milk in the autumn, when from its superior richness, it is more valuable than at any other time. From the end of March to the end of April is considered the best time in the northern districts; as the cow soon gets into condition upon the early grass, and yields a greater quantity of milk in the course of the season than those that calve either much earlier or later; but in the southern parts, the advantage is found in calving much earlier. But as nature will not always be confined by any rule which man can lay down, he must act accordingly.

If it be in winter, or early in the spring, they should be housed as soon as possible; for new-born calves are particulurly fearful of cold, and must be guarded from its intensity; not to the degree of confining them in close, hot stables, and injuring them by the reverse of too much heat. Warm water, and meshes of

scalded bran, mixed with a little *ground corn*, should also be given to the cow, twice or three times a day.

If the calving be in summer, the cow and calf require to be kept under a shade, where they can be protected from the sun in the day, from the cold in the evening, and from damps and fogs at all times; and the cow must be treated with meshes and warm water, for two or three days, the same as in winter, but wil not require so many of them.

If the calf be intended for the butcher, it may be taken from the cow after about a week or ten days, and fed the remainder of the time by hand as hereafter directed; but this time of taking the calf away must be determined by the state of the cow's udder; for unless that be free from kernels and indurations, the calf must be allowed to suck, as the jolting of its head is the means of healing or restoring the udder, and preventing the downfall, or inflammation in this part, which might cause much trouble, and even endanger the life of the cow.

But if the calf is intended to be reared, it should not be weaned until at least six weeks or even two months old, whether male or female. For such, there is no food like the cow's milk; and if she does not yield a sufficient quantity, that of another ought to be had recourse to. It is an incontrovertable fact, that the longer a calf sucks, not only the larger and stronger will it become, but it will also acquire a much better form, and more robust health.

Calves which come early should be preferred for rearing. Those which come late, do not acquire sufficient strength to bear the cold of winter; they languish, and are reared with difficulty. Calves should not be weaned too suddenly, but by little and little. The less they are able to eat, the more they should be

allowed to suck; or after awhile they may be brought to take it from the pail. This is done by placing the hand in the milk, while the fingers are raised above the surface of the milk, for the calf to lay hold of with its mouth, which it does very readily, and sucks up the milk with great ease.

When they are completely taken away, they should be fed with a little bran, and some of the best soft fragrant hay of the second crop; they should be allowed plenty of the skimmed milk, and now and then a little water, in which barley has been boiled and broken up, or a little buttermilk, occasionally. There is at first some difficulty in bringing them to drink, but a little perseverance will accustom them to it.

Moderate warmth and *dry lodging* are of the utmost consequence to young calves; and if we would turn them to any good account, they must not be stinted either in these or in their food. Some persons feed calves that have been weaned, only twice or thrice a day: this is not enough: give less at a time, but more frequently; and take care that they have enough. In summer, skimmed milk, thickened with oat or wheat-meal; and in winter, carrots, or Swedish turnips, sliced, will make them excellent food, adding at all times a little good sweet hay.

As soon as they are fit to follow the mother, let them out; nothing does them more good than exercise, and there is nothing, perhaps, more injurious than keeping them too long in a stable.

Calves that acquire a habit of sucking themselves, may be prevented by separating them. This is the only effectual method. They sometimes also contract a habit of licking themselves, and swallowing the hair which forms balls in their stomach; and being indigestible, are the cause of many serious diseases. Of

these habits they must be broken; or they will, in spite of the best care and keep, lose flesh, become covered with lice, and subject to worms, as well as to a disease similar to farcy.

Calves cannot be kept too clean or have fresh litter too often; for besides the evils already mentioned, if they are suffered to lie on their own dung and urine, they will become mangy, and scarcely ever thrive. They are subject to several disorders, as the diarrhœa, or dysentary, costiveness, hoose, &c., but these we shall describe in their proper place. As a means, however, of preventing the greater number of these diseases, we would advise the adoption of a few simple, but useful rules.

1st.—Let the young calf suck the first milk. This will cleanse its bowels, and prevent costiveness.

2nd.—Let it suck from the mother at least two months before it is weaned, and then wean it gradually.

3rd.—Let its first food be such as is easy of digestion, and let it have plenty of sweet skimmed milk and good hay.

4th.—Keep it very clean, well rubbing it occasionally with a whisp of hay or straw.

5th.—Keep its stable clean, and perfectly free from all impurities.

6th.—Let it have gentle exercise; the best will be in following the mother in the meadow or pasture.

7th.—Do not stint it, either in good food or good drink, and change its litter often enough to keep it clean, sweet, and dry.

DISEASES

TO WHICH CALVES ARE SUBJECT.

It is an observation founded on experience, that calves born in the open air, suffer much less from weakness or illness, than those that are kept, from the moment of their birth, in closely confined barns, or sheds. Those brought up by hand, are also much more delicate than those which are allowed to suck and follow their mothers. Calves and lambs require exercise and fresh air; and where they are not restrained, nature directs them to take a great deal; and it is surprising to see how long a calf will run about, and with what vigour it plays and frisks, if left at liberty. Free, unconstrained, and plenteous exercise, out of doors, evidently makes them thrive, and, indeed, seems essential to their very existence.

Where the cow is much weakened in calving, or long in giving milk, or if the weather be cold, it will be necessary to warm a little before the fire in a pan until it is about blood warm, and then to give it in this state to the calf, a little at a time; about a pint and a half, four times in every twenty-four hours. If cold milk be given to a calf, it occasions a trembling; and the cords, or some other malady, inevitably succeed.

Calves are subject to several disorders during the time of sucking, when weaning, or while they are fattening for the butcher. These disorders, or rather symptoms, have obtained different names, as cords, diarrhœa, costiveness, &c., but they are really evidence of one disorder only—indigestion.

I. CORDS.

Cause.—Calves sometimes are of a sickly or weak constitution, *and require care as to the quantity of milk they take at each time;* for if they exceed a proper quantity, their stomachs become disordered; and the acid formed on the stomach for the purpose of effecting a change in the milk necessary to digestion and the formation of chyle, is increased in quantity, and altered in quality. In consequence of this, the milk, instead of being changed very gradually, is coagulated, and large indigestible curds are formed from it. This produces almost all the early disorders of calves.

Symptoms.—Extreme weakness, disrelish of food, sometimes accompanied with griping pains. When the disorder has arrived at a certain height, the muscles are affected with spasms, and drawn into *cords*, as it is termed; that is, they contract with violence, and feel hard and knotted in several parts. These curds frequently remain in the stomach a considerable time, and are sometimes so compressed, as to be absolutely formed into cheese, perfectly solid, and smelling like new cheese, a little sourish. Hence arises the obstinate costiveness. Flatulency now takes place, the calf becomes blown up, and affected with flatulent colic. This, if not checked, resolves into confirmed diarrhœa, and terminates in inflammation, from which death generally ensues.

Cure.—First attack the morbid acidity in the stomach. This is to be done by the following medicine;

RECIPE No. 8.

Unslacked lime, a piece the size of a pigeon's egg;
Water sufficient to slake it;
Boiling water, one pint;
Subcarbonate of potash, (salt of tartar,) two ounces.

Put the lime into a jug with a cover, pour cold water on it; when slaked add the boiling water, stir it up, and cover it up close.

Into an eight ounce (or half pint) bottle, put the subcarbonate of potash, and fill it up with the lime-water, having first shaken the jug so that it may be a little thick. Keep the bottle well corked, and mark it "*Solution of Potash.*"

This is the best thing that can be given for correcting the acidity of the stomach. Let it be administered in the following manner:

RECIPE No. 9.

Solution of potash (as above)	two teaspoonsful;
Epsom salts,	two ounces;
Thin gruel, or warm water,	half a pint.

Dissolve the salts in the gruel, or water; add the solution of potash, and give it daily, until the curd is carried from the stomach, and the acidity destroyed.

If the disorder be accompanied with griping pains, give with it *one* of the following cordials:

RECIPE No. 10.

Tincture of opium,	a tea-spoonful;
Brandy,	a table-spoonful.

Or,

Anodyne carminative tincture, a table-spoonful.

This will very soon relieve the griping pains, with-

out preventing the laxative from operating. When the calf is relieved, feed it carefully for a few days; and if its bowels be loose, gruel made of arrow-root, or fine wheaten flour, should be given with a little of the solution of potash, or powdered chalk, in each feed. This should be left off gradually.

Remarks.—Calves brought up by hand, even if not of delicate, weak constitutions, are liable to all these affections, merely from being improperly fed, that is, from having too much milk at a time, from that milk not being sufficiently fresh, or being in a bad state from a disordered stomach of the cow, she being fed on bad hay or stale grains. An intimate connexion exists between the udder and the cow's stomach, and the milk is very liable to become altered in quality as well as quantity, by feeding her upon bad hay: we cannot, therefore, wonder at this. There is an acid formed in the stomach of the cow, and of all animals, when that organ is weakened in a certain degree, which by irritating the fourth stomach, will disorder one or more of the quarters of the udder, and spoil the milk in that quarter. To cure these disorders is one thing, and requires much trouble; to prevent them, another, of less trouble, but of infinitely more importance. The prevention, then, is simply good, wholesome food, and pure water. In Scotland, particularly, where there is but little grass, and plenty of bad hay, this disease has at times been very prevalent, and proved very destructive.

II.—DIARRHŒA, OR DYSENTERY.

This disease attacks young calves from the age of two to six weeks old; it makes them thin, and some-

times settles into a dysentery, which often terminates fatally.

Cause.—Change of diet, particularly when stinted in good food; some careful housewives being so thrifty as not to allow them a sufficiency of proper subsistence, which nature requires at so early an age.

Symptoms.—Great weakness; loathing of food; with continual purging; every thing taken into the stomach acidifies, or becomes sour, and coagulates therein. In the last stage of the disease, the stools become fetid and bloody; a large portion of the defensive mucus of the intestines is mixed with them; if unchecked, a gangrene or mortification ensues, and terminates in the death of the animal.

Remedy.—Give, in a little gruel, the following:

RECIPE No. 11.

Tincture of rhubarb,	one tablespoonful;
Laudanum,	one teaspoonful.

Or,

RECIPE No. 12.

Dover's powders,	two scruples;
Compound cinnamon powder,	three scruples;
Prepared chalk,	two drams.

Mix for one drink, and give it morning and evening as long as the purging continues.

If there be a continual motion to dung, add to this a teaspoonful of laudanum; or,

RECIPE No. 13.

New-laid eggs, with their shells,	two;
Milk,	one pint.

Mix, and give it new-milk-warm, two or three times a day, until the scouring ceases.

If these means fail, an ounce of diascordium electuary should be given every morning; and if, notwithstanding all that you have done, the excrement becomes bloody and fetid, give one of the following, every morning, for a few days:—

RECIPE No. 14.

Diascordium electuary,	one ounce;
Good red wine,	a wine-glass full.

Or,

RECIPE No. 15.

Diascordium electuary,	one ounce;
Elder-flower water,	a wine-glassful;
Crude sal-ammoniac,	half a dram.

Dissolve the sal-ammoniac in the elder-flower water, and then add the electuary: mix, and give.

If feverish symptoms accompany or appear in this complaint, or if the calf lie down, kick at its belly, and appear in pain, take away half a pint of blood, or more, if the age of the calf will allow it, and give the following purgative, with a teaspoonful of laudanum therein.

RECIPE No. 16.

Glauber salts,	three ounces;
Powdered ginger,	half an ounce;
Aniseeds, fresh powdered,	half an ounce;
Treacle,	two tablespoonsful.

Put the whole into a pitcher, and pour upon it a pint of boiling water; cover it down, and give it when new-milk warm. This is sufficient for a calf about six weeks old.

Remarks.—The time of change of diet with calves is a critical and trying period: care should, therefore, be taken to change it very little for the first fortnight; and in every subsequent change to inure it by degrees: or a dysentery may be expected, which if not timely checked, will inevitably prove fatal.

III.—COSTIVENESS, OR OBSTRUCTION IN THE BOWELS.

Calves are liable to this complaint from the first moment of their birth; and also at every subsequent stage; in every one of which its life is in danger, unless timely relief be given.

Cause.—Not allowing the calf to suck the first milk from the mother; or the mother being fed upon too dry meat, will induce this complaint in the first few weeks of the calf's existence; but in a more advanced age, it may result from improper feeding, exposure to damp, change of diet, or labouring under some latent internal disease.

Symptoms.—In very young calves, not being able to dung, or even sometimes to void urine; they cease to suck, stamp, with their hind feet, become short-breathed, and generally die in a short time. In older calves, nearly the same symptoms occur; which, if not timely checked, resolve into inflammation, the complaint becomes more serious, and terminates fatally.

Remedy.—If the calf be very young, draw the dung out of the fundament with the finger, the finger being first oiled, and introduced carefully, and the hard excrement taken out gradually: when this has been done, one or two clysters should be thrown up, composed of infusion of mallows or camomile,* and a little sweet oil. If this be not effectual, the previous purgative drink, No. 16, may be given at twice, half the quantity prescribed at each time, morning and evening. Of course, if the calf be six weeks old, it may be given as there directed, at once; but if it be eight weeks old, then the following should be given:

RECIPE No. 17.

Glauber salts,		four ounces;
Rhubarb, powdered,		two drams;
Ginger, carraway, and aniseed	of each	one-third of an ounce;
Treacle,		three tablespoonsful.

Put the whole into a pitcher, pour a pint of boiling water upon the ingredients, and give when new-milk warm.

If the case be inflammatory, then the following may be substituted:—

RECIPE NO. 18.

Castor oil,	four ounces;
Rhubarb, powdered,	two drams;
Prepared kali,	one dram;
Ginger, fresh powdered,	a quarter of an ounce;
Aniseeds, fresh powdered,	a quarter of an ounce;
Treacle,	two tablespoonsful.

Mix, and give it in a pint of warm gruel.

* Infusion of camomile, or of other herbs, is made in the same way as you make tea, merely by pouring boiling water on

In a more advanced age, the salts or the castor oil should be increased; the other ingredients may remain he same.

After purging give the following cordial drink, which will not only invigorate the system, but produce a healthful tendency in the blood.

RECIPE No. 19.

Aniseeds, fresh powdered	one ounce;
Carraway-seeds, ditto.	one ounce;
Coriander-seeds, ditto.	half an ounce;
Ginger, ditto.	half an ounce;
Grains of paradise, ditto.	half an ounce;
Treacle,	two table-spoonsful;
Fresh butter,	a lump the size of a walnut.

Put the ingredients into a pitcher, and pour upon them a pint of boiling ale. Cover all down till new-milk warm, and then give it.

This will be found an excellent drink to remove indisposition and flatulency in the stomach; it also strengthens the stomach, and by promoting the digestive process—the best method of preserving health in young animals—restores the appetite, and secures health.

IV.—HOOSE, or COUGH.

Cause.—Exposure to cold, moist atmosphere, or an insufficiency of wholesome food. It generally attacks

the herb, and suffering it to stand awhile, covered closely, to extract the principal strength of the herb. If the quantity be more than the tea-pot will contain, a clean jug will answer the same purpose, the top being covered over with a doubled cloth. When the infusion cools to about new-milk warmth, it may be poured off for use.

young calves during the first year; is not very difficult to cure, if attended to early; but if neglected at this period, almost invariably terminates fatally.

Symptoms.—A continual ticklish sensation in the throat, caused by very small worms being engendered in the branches of the windpipe, and clustering together in a thick, whitish fluid, cause the young animal to be in an almost constant state of hoosing or coughing; by which the digestive powers become so much impaired, as to render the chewing of the cud impracticable; if this disorder be not subdued by proper medicines, the animal languishes and pines away, as if in a consumption.

Remedy.—The following ball and drink will, if early administered, generally remove this complaint.

RECIPE No. 20.

Calomel,	eight to twelve grains;
Gentian, in powder,	two drams;
Syrup enough to make it into a ball.	

Give it in the morning, fasting, and let the calf be kept from food for two hours: half a pint of gruel should be administered at the time of giving the ball, to wash it down.

If the hoosing continue, repeat the ball in about four or five days. After each ball, give the following purgative drink:

RECIPE No. 21.

Epsom salts,	four ounces;
Ginger, in powder	two drams.

Pour a pint of boiling water upon these, and give it when new, milk-warm.

The following is also an excellent drench, which may be poured into the calf's nostrils.

RECIPE No. 22.

Oil of turpentine,	a table-spoonful;
Sweet oil,	a tea-spoonful;
Warm water,	a quarter of a pint.

V.—CANKER IN THE MOUTH.

Cause.—Heat of the body, induced probably by costiveness; and, like most other disorders to which calves are subject, it arises from improper food, or that which is not easy of digestion.

Symptoms.—The mouth is so affected, that the young calf cannot eat properly. The inside of the cheeks and gums are tender, red, and ulcerated, and the teeth loose. It is sometimes accompanied with fever, and then internal remedies must be applied.

Remedy.—The following mixture is generally a cure for this complaint:

RECIPE No. 23.

Burnt alum,	half an ounce;
Rock alum,	half an ounce;
Common salt,	half an ounce;
Armenian bole, in powder,	half an ounce;
Honey,	two ounces.

Pour a pint and a half of hot vinegar upon these ingredients in a covered jar: close it down, and when cold, put it into a bottle for use.

The mouth must be well washed, two or three times

a day, with this mixture, in the following manner:—round one end of a cane or stick, two feet long, fold a small lump of linen, or fine tow: secure it well with strong thread: then shake the bottle well: pour some of the mixture into a pot; dip the end of the cane or stick into the gargle mixture, and apply it all over the mouth.

If feverish symptoms appear, administer the purgative drink, No. 16, page 126; and, after that has operated, give the cordial drink, No. 19, page 129; and repeat if necessary.

VI.—INFLAMMATORY DISORDERS.

Cause.—Though indigestion, from improper feeding, is the cause of most of the disorders of calves, yet sometimes they thrive too quickly, or form so much blood, as to be attacked with inflammatory complaints. This is not often the case during the time they are fed on milk, but frequently when about one year old.

Symptoms.—Heaviness, hanging of the head and ears, watery eyes, cough, loss of appetite, and quick and difficult breathing, or rather wheezing.

Remedy.—Bleed freely, even to fainting, and afterwards give the following saline drought:

RECIPE No. 24.

Epsom salts,	six ounces;
Water,	one quart.

Mix, and give it either at once or twice, according to the age or constitution of the calf.

This may be repeated, if necessary; and if the costiveness be not removed, give the following clyster:

RECIPE No. 25.

Table salt,	four ounces;
Warm water,	two quarts.

Observations.—When calves are about a year old, great care must be taken to prevent these inflammatory diseases, by keeping them on the barer pastures. This is more effectual than all the medicinal preventives. Thousands of calves have been destroyed by forcing them, as it is termed; that is, by keeping them too well. Moderation in food is particularly essential. Writers on cattle medicine generally recommend drenching and bleeding, when young stock are turned into good pasture: this is very good advice; but we will give better—*keep them out of it;* for certainly prevention is much better than cure. Neat cattle at all ages, are, from going too suddenly into good pastures, very susceptible of inflammation; and calves in particular suffer from too hasty a change. They require good feeding, but that feeding must be of the *nutritious*, rather than of the *succulent*, kind.

We have thus been very explicit in the treatment and disorders of calves, because we consider that, by care and attention in their early days, a good constitution may be secured, and the greater part of the disorders which affect their more mature years, altogether prevented. Before we close this part of our subject, however, we have one more remark to make on the treatment of the cow after calving:—

Some cows, from an abundance of milk, are liable to a swelling of the udder after calving. It is neces-

sary, in such cases, to draw off the milk several times a day, if the calf does not suck a sufficient quantity, and wash the udder with warm water, or with a decoction of marsh-mallows. These means are generally sufficient; and there is no danger of their causing inflammation and abscess—diseases which require considerable time and trouble to cure, and which are oftentimes brought on by the application of butter, lard, or some rancid ointment; which are too generally the applications made use of on this occasion.

OF THE

INTERNAL STRUCTURE OF THE COW,

AND THE ECONOMY OF

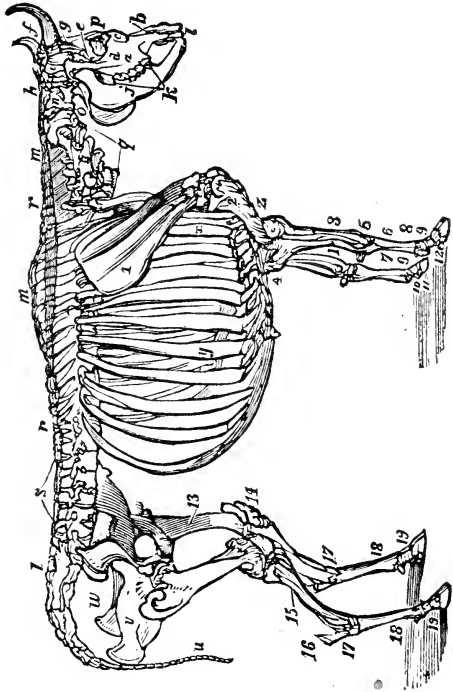
THE DIGESTIVE SYSTEM

In the brief outline we are about to give of the internal structure of neat cattle, we shall not enter into an anatomical dissertation; but merely describe so much of the digestive system as will enable the reader to comprehend the ruminating process; by which means he will not only be the better qualified to prevent many complaints to which neat cattle are subject from improper treatment, but he will also be the better enabled to understand the symptoms of the complaints with which they may be attacked, and to adopt, with greater probabilities of success, the prescribed methods of cure.

Neat cattle belong to the ruminating tribe of animals; that is, they masticate or chew their food a second time, and then in a more perfect manner; thereby obtaining from it every possible particle of nourishment. For this purpose they are furnished with four distinct stomachs, into which their food passes in the several stages of digestion. These will be more fully explained.

When neat cattle first swallow their food, it passes down their throats in very coarse and large mouthfuls; when they have taken enough in this state, they lie

SKELETON OF AN OX.



DESCRIPTION

OF THE

SKELETON OF AN OX.

a The upper jaw-bone.
b The nasal bone, or bone of the nose.
c The lachrymal bone
d The malar, or cheek-bone.
e The frontal bone, or bone of the forehead.
f The horns, being processes or continuations of the frontal.
g The temporal bone.
h The parietal bone low in the temporal fossa.
i The occipital bone, deeply depressed below the crest or ridge of the head.
j The lower jaw.
k The grinders.
l The nippers, found on the lower jaw alone.
m The ligament of the neck, and its attachments.
n The atlas.
o The dentata.
p The orbit of the eye.
q The vertebræ, or bones of the neck.
r The bones of the back.
s The bones of the loins.
t The sacrum.
u The bones of the tail.
v & w The haunch and pelvis.
x The eight true ribs.
y The false ribs with their cartilages.
z The sternum.
1 The scapula, or shoulder-blade.
2 The humerus, or lower bone of the shoulder.
3 The radius, or principal bone of the arm.
4 The ulna, its upper part forming the elbow.
5 The small bones of the knee.
6 The large metacarpal or shank bone.
7 The smaller splint-bone.
8 The sesamoid bones.
9 The bifurcation at the pasterns, and the two larger pasterns to each foot.
10 The two smaller pasterns to each foot.
11 The two coffin-bones to each foot.
12 The navicular bones.
13 The thigh-bone.
14 The patella, or bone of the knee.
15 The tibia, or proper leg-bone.
16 The point of the hock.
17, 17 The small bones of the hock.
18, 18 The metatarsals, or larger bones of the hind leg.
19, 19 The pasterns and feet.

down to ruminate, or, as it is termed, to chew the cud at their ease. To render this process easily to be understood, we shall briefly describe the four several stomachs.

The first stomach, called the *rumen*, or paunch, is a very large receptacle for the food, where it is retained until the animal ruminates. There is a place in the paunch contiguous to where it joins the second stomach, which seems to act as a valve, and prevent the escape of air during the maceration of food in it. It is to this stomach that the food passes on being first swallowed by the cow.

The second stomach, called *the honey-comb*, or bonnet, is much smaller than the paunch, and in its internal structure resembles that of the honey-comb; from whence it takes its name, It is situated rather to the right side of the gullet, near to the midriff, or skirt, and on the upper and fore part of the paunch. The honey-comb is internally covered with a sort of net-work, which seems to act as a grate or strainer to keep back any hard or foreign bodies that may have been swallowed; pins, nails, and bits of wood and stick, having been found therein, entangled in the grate-like entrapment. This stomach seems designed as a receptacle for the more fluid parts of the food, as well as to moisten and press on the ruminated morsel in its progress to the third stomach.

The third stomach, termed *manyplies*, or *manifolds*, is situated on the upper and right side of the paunch, and is generally found filled with food. It then approaches in shape to the globular form; but after a fast of twenty-four hours, or more, bears more resemblance to that of a kidney. This part of the system may be considered as a strong muscular bag, supplied internally with numerous leaves, from whence it de-

rives its name, and between which the food passes to undergo a further preparation.

The fourth and last stomach, called the *maw*, resembles the pouch of a bagpipe in form, with its right and smaller extremity connected with the intestine. It is in this *maw* that the digestive process is completed—the former three being only preparatory. This stomach is very capacious, being thrown into large plaits or folds, from whence a peculiar fluid, called the *gastric juice*, is secreted, which mingling with the ruminated food, converts it into a substance which then takes the name of *chyme;* this *chyme* is conveyed into the smaller intestines, and in its passage yields the nutritive principle necessary for the sustenance of the animal. The fourth stomach derives, from the gastric juice, the property of curdling milk; the maw of calves, when dried, is called rennet.

The *digestive process* is that change which the food undergoes in the four stomachs and intestines, and by which a fluid is separated from it for the nourishment and growth of the body.

Grass, hay, or any other kind of food that the animal eats, passes directly, without much chewing, into the paunch, where it is retained until a sufficient quantity be collected. The food, while in the paunch, mixes with a fluid secreted in this receptacle, in which it is macerated, and thereby undergoes a peculiar change, which destroys its texture, and converts it into a pulpy mass.

When the animal lies down to ruminate, or chew the cud, as it is termed, the paunch contracts, and by that action propels some of its contents into the honeycomb, and from thence a portion of it is transmitted, by a voluntary act of the beast, through the gullet into the mouth, to be more intimately mixed with

the saliva, and more perfectly masticated by the grinders.

The beast having chewed the cud, swallows it, and it now passes into the maniples, to be reduced to a still finer pulp, and incorporated with the fluid secreted in that stomach. The alimentary mass is gradually pressed from the manyplies into the true digesting stomach, the maw, in which it undergoes a change that is absolutely necessary to the separation of the nutritious part from it. The food, after being detained some time in the maw for this purpose, is expelled into the intestines, and in them the digestive process is completed.

In the intestines it becomes intimately mixed with the bile and other secretions, which produce a further decomposition in it, the result of which is the separation of the nutritious from the excrementitious part, which action is going on throughout the long track of the intestinal gut, or canal.

The nutritious fluid extracted from the food, is of a white, or milk-like colour, and is termed *chyle*. This chyle is taken up by myriads of minute vessels, and conveyed at length to the left jugular vein, and there it mixes with the mass of blood to supply that waste which the body is continually sustaining from the necessary actions of life; while the excrementitious part is propelled along the intestinal canal, and at last expelled the body.

THE UDDER.

The connexion subsisting between the fourth stomach and the udder of the cow, is so intimately blended, that the one cannot be affected without the other being materially influenced: hence we may see the necessity there is of feeding cattle properly, and in

ıttending to their health, if we would avail ourselves of the profit to be derived from their produce.

If we examine the udder of a milch cow, we shall find it composed of cells of different sizes, becoming larger as they approach the teats. In a cow that has had several calves, we find two large veins proceeding from the udder, and passing up under the belly. These are remarkably large, when the udder is full of milk, and are commonly called *the milk veins* by dairymen. In consequence of the fourth stomach being so intimately connected with the udder, it partakes of its sympathies, and is affected by whatever disarranges that part of the system; so that if the fourth stomach be disordered, the milk in one or more of the quarters will be spoiled.

The udder consists of four quarters, or divisions, each having an excretory duct, or teat, at the extremity of which there is a contrivance for confining the milk, but in a limited degree; for if the milk be suffered to accumulate in the udder by neglecting to milk at the proper time, it will at length force its way, but imperfectly, through the teat, and be seen passing off in drops or in a small stream. This voluntary act of nature, is, however, a source of pain and injury to the cow; and should be prevented by timely assistance.

OF

THE DISORDERS

TO WHICH

NEAT CATTLE ARE SUBJECT;

WITH THE

CAUSES, SYMPTOMS, AND METHODS OF CURE.

OBSERVATIONS.

As soon as a calf is weaned, it should either be permitted to run in the best pasture, or confined in the barn, and fed by hand, and be carefully fended and kept warm, and live upon the best fodder through the first winter. Afterwards it will become so hardy it will require less care. But cattle should be frequently looked to and examined; that so if they be overtaken with any sickness, hurt, or lameness, suitable remedies may be seasonably applied. And in order to do this, they should be accustomed to come home, and be shut up in the yard every night. By this method, a farmer will save a much larger quantity of dung. And in case of an uncommonly cold storm, the cattle may be housed with very little trouble, as the yard is contiguous to their house.

Cattle, from one year old to three, will usually get a living in summer, and even thrive, upon the com-

mons, or in the meanest, and most bushy pastures. And in winter the poorest fodder will keep them alive. And as our farmers know these things, they are very apt to treat their young cattle in this manner. Those which are so treated, may oftentimes become as hardy cattle as any; but they will be small, and therefore not so profitable. Farmers in general are too ambitious to keep a large stock of cattle. A necessary consequence of which is, that they are pinched in their food, and never come to their full growth. Another ill consequence is, their growing unruly and mischievous through hunger, learning to leap over fences, or break through them.

It would certainly be more conducive to the interest of farmers, to keep smaller stocks of cattle than they do; for then they would be able to feed them to the full. Their oxen would be much larger and stronger than they are, and their cows would give plenty of milk, and bring large calves; not to say how much they would save in taxes, by reducing their number of rateable cattle.

Farmers should allow their young stock the best of pasture. This would keep them out of mischief, prevent their learning bad tricks, and prevent many ill accidents which befal them. And it would be no small advantage always to know where to find them. But, in the common method of treating them, it is too common a case for them to straggle so far from home, that the owner entirely loses them; or else spends as much time as they are worth, in seeking after them.

If a young stock were well fed at all seasons, the heifers would commonly have calves at two years old, which is no small advantage, and steers would be fit for labour earlier in proportion. And when they come to be killed off, the quantity of beef would make

amends for their being so fed as to be well grown. If the farmer's view in increasing his stock, be to make as much dung as possible, he should be reminded of what he ought to know already, that the dung of a small stock would be equal to that of a large one, if it consume the same quantity of fodder. If a farmer make this objection to pasturing his young flock, that his farm is not large enough to admit of it; he may find an answer by turning to the article, *Mowing Ground*, where diminishing their number of acres, and increasing that of pasture ground, is recommended, and sufficient reasons assigned.

In the winter cattle should be housed, to defend them from the inclemencies of the weather. For though nature furnishes them with a thicker covering of hair in the winter than in the summer, the difference is not near so great as that of the weather in this climate. Working oxen and milch cows will suffer more than the rest by lying abroad. If the farmer cannot conveniently house all his cattle, those should be left out which are between the age of one and three years. And those that lie out should have a shed, open only to the south and west, to shelter themselves under in stormy weather.

The injuries which cattle receive from each other, when they are lodged together in a yard, is an additional reason for tying them up in the barn. To which it may be added, that a great part of the fodder that is given them is wasted, even when it is given them in racks; much more when it is thrown upon the ground. They trample it into the dung with their feet, which is no inconsiderable loss.

Cattle will bear to be cold much better than to be wet. If they be left out in a cold storm of rain, it pinches them exceedingly; so that they will not look

so well again for several days after it. The sides of the house where they are lodged, need not be very tight. It might be apt to make them too tender. It will certainly abate the freshness of the air they breathe in, and hurt the agreeable flavor of their fodder. But the covering of their house should be perfectly tight. No window should be open, through which snow or rain may drive in upon them. The floor they lie on should have a gentle descent backward, that they may be wetted as little as possible by their stale; and they should always have straw or litter under them, not only to soften their lodging, but to lay them the more warm and dry, and absorb the wetness. The better they are littered, the more manure will the owner make for his farm. This is an object of high importance.

It would be a good method for cattle that are tied up, to fodder them in racks. They would not be so apt to rob one another; nor to get their fodder under their feet; nor to render it unpalateable by their breathing upon it.

Where salt hay can be had, cattle should now and then be treated with a little of it. It will so increase their appetite, that they will eat poor meadow hay and straw with it, or after it. But farmers who are far from the sea, and not furnished with salt hay, should now and then sprinkle some of their meanest fodder with salt dissolved in water, which will answer the same valuable purpose. And at no season of the year should cattle be kept for any long time, without salt. They are greedy after, and it conduces to keep them in health.

As to summer feeding, it is not fit that a whole stock go promiscuously in the same pasture. Some would be overmuch fed, and some not enough. A

farmer's pasture grounds should be made into a number of separate enclosures; the greater number the better. Milch kine and cattle fattening for slaughter should have the first of the feed in each inclosure; then working oxen; afterwards young stock, horses and sheep. When each kind have had their turn, for two or three days or perhaps a week, the apartment may be shut up, till it be sufficiently grown for the milch cows. By such a rotation much may be saved; but little of the grass will be wasted by trampling; and what one sort leaves another will eat; so that none of the grass will be lost.

Oxen should not live to be more than eight years old, nor cows more than ten or eleven. When they are kept longer, they do not fatten so easily; and the beef is not so good. Cattle to be fattened should have the best of pasture during the whole grass season, or they will not be fat so early as December; and they should lose a little blood, when they are first turned to grass. In autumn, when grass grows short, or is corrupted by frosts, their fattening should be promoted by feeding them morning and evening with the stalks of Indian corn, pumpions, potatoes, or carrots; and especially with ears of corn, if the owner can afford it. Indian meal is supposed to be still better to complete their fattening. Oil cakes from linseed mills are much recommended in English books, as conducing to the speedy fattening of cattle.

Cattle are apt to be *hoven* or *swollen* in consequence of having eaten too much green succulent food. The common remedy for this disorder has been to stab the infected animal with a pen knife or other sharp instrument, under the short ribs, and put into the orifice a tube of ivory, elder, a quill, or something of the kind, to give vent to the confined air. The wound is

then dressed with some sort of adhesive plaster, and thus, in general the cure is easily effected. This, however, is a rough and dangerous remedy, and we therefore give place to others more safe and gentle.

The 23d volume of the Annals of Agriculture announces the following recipe for hoven cattle, which it assures us will effect a cure for hoven cattle, in the most desperate cases in half an hour. Take three quarters of a pint of olive oil; one pint of melted butter, or hog's lard; give this mixture by means of a horn or bottle, and if it does not produce a favourable change in a quarter of an hour, repeat the same quantity, and walk the animal gently about. For sheep, attacked with this malady the dose is from a wine-glass and a half to two glasses.

Besides these remedies, flexible tubes, and canes, with knobs at their ends, have been used to force a passage from the mouth to the stomach, to let the confined air escape upwards from the trunk of the animal affected. Descriptions of these instruments may be seen in the second American edition of the Domestic Encyclopædia, volume I. pp. 409, 410. The following simple remedy we have been assured is effectual. Make about a pint of lye either with hot embers thrown into a sufficient quantity of water, or by dissolving therein about an ounce of pot or pearl ash, and turn it down the throat of the ox or cow affected. A proportionably less quantity will answer for a sheep. This is said to give immediate relief by neutralizing the carbonic acid gas in the stomach of the creature, which causes the swelling, and other symptoms of the complaint to subside.

When oxen are long and hardly driven, in muddy roads, particularly where the soil is calcareous, they are liable to soreness between the claws. This will

make the beast lame, and when discovered, the part should be cleansed, and healed with some proper ointment. Sometimes from inattention to this, the part becomes horny; in this case the hard parts must be cut away, and the wounded flesh cured.

A general indication of health in neat cattle is a moist or wet nose, and when this is found dry it is a certain symptom of diseases of some kind or other.

Symptoms.—When an animal is at all lame, its foot should be carefully felt. The first indication is usually an uncommon degree of warmth, and a soft and puffed feel of the parts immediately connected with the slit between the hoof, either before or behind the foot and generally just above it. If in the hind foot, and not easily handled, a fullness may generally be perceived, by standing behind the animal and carefully comparing the appearance of the two feet, between the dew claws and the hoofs (for it very rarely commences its attack in more than *one* foot.) In the fore foot it generally swells forward; and in taking up the foot, the slit between the hoofs will have an appearance of dryness, easily distinguishable to a person used to cattle; and the animal frequently licks the front part of the foot. Instances often occur of sudden and extreme lameness, without any appearance of heat or swelling in the foot; and these are often the worst cases; but one symptom rarely fails to accompany the disease, which is extreme restlessness and appearance of anguish, attended with loss of appetite and flesh; but without in the least affecting the brightness of the eye, and, perhaps, sometimes, unnaturally increasing it; but the eye has a peculiar cast. As a general rule it is safest to attribute all lameness of the foot, which cannot be traced to a sufficient cause, to the hoof ail.

Lameness of the foot can generally be distinguished from that of the leg, hip or shoulder, by making the animal step over a stick or rail, and carefully watching its motions.

Remedies.—The foot should be carefully washed and cleansed, and thoroughly examined, to be sure that the lameness does not arise from a nail casually run into the foot, or a prick in shoeing, or from a wound from a stump or other substance between the hoofs (a case frequently occuring.) If no appearance occurs of any break in the skin, while the foot is still wet, apply, as nearly as may be, to the centre of the slit, between the hoofs from one to three grains of corrosive sublimate (reduced to a fine powder) the dose to be proportioned to the size of the animal and the violence of the attack. Care must be used that the powder is put completely in this slit, for it is very strong poison, and the animal, as soon as at liberty, will begin to lick the foot, if a sore one. The moisture left by the washing, makes the powder adhere: and the effect is produced in a very short time. Some prefer mixing the powder with hog's lard, which answers; but it is thought less powerful: it has one advantage, however, as being less dangerous to keep in a house (for no one takes salve inwardly.) Where corrosive sublimate cannot be obtained, any other violent stimulent may be applied. Common salt is often effectual in very slight attacks; but it is of the greatest importance to lose no time. The application is to be repeated every twenty-four hours, till a cure is effected, or till the foot shews unequivocal signs of a gathering which will break.

INFLAMMATORY FEVER, OR GENERAL INFLAMMATION; CALLED ALSO QUARTER EVIL, BLACK QUARTER, OR SPUD.

This disease frequently happens to young cattle, generally between the first and third year, most commonly about the second year of their age. It appears to be occasioned by feeding them too hastily; by putting them, when in a lean state, into rich succulent pasture.

The animal when seized with this complaint, becomes suddenly listless and stupid; he hangs down his head, refuses his food, and appears to move with difficulty. Swellings soon appear in different parts of the body, which, when pressed by the finger, make a crackling noise. Sometimes the joints are particularly affected; at others, the swelling appears on the back, shoulder or belly.

The disease attacks rather suddenly, and often proves fatal, particularly when proper remedies are not speedily employed. Bleeding is the first remedy, and must be proportioned to the age and strength of the animal; perhaps from three to four quarts will generally be found sufficient. The blood should always be measured. The following purgative should then be given.

Aloes,	3 drams;
Potash,	2 drams;
Sulphat of Soda (Glauber Salts)	6 ounces;
Warm Water,	1 pint.

Mix for a dose.

This dose will generally be found sufficient for an animal of two year's old. Should the disease occur

in situations, where these medicines cannot be procured, give from four to six ounces of common salt in a pint of water; the addition of four ounces of castor oil, sweet oil, or even linseed oil; will make it more efficacious. Should the animal be relieved, by this treatment, considerable weakness may follow: for which give the following twice a day:

Powdered Caraway seeds,	1 ounce;
Ginger,	2 drams.

To be given in a pint of oat-meal gruel (or any other gruel) or ale.

The swollen parts, particularly if the joints are affected, should be rubbed with the following liniament:

Take of linseed oil,	4 ounces;
Oil of turpentine,	2 ounces;
Liquid ammonia, or spirits of sal ammoniac.	1 ounce.

Mix.

Mr. Lawrence has very properly advised that a piece of short or inferior keep should be reserved as a digesting place, where cattle may occasionally be turned, to empty and exercise themselves. This is better than bleeding, or any medical preventive; and as this disease frequently proves fatal, preventive measures should never be lost sight of.

MURRAIN OR PEST.

These terms correspond with that of plague in the human species, (and the diseases are said to have a similar origin, to wit, in putrid miasmata,) and like the plague is attended with boils or buboes. The

plague of horned cattle is said to be of a peculiar nature, and not communicable to other animals. Yet in a contagious disposition of the air, it may chance that various species of animals may be affected at the same time. The infection is first denoted by a decrease of appetite, difficulty of swallowing, shaking the head, hanging down of the ears, and dulness of the eyes. Constant diarrhœa, or scouring, fœtid breath, nauseous steams from the skin, infecting the surrounding air. The blood is florid, hot, and frothy, and the urine high coloured. Roof of the mouth ulcerated. Tumours or biles are felt under the fleshy membrane of the skin; eruptions all along the limbs, and about the bags of the cows. Milk dries up suddenly. The animals groan much, and are worse towards evening, mostly lying down. These symptoms continue increasing until the seventh day, in which, generally, although sometimes protracted to the ninth, the crisis or turn takes place.

Dr. Darwin proposes, when this distemper makes its appearance, to slaughter all the cattle within five miles of the infected place, which appears to be a very harsh mode of proceeding; and although "death's a cure that never fails," such a remedy is commonly thought to be as bad as the disease. Mr. Lawrence advises, on the appearance of the distemper, to place the whole herd under the best shelter that circumstances will allow; to separate those which are in the most advanced stage of the disease, and slaughter such as good judges shall deem to be in a state too dangerous for any attempt to cure, and bury them pretty deep in the ground. In a disease so highly putrid, bleeding should be moderate, yet in the beginning, he thinks it will be necessary, as also setons and rowels. "If costiveness prevail, the body must be kept open

by clysters, or the most moderate purges, but a scowering is the most usual symptom. The sick-house must be sufficiently airy, yet well defended from wet and cold. Acid fumigations will purify the atmosphere of the house, and probably the fumes being inhaled by the beasts will have a favorable effect."

The *emphysema*, windy abscess, or puffing up of the hide, filled with a thin putrid matter, and foul air, which nature furnishes in the last stage, as a means of throwing off the disease, must be opened at full length, wherever situated, and the matter discharged. The cavity to be filled with pledgets of tow, dipped in tincture of myrrh, or of an ointment composed of powdered turpentine and yolk of eggs. Poultices of oatmeal, stale beer, &c., may be necessary to bring the ulcers to a proper digestion. Nitre has, of late, been successfully used in gangrenous ulcers, the cavities being filled with it. The approach of mortification is indicated by the dark and flabby appearance of the inside of the mouth, coldness, insensibility, blackness and an ill scent of the dung, sanious and foul discharge from the mouth and nose, and dullness of the eyes. On the return of health, mild, cleansing purges will be necessary, but the danger of mortification must be fairly passed. The recovered beast must not be suddenly exposed to the air, but only turned out a few hours in the middle of the day, particularly throughout winter. Sudden exposure has subjected many convalescents to a vertigo of giddiness, and consumption.

M. Sauvages, the celebrated professor of medicine at Montpelier, was an accurate observer of this disorder, when it raged with great violence in many parts of Europe. He calculated that of twenty who were attacked by it nineteen died; that no certain remedy

had been discovered, or any effectual mode of preventive, except separating the healthy from the sick; he recommends, however, bleeding and purging at the commencement of the disorder, with setons in the dewlap. After the operation of the purgative, he considers opiates, aromatics, &c., such as caraway seeds, ginger, cascarilla, &c., as the most proper medicine.

A writer in the Gentleman's Magazine, quoted with approbation, by Dr. W. Peck, a late learned and judicious writer on veterinary medicine gives the following directions to prevent and cure the disease.

First. Avoid infection with the utmost diligence. *Secondly.* Trust to none of the celebrated remedies that may be proposed to you, unless founded on experience; most that have been offered by farriers are known to be ineffectual, and many of them extremely injurious. *Thirdly.* If your cattle are attacked, bleed plentifully, repeatedly, and keep their bodies open. *Fourthly.* Give them no dry food from the commencement of the attack till the fever abates; let their mashes be thin, given warm, and very often, a little at once; keep them dry and warm. *Fifthly.* Give no warm spicy drenches, at the commencement of the disease.

CATARRH, OR COLD; EPIDEMICAL COLD; DISTEMPER.

Colds are very common, particularly in wet or cold weather; and though they are often thought of too little importance to require particular attention, yet, by neglecting them, and suffering the animal to continue exposed to the weather, the most serious consequences may ensue. From such neglect we often find that the

animal decays in flesh and strength, becomes hide bound, and has a rough staring coat; at length tubercles form in the lungs, the mesenteric glands become enlarged, obstructing the passage by which nutriment is conveyed to the blood: this is succeeded by atrophy, consumption and death. It is highly important, therefore, to attend to this disorder as soon as it is discovered; and it is asserted that more good may be done by nursing, placing the animal in a warm situation, giving him warm nourishing fluids, such as gruel, infusion of malt, &c., than from any medical prescriptions.

Colds are, at some seasons, so prevalent, as to be considered epidemic and infectious. On such occasions they generally occur with great violence, and are accompanied by fever, and soon after the attack, by considerable debility.

On the first attack, the animal appears dull and languid; the eyes are watery, and sometimes partially closed; the appetite is diminished; and most commonly, it is attended with cough. Swellings under or below the ears, difficulty in swallowing, and a discharge from the nostrils are not unusual symptoms of the complaint. When catarrh prevails to this degree, it is generally named *influenza* or *distemper*, and has been thought contagious, but this opinion has not been proved to be true.

With respect to the treatment of this disease Dr. White observes that the hot stimulating drenches commonly recommended, are decidedly improper. Bleeding at the commencement of colds is generally proper; the only circumstance which indicates its impropriety, is considerable weakness and low condition. The quantity of blood taken should seldom exceed two quarts. If the animal is costive, give a laxative drink;

but if he purges or scours, give the following powder in gruel:

Powdered ginger,	3 drams;
Antimonial powder,	2 drams;
Camphor,	1½ dram;
Tincture of opium,	½ ounce.

To be repeated after eight or ten hours, should it be necessary. If there is any difficulty in swallowing, and particularly if it be considerable, the following liniament should be rubbed about the throat:

Take of oil of turpentine and any common oil, of each,	1 ounce;
Liquid ammonia, commonly called spirits of sal ammoniac,	½ ounce;

Mix.

In common colds, however, says Dr. White, "I am inclined to believe that if the animal were placed in a comfortable situation, and well attended to, medicine would be unnecessary. Even bleeding, in common slight colds, is seldom required; but should the animal, by a change of situation, become hot and feverish, should the eyes look red and the flanks move quickly, he should be bled freely; and if in any degree costive, the laxative (hereafter mentioned) should be given. When there are no feverish symptoms present the laxative should be mixed with some cordial medicine, such as an ounce of caraway seeds, and three or four drachms of ginger.

When the influenza, or distemper, has not been attended to, or has been improperly treated, at an early period, the animal becomes extremely weak, and every means must he employed to recruit his strength. On

such occasions a tonic, such as the first mentioned prescription, may be given twice or three times a day, which in conjunction with a warm nourishing diet, and careful attendance, may ultimately effect a recovery.

If the animal should become costive, a mild laxative will be proper; about half a dose will be sufficient. If grass can be conveniently procured, when the animal is kept under cover a moderate quantity will be useful. In favorable weather, the field is the best place; but a shelter and warm situation should be chosen.

LAXATIVE.

Sulphate of soda (glauber's salts)	1 pound,
Gruel,	1 quart;
Powdered caraway seeds,	1 ounce.

Mix for one dose.

Whenever the disease appears to be epidemic, preventive means should be adopted, which is more particularly necessary when rain and cold winds prevail. Catarrh or cold is often an insidious complaint, and, if neglected, may produce very serious consequences.

Whenever caraway or any of the aromatic seeds are employed, they should not be purchased in powder, as they do not keep well in this form.

Mr. Lawrence observes that "the influenza or epidemic cold arises from frequent changes of the air, and the prevalence of north-east and easterly winds. As a great number, whether of men or animals, may be seized with this species of catarrh, at the same time and for the same cause, it has been supposed contagious, which indeed, may probably be the case in its inveterate and putrid state. This disorder is most prevalent in the spring, which succeeds a mild winter,

when particular care should be taken that cattle are not exposed to currents of air from the north-east. I have known a whole fold-yard of oxen, horses and cows, dangerously affected in one night."

Mr. Lawrence advises "if the animal shivers with cold, and has cold breath, give a quart of warm ale, (beer or warm water would answer probably as well,) in which is infused a table-spoonful of grated ginger, two of spirits of hartshorn, and one of laudanum, repeating it in six hours, if the chilly symptoms continue, allowing warm water and a deep bed of straw. If feverish heat comes on, give nitre in warm water: when fever becomes predominant, bleed two quarts, unless the animal be a milch cow, which never ought to be bled but in extreme necessity, and one ounce of cream of tartar, in three pints of warm gruel, sweetened with honey or treacle, (molasses.) On recovery of the beast, accustom it to the air by degrees, and notwithstanding having been nursed in the house, it will again become equally hardy as before."

PERIPNEUMONY, PLEURISY, OR INFLAMMATION OF THE LUNGS.

This disease most commonly occurs to working cattle from over exertion, or from being suffered to drink largely of cold water, immediately after working hard, and when in a state of perspiration. Its symptoms are shivering, loss of appetite, an appearance of anxiety or depression, an increased motion of the flanks, or quickness of breathing, cough, opening the mouth, a discharge from the mouth and nose of a glutinous nature, the inside of the nose red, eyes dull, pulse hard, mouth harsh and dry, skin stiff, cold extremities, body full as if swelled with herbage,

holds its head low and moves with difficulty, costive, on lifting the upper eyelid its under surface will be found unusually red, sometimes approaching to orange. If the disease happens to a milch cow, she soon looses her milk, and the ears, legs, and horns are generally cold.

Dr. White says, "early bleeding is the grand specific in this complaint; but it must not be done sparingly. A cow or ox in tolerable condition, may lose from four to six quarts with advantage; and, if the symptoms do not abate in four or six hours, the operation should be repeated, to the extent of three or four quarts, unless the animal faint; whenever this occurs, on any occasion, the bleeding of course must be stopped. Faintness, however, when the disease is really inflammation of the lungs, is by no means an unfavorable effect of bleeding; it is proof that the operation has been carried to its full extent, and a recovery is most likely to happen. A large seton should be put in the dewlap, and moistened with oil of turpentine; and the sides should be well rubbed with the following embrocation:

Take of flower of mustard,	4 ounces;
Oil of turpentine,	2 ounces;
Water of ammonia,	2 ounces.

The whole to be mixed with as much water as will bring it to the consistence of cream.

Immediately after bleeding, give the following drink:

Take of camphor,	2 drams;
Nitre,	1½ ounces;
Powdered caraway seeds,	1 ounce.

To be given in a pint of gruel.

"Should the animal be costive, a clyster should be

administered, consisting of about three or four quarts of warm water, and half a pound of common salt. A pint of castor oil, also, may be added to the above drink; if this cannot be procured, sweet oil, linseed oil or even melted lard may be substituted.

"It is a bad plan to take only a small quantity of blood daily, or every other day as has been advised; for though it may sometimes retard the progress of inflammation, yet the animal will eventually be destroyed by it. Stimulating or heating medicines are highly pernicious.

"Inflammation of the lungs is a term, that has unfortunately been too often applied to diseases of a different kind; and it is from this error perhaps, that strong stimulating medicines have been recommended on such occasions. There is an affection of the lungs and parts connected with them, which will not admit of the copious bleeding I have recommended; but the symptoms are widely different. There is not that difficulty and quickness in breathing; the pulse is weak but not much quicker than usual; the kernels or glands about the throat are often swollen; sometimes there is considerable difficulty of swallowing, which is particularly seen when the animal attempts to drink; in short this is nothing more than a severe degree of catarrh or cold; but, even in this complaint, moderate bleeding is necessary, and powerful stimulants are exceedingly pernicious. When the disease, however, has not been discovered for some days, and the animal appears much weakened by it, bleeding is of course improper."

INFLAMMATION OF THE STOMACH.

"The complicated structure of this organ, in ru-

minating animals, renders it peculiarly liable to disease ; inflammation, however, does not appear to occur frequently as a primary disorder, but is more commonly a consequence of some offensive matter lodged in one of the four stomachs, or from the animal's feeding so greedily, as to weaken the organ, and prevent its performing its functions. In either of these cases, the principal object is to get rid of the offensive matter, by invigorating the weakened stomach, and enabling it to expel the matter by which it is oppressed. Should inflammation attack the stomach, independently of this cause, that is, without any hurtful matter having been swallowed, or any improper accumulation of food, the principal remedies would be plentiful bleeding and abstinence from food.—*White's treatise on veterinary medicine.*

Dr. Peck says that the symptoms of this disorder are violent pain in the stomach ; large blisters rise sometimes on the inside of the mouth ; the animal is very restless, and appears to have the pain increased by every thing that is swallowed, which frequently brings a cough ; the body feels clammy with sweat ; difficulty of breathing. He attributes the cause to overloading the stomach ; cold water ; acid matter, or poisonous substances ; not sufficient water in dry summers. The treatment recommended by this author is to bleed freely every day, if necessary ; keep the body open with castor oil, &c., afterwards give febrifuges (such as glauber's salt, nitre, salt of tartar, spirits of nitrous ether) as in other cases of inflammation. When the animal is recovering, give it food sparingly, a little warm, such as scalding malt with warm water, &c.

INFLAMMATION OF THE BOWELS.

The principal symptom of this disease is a griping pain, which causes the animal to lie down frequently, and rise with difficulty. He frequently turns his head towards his belly, and endeavours to strike it with his hind foot; the body is full; the eyes dull; the pulse strong and quick. The quickness of the pulse forms a distinction between this complaint and the gripes, in which latter disorder, the pulse is sometimes hard, but seldom quickened. When the pain is violent, a copious perspiration takes place. When proper remedies are not employed, the disease terminates in mortification and death. In the treatment of this complaint, the circumstances of the case must be carefully attended to. If the pulse is much quicker than natural, the under surface of the eyelid unusually red, and the breathing disturbed, let a large quantity of blood immediately be taken away, even five or six quarts; and then, unless the bowels are unusually open, give the following drink:

Sulphate of magnesia (epsom salts,)	8 ounces;
Castor oil,	1 pint;
Gruel,	1 pint.

Dissolve the salts in the gruel, and add to them the oil, for one dose.

The operation of this drink should be assisted by clysters. When all the above symptoms, however, are not observable; if the under surface of the eyelid is not redder than usual, or if it is rather pale; if the pulse is nearly in its natural state; and particularly if the animal is rather loose, or scours, the bleeding should be moderate; and if the animal be rather weak and in

low condition, it had better be omitted. The following anodyne drink is to be given :

Tincture of opium,	½ ounce;
Spirit of nitrous ether,	2 ounces;
Water,	1 pint.

Mix for one dose.

When the animal has been kept sometime on dry food, and is apparently costive, relief can only be obtained by some laxative drink, like that first above mentioned, and clysters. Bleeding, however, must not be omitted, particularly if the pulse is quickened, the under surface of the eyelid redder than natural, and the breathing disturbed. If the laxative prove ineffectual in removing costiveness, it should be repeated.

INFLAMMATION OF THE LIVER.

"The structure of this organ in horned cattle and sheep, is different from that of the horse; the latter has no gall bladder, but in the former there is one of considerable size. It is on this account, perhaps, that cattle are more subject to diseases of the liver than the horse. I do not believe that inflammation of the liver often occurs in so acute a form as to require bleeding largely; it is more commonly of a cronic or slow kind, causing a defective action in the organ, in consequence of which an unhealthy kind of bile is formed, which plugs up the ducts of the liver, and causes a derangement in the organs connected with it."—*White's Treatise.*

The symptoms of this disorder, according to Dr. Peck, are difficult breathing; swelling about the short

ribs; pulse hard, full and frequent, thirst; yellowness of the eyes; costiveness, &c. Fat beasts are most subject to this complaint in hot weather, by being over heated in driving, or running about the pasture; by being exposed to severe cold, when hot. The treatment recommended by Dr. Peck, is to bleed according to the symptoms; give cathartics, (purges) clysters, febrifuges, &c.; Diet, mashes made of scalded bran and malt; blister the sides of the belly, and rowe underneath.

INFLAMMATION OF THE KIDNEYS.

The following are the symptoms of this disorder: quick pulse, loss of appetite, the animal is frequently endeavoring to stale, and voids only a small quantity with much difficulty and pain; pressure on the loins gives pain, and causes the animal to shrink or give way to it; there is generally, considerable stiffness in the hind parts, observable when the animal attempts to walk: the urine is commonly of a dark red color. This disease is, however, very different, from that named red water, (to be treated of hereafter,) and unless properly treated at its commencement, often terminates fatally. Dr. Peck says, the symptoms that are of a favorable nature, are, urine high, or a coffee color, discharged in large quantities; afterwards copious, thick, and mixed with mucus. The unfavorable are, sudden cessation of pain; urine dribbling away in small quantities, of a black and fœtid colour and smell. The disorder is caused by violent blows across the loins, small stones or gravel being lodged within the kidneys; violent motion or hard driving in hot and sultry weather.

Let the animal be bled freely and take a pint of

castor oil. If the dung is at all hard, or deficient in quantity, let clysters or warm water, with a little sweet oil, be employed. The liniment or embrocation, directed for inflammation of the lungs, (see page 158,) should be rubbed on the loins; after which, let them be well clothed, or covered with a fresh sheep or lamb's skin.

When the pain and difficulty, or rather the almost constant straining to stale continues, after the castor oil has operated, and the bowels have been sufficiently opened, an anodyne clyster may be administered, consisting of about one ounce and an half of tincture of opium, in one quart of gruel; or, from one drachm to two of crude opium, dissolved in warm water, and mixed with gruel.

If the animal is very thirsty, he should be restrained from drinking; and what he takes should be impregnated with some mucilaginous substance; an infusion of linseed, or decoction of marsh mallows is very proper.

INFLAMMATION OF THE BRAIN.

This disease is a kind of madness, attended with ravings and constant watchings; slow respiration: a strong pulsation in the temporal arteries, and sometimes irregular; running at the nose; the animal appears in a very fierce state, as if seized with a turbulent kind of madness; the eyes appear much inflamed and ready to start from the orbits; the beast falls down of a sudden, and rises again with the same volatility, until nature is quite exhausted; a constant trembling and starting of the tendons; a dry and harsh skin; a suppression of the urine; grinding of the

teeth and a total want of rest; these last are unfavorable symptoms.

The cause of this disorder is found in too great an efflux of blood pressing on the temporal arteries; from which an increased action takes place; wounds or contusions on the head; suppressions of the natural evacuations.

The cure should be sought by bleeding freely, according to the violence of the symptoms and the strength of the animal, in the jugular vein; keep the bowels open with castor oil, and other purging medicines. Blister the side of the neck with flies and spirits of turpentine.

From what has been said of the treatment of diseases, caused by inflammation of the internal organs of the body, it will be seen that they are all of a dangerous nature, and require the earliest attention; that they are generally the consequence of improper management or neglect, and may therefore, most commonly be prevented; and that the most essential remedy is *early* and copious bleeding, with laxative medicine.

FOG SICKNESS, HOVEN OR BLOWN.

"We come now to treat of a class of diseases still more important, with respect to horned cattle, than the foregoing; that is, obstruction, or imperfect action, in the organs subservient to digestion. Under this head will be brought *Fog Sickness, Hoven, or Blown; Gripes, or Flatulent Colic; Indigestion, loss of the Cud; and Jaundice, or Yellows.* These diseases, however, will be better understood, if we give in the first place, a short description of the cow's stomach. All animals, which ruminate, have more than one stomach: in the cow there are four; the first is consider-

ably larger than the rest, lies on the left side, and is commonly called the paunch. The food, having been sufficiently macerated in this stomach, is forced up gradually into the mouth, where it undergoes a complete mastication, which is termed chewing the cud. The food is then again swallowed, and conveyed to the second stomach, for the gullet opens indifferently into both. It ends exactly where the two stomachs meet; and there is a smooth gutter, with rising edges, which leads into the second stomach, and thence to the third and fourth: the animal however, has power to direct it into which it will. The second stomach is named bonnet, or king's hood. Its internal surface consists of cells, resembling a honey-comb; where the food undergoes a farther maceration, and is then conveyed to the third stomach, called manyplies; because its internal surface rises up into many folds. Some of those folds are longer than others, and on their surface small glands may be seen, something like millet seed. From this it passes into the fourth or red stomach, commonly called the caul. This much resembles the human stomach, or that of the dog; only the inner folds are longer and looser.

Here the food is perfectly digested, and prepared for the nourishment of the animal. When cows or sheep are turned into a fresh pasture, of a different kind from that they have been accustomed to, they sometimes eat so greedily, that the stomach is incapable of contracting, or forcing back its contents into the mouth. When this happens, the food undergoes a kind of fermentation, in consequence of which a great deal of air is generated, and the paunch so excessively extended, that, if the animal is not relieved, it will either burst or destroy him by suffocation. An instrument has been invented by Mr. Eager, for giving vent to the

confined air, which is very simple and appears to have answered the purpose completely. It consists of a cane six feet in length, with a round knob of wood, perfectly secured at one end. An assistant is to lay hold of the cow's horn with one hand, and the part which divides the nostrils with the other. The operator is to take the tongue in his left hand, and with his right he is to force the instrument down the gullet. As soon as it enters the paunch a great deal of air will rush out. The instrument may remain in the stomach, without injuring the animal, until the air is perfectly evacuated.

"It sometimes happens that the distention of the paunch takes place so suddenly, and in so dangerous a degree, that no time is allowed for using the instrument; in this case a sharp pointed pen-knife may be plunged into the paunch through the skin, by which the confined air will immediately escape.

There is no difficulty or danger in the operation; nor is any other instrument required than a sharp pointed pen-knife. Should the opening be plugged up with the contents of the paunch, they may be removed, or the orifice kept open with a probe or feather. When all the air has escaped, let the wound be closed with any kind of sticking plaister, or pitch. This opening is to be made on the left side, between the haunch bone and the last rib."—*White's Treatise.*

Clayter, an English writer on Farriery, directs this last mentioned operation to be performed in the following manner.

"Take a sharp pen-knife and gently introduce it into the paunch between the haunch bone and the last rib on the left side. This will instantly give vent to a large quantity of fœtid air; a small tube of a suffi-

cient length may then be introduced into the wound,* and remain there until the air is sufficiently evacuated; afterwards take out the tube, and lay a pitch plaister over the orifice. Wounds of this kind are seldom attended with danger; when it has arisen, it has been occasioned by the injudicious operator introducing his knife into the wrong part. After the wind is expelled, and the body has been reduced to its natural state, let a cordial drench be given.

Dr. Monro, Professor of anatomy at Edinburgh, invented an instrument, which was intended to answer the same purpose with the invention of Mr. Eager, above mentioned. It consists of an iron wire about one sixteenth of an inch in diameter, twisted round a rod three eights of an inch in diameter, and made of polished iron, in order to give it a cylindrical form; the wire, after being taken off the rod, should be covered with smooth leather.

To the end of the tube, which is intended to be passed into the stomach, a brass pipe two inches long, of the same size, or rather bigger than the tube, is to be firmly connected; and to prevent the tube from bending too much within the mouth or gullet, an iron wire, one eighth of an inch in diameter, and of the same length as the tube, is put within, but afterwards withdrawn, when the tube has entered the stomach, as Dr. Monro has ascertained that the distance from the fore teeth to the bottom of the first stomach of a large ox, is about six feet, the tube ought to be at least two yards long, that it may operate effectually in the largest oxen. When the instrument has been introduced into the stomach, it may remain there for any length of time, as it does not obstruct the respiration of the

* This may be of elder, sumach, or a turkey, or goose quill.

animal: the greater part of the condensed air will be speedily discharged through the tube: and should any ardent spirits, or other liquor calculated to check the fermentation, be deemed necessary, it may be safely injected through this pipe. In short the flexible tube here described, has been found of infinite service in saving the lives of cattle and especially of sheep, when subject to similar disorders, or any other swelling peculiar to those creatures. (See Domestic Encyclopedia, Art. Cattle.)

The 33d vol. of Mr. Young's *Annals of Agriculture*, announces the following recipes as a specific for this disease, even in the most desperate cases; effecting a cure within the short space of half an hour. Take three quarters of a pint of olive oil, and one pint of melted butter or hog's lard; give this mixture by means of a horn or bottle; and if it does not produce a favorable change in a quarter of an hour, repeat the same quantity and walk the animal gently about. For sheep attacked with this malady, the dose is from a wine glass and a half, to two glasses.

The following simple remedy we have been told is effectual, but cannot say to what extent it may be relied on. Make about a pint of lie, either with hot embers thrown into a sufficient quantity of water, or by dissolving therein about an ounce of pot or pearl ash, and turn it down the throat of the ox or cow affected. A proportionably less quantity is said to answer for a sheep. This medicine, we are informed, operates by neutralizing and absorbing the carbonic acid gas in the stomach of the creature, which causes the swelling and other symptoms to subside. We wish this remedy might be tried, and its results made public. We suspect, however, that in extreme cases, it will be necessary either to make an incision, or

make use of Dr. Munro's flexible tube, or Mr. Eager's cane with a knob of wood at its end. Where the danger, however, does not appear to be imminent, there is little doubt but that either the oil and lard, or the lie, as mentioned above, would prove effectual.

When the animal has obtained relief by the means mentioned above, one of the following drinks, is by Dr. White recommended to be given.

No. 1.

Powdered ginger,	½ ounce;
Spirit of nitrous ether,	2 ounces;
Oil of peppermint,	30 drops;
Warm water,	1 pint.

Mix for one dose.

No. 2.

Powdered caraway,	1 ounce;
Ginger,	1 dram;
Warm ale, or warm water,	1 pint.

Mix.

No. 3.

Powdered gentian,	1 ounce;
Oascarilla bark,	2 drams;
Warm ale, or water,	1 pint.

Mix.

An infusion of camomile flowers and ginger is also a good stomachic in such cases.

When cattle have suffered a severe attack of this disease, the stomach is generally weakened by it; great care therefore, is necessary, in order to prevent a return. For several days after, they should be fed rather sparingly, or not be allowed to eat much at one

time; and every morning and evening for three or four days, may take one of the above drenches.

Sheep are liable to a similar disease, and may be relieved by the same remedies. The instrument, however, employed for sheep, need not be more than three feet in length: it should also be smaller and more flexible. It has been said that a common cart whip, may on emergencies, be made to answer the purpose, if used with dexterity.

Any one, unaccustomed to handle cattle, would find some difficulty in using Mr. Eager's instrument; but if the horn be held firmly with the left hand, and the part which divides the nostrils be grasped firmly with the right hand, the animal will generally submit quietly to the operator.

GRIPES, OR FLATULENT COLIC.

This disease, in horned cattle, is generally the effect of costiveness, or a retention of food in the third stomach.

Sometimes, however, it happens, when the bowels are in a lax, or natural state. Cows that are fed upon grains are very liable to this complaint; such, also, as are kept upon dry food are often attacked by it. When colic takes place, independent of costiveness, it is generally occasioned by feeding greedily upon fresh succulent grass, or by drinking cold water when heated by exercise, and comes on rather suddenly; but when it is caused by costiveness, the attack is generally more gradual.

The symptoms are at first, an appearance of restlessness in the animal, often lying down, groaning, or striking against the belly with the hind feet or horns. The body is often swollen, which is most observable

on the left side. The pulse is generally in its natural state. If proper remedies are not administered, the pain becomes more violent, and at length inflammation takes place, which is indicated by the pulse becoming very quick, and the ears, horns and feet cold; when this happens the disorder most commonly terminates in death. When the colic appears to arise from costiveness, purging medicines are of course the essential remedy; but they should be combined with aromatics, or stimulants, as in the following prescription; and if the animal is in good condition, or the inner surface of the eyelid is unusually red, it should be bled freely; but if the complaint is attended with looseness, or the bowels are in their natural lax state, particularly if the animal appears rather weak, and the inner surface of the eyelid pale, the following carminative drink should be given, and no blood taken away. When the purging drink is found necessary its operation may be promoted by clysters. It may not be unnecessary to observe that when the colic is caused by feeding greedily on grains, or any other kind of food, the cow must be fed cautiously for several days after, and take the stomachic drink, hereafter mentioned, once or twice a day, in order to restore the tone or energy of the stomach. On the other hand, should the disease have been occasioned by costiveness, or feeding upon dry food, the state of the bowels must be attended to after the animal has been relieved by the operation of the purgative drink: as the tendency to costiveness will probably continue, unless it be removed by a change of food. When this cannot be done, some salt should be mixed with the food if the animal will eat it; if not he should be drenched with three or four ounces of salt dissolved in water daily; this will serve to open his bowels in a slight degree, and increase his ap-

petite for water, with which he should be freely supplied.

PURGING DRINK.

Barbadoes aloes,	½ ounce;
Carbonate of potash, or common potash,	3 drams;
Powdered ginger,	½ ounce;
Water,	1 pint;
Oil of turpentine,	1 ounce;
Linseed oil,	8 ounces.

Mix for one dose.

When the above medicine cannot be procured in time, the following may be substituted for it.

Common salt,	½ pound;
Sweet oil, linseed oil, or any kind of oil which is not very rancid, or even melted hog's lard,	½ pound;
Flower of mustard,	1 ounce;
Water,	1 quart.

To this a glass of spirit may be added.

STOMACHIC DRINK.

Powdered ginger.	½ ounce;
Powdered gentian,	1 ounce;
Carbonate of ammonia, (volatile salts,)	2 drams;
Infusion of camomile flowers,	1 pint.

Mix for one dose.

CARMINATIVE DRINK.

Oil of turpentine,	1 ounce;
Tincture of opium,	6 drams,
Spirit of nitrous ether,	2 ounces;
Water,	1 pint.

Mix for one dose.

White's Treatise.

INDIGESTION OR LOSS OF THE CUD.

Mr. Lawrence says that in this disease, "the beast mourns, and has no appetite, or drops its food without attempting to swallow it. Probably from defective irritability in the fibres, or contracting muscles of the *rumen* or cud-bag, the animal is unable to throw up or ruminate, of course the bag remains loaded and obstructed. The intention is to remove the obstruction and re-invigorate the animal fibres, Let the animal fast some time, then give a warm bran, or pollard marsh, with good hay and warm water with salt. This treatment alone may succeed with patience, even should the maw be obstructed by acorns or crab-apples. An aloes tincture made with brandy and ginger or capsicum (red pepper) might be of use in this case. After conquering the obstruction, bitter infusions made of camomile, hardhound, oak bark, &c., in beer, may be required, as restoratives, although perhaps good dry nourishing feed will have an equally good effect.

It is remarked by Mr. White that "the earlier stages of this complaint are not marked by very striking symptoms. The animal has a dull, or languid appearance; and generally, a rough unhealthy coat and tight skin. The appetite is diminished, and at length he ceases to chew the cud. The eyes and mouth have generally a yellow appearance.

"To cure this disease, it should be attacked at an early period; for when the liver has become affected in a considerable degree, it terminates fatally. Should there be any appearance of costiveness, the following warm laxative is first to be given; more commonly, however, the bowels are in a loose state, and the dung

has an unhealthy appearance; in this case, let the tonic drench be given morning and evening, and let the animal be kept in a warm sheltered situation. It may be necessary to repeat, that this, like most other internal diseases of cattle, may generally be removed by timely attention; but in attempting a cure after they have existed some time, a great deal of unnecessary expense is often incurred.

WARM LAXATIVE.

Barbadoes aloes,	½ ounce;
Castile soap,	6 drams;
Ginger,	3 drams;
Cascarilla bark,	2 drams;
Warm water,	1 pint.

Mix.

After the operation of the laxative, the tonic drench may be given, should it be found necessary.

TONIC DRENCH.

Cascarilla bark and ginger of each,	2 drams;
Soda,	2 drams;

To be given in a pint of ale, beer, or warm water.

JAUNDICE OR YELLOWS.

This disease may be known, principally, by yellowness of the eyes and mouth; a dull or languid appearance; and debility; a loss of appetite too is a common symptom. It may be distinguished from the former disease by the costiveness, which uniformly attends it, and by the animal appearing to be in more pain. At the commencement of the disorder a cure

may generally be accomplished, by giving the warm laxative, directed for the foregoing complaint, and repeating it after an interval of five or six days, giving, in the intermediate time, the following drink, every morning and evening.

Castile soap,	½ ounce;
Venice turpentine,	⅓ ounce;
Ginger,	3 drams;
Powdered gentian root,	1 ounce.

Rub the soap and turpentine together, in a mortar, until they are incorporated; then add, gradually, a pint of water, and afterward the ginger and gentian.

In the more advanced stage of this disorder, the liver is generally so injured as to render a cure impossible. —*White's Treatise.*

Mr. Lawrence observes that "this disease in cattle originates in hepatic, or liver obstruction from cold; however, always from obstruction, which is most effectually opened by mild mercurial purges, notwithstanding the beast may appear weak and hide bound. The yellow tinge in the eyes and mouth, and upon the urine, sufficiently indicate the disease. Take the patient to the house, the earlier the better, and if he remain weak after two or three days, give steel beer, milk warm, a pint twice a day for a week, and good keep. One gallon good beer, three or four ounces iron filings, infuse in a stone bottle corked up three or four days; shake daily. Hard labour during great heats was said by the old writers to produce the Gall or Overflow of the Gall, which often terminates in the yellows,"

DIARRHŒA, LOOSENESS, SLIMY FLUX, OR SCOURING ROT.

This disorder consists in a frequent discharge of dung, of an unusual colour, thin and slimy. The animal gradually looses flesh, but continues for some time to feed well and ruminate. At length the excrements become of a darker color, and frothy, and in the latter stages have the appearance of half-chewed food, the digestive power being entirely lost. It is said that when animals have been long affected with this disease, they feel a great degree of pain and distress when grasped on each side of the backbone, just below the shoulders; and this is sometimes considered, by dealers in cattle, as a mark of a beast's being tainted with the scouring rot.

The fatal symptoms are the dew-lap hanging down and having a flabby appearance; the dung running off, with a putrid and offensive smell, and as it falls to the ground, rising up in bubbles; the hair all over the body appearing pin-feathered, or erect, as if the animal was enduring a severe cold.

The causes of this complaint are exposure to cold and rain, particularly when the animal has been over driven or heated by working immediately before such exposure. Drinking plentifully of water, under similar circumstances, will also produce this disease. Want of nourishment, particularly in cows that are constantly milked, often causes this disease. Perspiration suppressed by any cause; putrescency of the aliments may also bring on this complaint. It often attacks cattle which have been kept short during the winter, and when they are out to grass in the spring,

they are seized with a diarrhœa, particularly if the weather is wet or cold, and grass plentiful.

Mr. Lawrence says, "if, on the first appearance of the scouring, cattle are taken in, and kept on dry food, it will generally supersede the use of medicine." "This," says Mr. White, is certainly necessary; but is not, I believe, sufficient to eradicate the disease; and though it may suppress it for a time, yet the scouring generally returns, when the animal is again sent into the pasture. The *immediate* cause of the disorder appears most frequently to be an unhealthy action of the liver, which seems to form bile of an acrid or hurtful quality, by which the bowels are constantly irritated. I would advise, therefore, in the early stages of the complaint, to give the following drink for three successive mornings, which will rather increase the scouring at first; and, when the effect of the medicine has ceased, let the astringent drink be given every morning and evening."

FIRST DRINK FOR SCOURING.

Epsom salts,	1 pound;
Nitre,	2 ounces;
Camphor,	½ ounce;
Coriander seed,	2 ounces.

Mix for one dose.

This dose should be repeated for three mornings following, unless it cause sickness or griping, or increase the scouring in a considerable degree. On the fourth morning, begin with the astringent drink, or earlier, should the above medicine produce its effect before the three doses have been taken. During the time the cow is taking the former medicine, she should be sup-

plied with warm fluids, of which thin gruel is the best, and must not be exposed to a cold air.

ASTRINGENT DRINK.

Take of starch,	4 ounces;
Mix in the usual way, that is, as it is employed for stiffening clothes, with three pints or two quarts of water, so as to make a thick mucilaginous fluid; to this add,	
Tincture of opium,	2 drams;
Ginger,	3 drams;
Catechu, or terra topponica,	½ ounce.

Mix.

Or the first drink for scouring may be:

Common salt,	8 ounces;
Flour of mustard,	2 ounces;
Water,	1½ ounces;
Oil, or melted lard,	½ pound.

Mix.

This will increase the discharge for a short time; afterwards, the dung will gradually become of a more natural consistence. But should the scouring continue, give the astringent drink already prescribed, or the following:

Powdered catechu,	6 drams;
Tincture of opium,	½ ounce;
Powdered ginger,	2 or 3 drams;
Warm ale, beer or water,	1½ pint.

Mix.

The powder or tincture of galls, would also be found a powerful astringent.

With respect to the scouring, or diarrhœa in calves, which is not an unfrequent complaint, a different treatment is to be pursued. They may generally be cured by the following drink, given morning and evening:

Take of the above starch mixture,	1 pint;
Powdered chalk, or what is called prepared chalk,	3 drams;
Powdered ginger,	1 dram;
Tincture of opium,	1 dram.

Mix.

Lambs are subject to a similar disease, and may be cured by the same means, only lessening the dose.

In the diarrhœa, which arises from exhausting a cow by constant milking, when she is not sufficiently fed, or is supplied with food of a bad quality, the remedy is sufficiently obvious. But, in this case, it too often happens, that the constitution is worn out, before it is thought necessary to alter the poor animal's condition. Whenever this change is made it must not be done too hastily, as other diseases might thereby be produced.

When the scouring has ceased, the cow should be brought back to her usual state gradually. At first she should be turned out for a few hours in some dry pasture, when the weather is favourable; and her drink should be given less warm. This precaution is highly necessary, as the affected parts do not immediately recover their strength after the scouring has ceased.

The Complete Grazier directs that the beast taken with this disease should be immediately housed and put to dry food, which treatment, in the earlier stages of the disorder, will, generally, effect a cure. Should this, however, fail, it is advised, in that work, to boil a pound of mutton suet in three quarts of milk, till the

former is dissolved, and give it to the beast in a lukewarm state; or, in obstinate cases, to boil half a pound of powdered chalk in two quarts of water, till it is reduced to three pints; add four ounces of hartshorn shavings and of cassia, and stir the whole together. When cold add a pint of lime water and two drachms of the tincture of opium; keep the whole in a corked bottle, and, after shaking it before using, give one or two hornsful, two or three times a day, as the nature of the case may require.

RED WATER OR BLOODY URINE.

In this disorder the urine appears as if it were mixed with blood. As the disease advances, the urine becomes of a darker color, and at length resembles foul coffee; the animal loses strength rapidly, and sinks under the disorder. Cattle attacked by this disease seldom live beyond the tenth or twelfth day, unless it is put a stop to by proper remedies. It is generally attended with costiveness; and if this is not the case at first, it almost always happens in the course of the disorder, unless prevented by laxative medicine. It is caused by weak relaxed vessels; thin blood; cold; change from a poor to a rich pasture; scarcity of water in a long and dry summer; blows across the loins; some animals appear to have the disease hereditary.

Dr. White recommends, in the first place the following mild laxative:

Epsom salts (sulphate of magnesia) or common salt,	4 to 6 ounces;
Nitre,	1 ounce;
Whey or thin gruel,	1 pint;
Oil, or melted lard (but castor oil is preferable)	6 to 8 ounces;

Mix.

After the laxative, should the disease continue, the following drink may be given:

Alum,	1 ounce;
Dissolve it in a pint of hot water, and add—	
Oil of turpentine,	2 ounces;
Powdered catechu, or terra japonica,	1 ounce;

Mix.

When red or bloody water is caused by strains or a bruise in the loins, it is distinguishable by the tenderness of the part, the animal giving way when it is pressed upon, and by stiffness in the motion of the hind parts. In this case, also, a laxative may be given; and, if the injury is considerable, the loins should be fomented with hot vinegar, and afterwards covered with a fresh sheep's skin.

Whenever the animal is observed to be frequently endeavoring to stale, voiding only a small quantity with much pain and difficulty, turpentine and all other diuretics, are improper; and decoction of marsh mallows are most likely to afford relief.

The Farmer's Assistant asserts that this disorder has been very rarely known in this country.

FOUL IN THE FOOT, OR HOOF AIL.

Dr. Peck, an English writer, has given the following account of this disorder and its treatment.

"*Symptoms.*—A hard crack first appears between the claws, or hoofs, attended with considerable inflammation; afterwards a fœtid and offensive matter is discharged, similar to that of the grease in a horse's heels; sometimes it appears in the form of a large

tumor upon the cornet, between the hair and the hoof, attended with violent pain and inflammation.

"*Treatment.*—Wash the part from all dirt, and if between the claws take a rope of a proper thickness, and chafe the part afflicted,* and afterwards dress the parts with the muriate of antimony (butter of antimony) or sulphuric acid (oil of vitriol.) Let the animal stand in a dry place for an hour, repeat the application every day. If the part be much affected, rub it with some stimulating ointment, and if the tumour be likely to suppurate, linseed poultices as oft as is necessary should be applied, and repeated till the inflammation has subsided; then dress the wound with lint and mild astringent ointment. Due regard must be paid to existing symptoms. A few doses of sodæ sulphas (glauber's salt) will cool the body and accelerate the cure.

Edward Skellett, Professor of the Veterinary art, an English writer of reputation, says that this disorder "proceeds from two causes; the one from accident, and the other from a morbid state of the system. Its situation is betwixt the claws of the cow, either in the fore or hind feet, but more frequently in the former. It is always attended with a swelling, the discharge from which, when it breaks or cracks, has a very offensive smell.

The *accidental foul* proceeds from gravel, flints, bones, or any other hard substances getting between the claws, produces great pain and inflammation. The first step to be taken for its cure is to remove the hard substance, and clean the wound out; then the follow-

* This practice is condemned by other writers as cruel and unnecessary.

ing ointment is to be applied to the part, spread on tow, and bound on with cloth and string.

Soft soap,	1 pound;
Common turpentine,	1 pound.

"Melt over a slow fire till the two articles are completely united. The dressings may be repeated two or three times, which never fails to complete a cure.

"The *joint foul* begins with great pain, attended with inflammation and swelling betwixt the claws, and even up to the fetlock joint. The claws are extended outwards from the swelling betwixt them, and the animal is very feverish. The attack of the disease is very sudden.

"In this case bleeding will be proper; after which give a dose of epsom salts; then apply a plaister of soap betwixt the claws. It must be repeated every two or three days till a large core comes out, which is always the case in this disease before a cure can be completed. The wound may then be dressed with the following digestive ointment, in order to heal it.

Take of tar,	1 pound;
Common turpentine,	1 pound.

"To be put into a pipkin over a slow fire till it is completely dissolved, then take it from the fire and add to it four ounces of turpentine which should be stirred well together till it is incorporated."

This disorder, or something very similar, has been prevalent in the United States, and particularly in the State of Maine. A communication on the subject is published in the Massachusetts Agricultural Repository, Vol. 4, No. 4, page 348. In this it is said that the immediate occasion of the Hoof Ail, "is a stoppage

of the issue between the claws or hoofs, which exist in all ruminating animals, and which are very much like the issues so generally known in the back part of the fore legs of pigs; the stoppage of which produces disease, and eventually death, unless remedied.

The hoof ail indiscriminately attacks thin and fat cattle, and very considerable impressions are entertained that it is contagious; therefore till the contrary is proved, it is safer so to consider it.

From a very careful comparison of cases (from memory only) it appears to affect cattle who are in a feverish state, from various exciting causes; as over work; sudden changes from hard work to rest, and higher feeding, (a practice very common with farmers after working their cattle hard all winter, as a preparation for their spring's work;) being out in a storm; or being driven much, and kept long in the mud. In cows and young cattle, it seems to take either those that are brought from worse keeping to better; or the finest and best cattle in the yard. But all these observations may be erroneous; for the disease often appears suddenly, without any apparent cause; affecting individuals of the same stock tied in different parts of the barn, and in entirely different cases as to condition, exposure, &c. &c. It however, very frequently goes through a whole stock, though it does not appear to follow in regular succession, according to proximity in the stable or in the yoke. This may arise, either from contagion or the same exciting causes, operating on the whole. In short, it is a disease very terrible in its effects at times, and which does not appear to be understood. As very few cases of perfect recovery take place in a violent attack, and, as in all cases the recovery is very tedious, we should rather *prevent* than *cure;* for which end we must carefully

watch for the symptoms, and without delay apply the remedy.

Symptoms.—When an animal is at all lame, its foot should be carefully felt. The first indication is usually an uncommon degree of warmth, and soft and puffed feel of the parts immediately connected with the slit between the hoof, either before or behind the foot, and generally above it. If in the hind foot, and not easily handled, a fulness may generally be perceived, by standing behind the animal and carefully comparing the appearance of the two feet, between the dew claws and the hoofs, (for it very rarely commences its attack on more than *one* foot.) In the fore foot it generally swells forward; and on taking up the foot, the slit between the hoofs will have the appearance of dryness, easily distinguishable to a person used to cattle; and the animal frequently licks the front part of the foot. Instances frequently occur of sudden and extreme lameness, without any appearance of heat or swelling in the foot; but these are often the worst cases; but one symptom rarely fails to accompany the disease, which is, extreme restlessness, and appearance of anguish, attended with loss of appetite and flesh; but without, in the least, affecting the brightness of the eye, and, perhaps sometimes unnaturally increasing it; but the eye has a peculiar cast. As a general rule, it is safest to attribute all lameness of the foot, which cannot be traced to a sufficient cause, to the hoof ail. Lameness of the foot can generally be distinguished from that of the leg, hip, or shoulder, by making the animal step over a stick or rail, and carefully watching its motions.

Remedies.—The foot should be carefully washed

and cleansed, and thoroughly examined, to be sure that the lameness does not arise from a nail casually run through the foot, or a pinch in shoeing, or from a wound from a stump or other substance between the hoofs, (a case frequently occurring.) If no appearance occurs of any break in the skin, while the foot is still wet, apply, as nearly as may be, to the centre of the slit, between the hoofs, from one to three grains of corrosive sublimate (reduced to a fine powder) the dose to be proportioned to the size of the animal, and the violence of the attack. Care must be used that the powder is put completely into this slit, for it is a very strong poison, and the animal as soon as at liberty, will begin to lick the foot, if a sore one.* The moisture left by the washing, makes the powder adhere; and the effect is produced in a very short time. Some prefer mixing the powder with hog's lard, which answers; but is thought less powerful: it has one advantage, however, as being less dangerous to keep in a house (for no one takes salve inwardly.) Where corrosive sublimate cannot be obtained, any other violent stimulant may be applied. Common salt is often effectual in very slight attacks, but it is of the greatest importance to lose no time. The application is to be repeated once every twenty-four hours, till a cure is effected, or till the foot shows unequivocal signs of a gathering which will break. It is supposed that the corrosive sublimate, by stimulating the parts, removes the obstruction, and enables nature to resume the natural discharge from the issue, of a matter, which (as soon as pent up in the foot) causes inflammation and suppuration, and at last, forms an abscess, at all

* Might not a rag or bit of leather be so fastened with a string as to prevent any danger of this sort?

times very difficult to heal, and which, when large, *takes off one or both hoofs, which are never properly replaced.* It must, therefore, be considered as an object of the first importance to restore the secretion and discharge, without allowing a suppuration. This done, the cure is effected; and, since the course has been followed, no bad case has occurred in a very considerable stock of cattle, and the men attending them are quite familiar with the cure. If, from want of attention, or the violence of the attack, the gathering is formed, and breaks, it must be treated like any other tedious ulcer, and without any violent or harsh measures.

The animal should be kept quiet, fed well, and occasionally purged. As soon as the discharge has ceased, a salve of the flower of zinc, and hog's lard appears to be the best dressing.

It cannot be too strongly impressed on the minds of those who have the care of cattle that not a moment is to be lost; and that the corrosive sublimate produces no other inconvenience than pain for a few minutes, even if it should be applied in a case of lameness, which afterwards proves to have arisen from other causes.

An account appeared last season, of the cure being effected by cutting off the point of the hoof with a chisel, till it bled considerably. Of the efficacy of this remedy, no opinion is given, as it has never been tried here; but the impression is not favourable, as it must occasion temporary lameness, and, in unskilful hands, proves something more than temporary.

All such barbarous modes of treatment as hair ropes drawn backwards and forwards between the hoofs; hot irons; cutting out the part affected, and pouring into the wound, so made, hot pitch and other ingredi-

ents; scraping out the wound, and applying spirits of turpentine; in short all remedies of torture, should be at once discarded, and a simple mode of ascertaining the cause, and then removing the evil in the most expeditious and humane manner be substituted.

No inconvenience is known to occur from keeping an ox at work, if the lameness is not so great as to impair his condition; and it generally yields to three or four applications in the foot where it began; but frequently it must be followed round all the feet in succession.

We have been the more particular in our description of this disorder, and the remedies recommended on account of its alleged frequency in the United States. If the simple and cheap remedies recommended by Dr. Skellett, viz., soft soap, common turpentine, tar, and spirits of turpentine will answer the purpose, attributed to them by that writer, the discovery will be highly valuable.

ON THE MANAGEMENT OF COWS, WHEN THEY ARE NEAR THE TIME OF CALVING.

The diseases, which most commonly occur at this time, are strangury, or difficulty in voiding urine, and costiveness; and these it may be highly necessary to attend to, as they may, if neglected, be the cause of the cow slipping her calf. When strangury is accompanied with costiveness, which is generally the case, and is often the cause of the complaints, the bowels must be opened by a laxative composed of a pound of epsom salts dissolved in a quart of gruel, a clyster should also be given, consisting of two quarts of warm water, and four ounces of linseed oil. This may be

repeated two or three times in the course of two hours, if found necessary. Should the strangury continue after the bowels are emptied, give the following drink.

Take of camphor, to be powdered and mixed with spirits of nitrous ether.	2 drams;
Tincture of opium,	½ ounce;
Gruel in which one ounce of nitre has been dissolved,	1 pint.

Mix.

Many cows have been lost by allowing them to be too fat at the time of calving; they are then said to die of the milk fever. It is advisable, therefore, when a cow, far gone with calf, is in too good condition, to reduce her by changing the pasture, which is preferable to bleeding or physic; but if she has approached too near her time to admit of this change having any effect, then bleeding will be proper. When a cow, in high condition, appears to be ill and feverish soon after calving, let her be bled to the extent of three quarts, and take a pint of castor oil. Should the fever continue, and particularly if it appears to increase, the animal expressing great uneasiness, with a wildness in her appearance, great redness of the upper eyelid, and quick motion of the flanks, the bleeding must be repeated. Many cows have been destroyed by the stimulating medicines that are commonly recommended and given.—*White's Treatise.*

Dr. Skellett recommends a similar treatment of the strangury in cows, and adds "The cow should have plenty of diluting liquors, such as warm water, gruel, &c., and mashes made of bran, or pollard, with a little malt. In two or three hours after she has had the drink and clyster, it will be necessary to drive her

gently about for a quarter of an hour, as it greatly assists the operation of the medicines.

To prevent this disease, the animal ought to have air and exercise daily, and such food given her as is of a laxative nature, which will be of the greatest utility in her latter months of gestation."

INFLAMMATION AND SWELLING OF THE UDDER.

This disease attacks cows about the time of calving, and is sometimes so considerable as to cause an abscess to form. As soon as it is observed, let the animal be bled freely, and take a pound of epsom salts dissolved in a quart of gruel, to which a little castor or linseed oil may be added. The swollen udder should frequently be fomented with a decoction of mallows or elder. The best method of doing this, is to dip large woollen cloths in the hot decoction, and, after wringing them, let them be applied so as to cover the whole udder: this process should be continued for some time, and repeated several times a day. When, by these means, the inflammation has been removed, some degree of hard, but not painful swelling may remain; to disperse this, the following liniment may be rubbed on the part once or twice a day:

LINIMENT.

Take of linseed oil,	4½ ounces;
Spirits of turpentine,	1 ounce;
Liquor of ammonia,	½ ounce.

Mix.

Inflammation of the udder sometimes occurs in consequence of catching cold, or a *chill*, as it is more

commonly termed; in this case, the appetite is diminished, the cow stares, the breathing is quickened, and there is some degree of fever. Here bleeding is generally necessary at first, and the following warm laxative:

Common salt,	6 to 8 ounces;
Oil of lard,	6 ounces;
Flour of mustard,	1 ounce;
Whey or water,	1 pint.

Mix.

The animal should be taken under cover, and fed with warm mashes of bran or malt. One ounce of nitre may be put into her water, morning and evening.

This inflammation is generally confined to one or two quarters of the udder, but sometimes spreads over the whole. The milk drawn from the infected quarter is of a yellowish or whey colour, and contains small flakes or curds. When the inflammation is not seasonably checked, it often proceeds to suppuration. If the matter be suffered to accumulate, a large abscess will form, and the gland, or quarter will be so disorganized as to be incapable ever after of forming milk. It is probable, however, that, when this happens, the other three quarters will have their capacity for forming milk gradually increased. Whenever matter has been formed in the udder, and can be distinctly felt, it is proper to open it in the lowest part, that the matter may flow off freely. When this has been done, the part should be kept clean, and no matter allowed to lodge in the cavity, which should be syringed with warm water. To get rid of the matter, it sometimes becomes necessary to make an opening in the teat, a little above its extremity, or the orifice. There is no occasion for cramming tents into the cavity, or daub-

ing the udder with filthy ointments; it is quite sufficient to bathe and syringe with warm water two or three times a day, which will prevent the accumulation of matter; and if the healing process goes on languidly, a mixture of spirit and water, or a solution of white vitriol may be injected.

Cows that are near calving should be attended to with reference to their complaint; and if it is observed to be coming on, they should be bled, and milked. They should be kept in a bare pasture, or put into a cow house and be allowed but little hay, and a little of the liniment above mentioned, or some other emollient ointment made use of to soften the udder.

What by some is called the Snarled Bag, or Swelled Udder, requires no other treatment than rubbing the part with elder ointment, and as the complaint is merely temporary, from the extension of the milk vessels, and is, in fact, a proof of a good milker, it will soon yield to this application.

WOUNDS OF CATTLE.

The wounds of cattle are most commonly caused by goring each other with their horns, or by breaking over fences; and, when deep or extensive, are generally followed with considerable inflammation. The treatment of these wounds, though represented by farriers as an intricate and mysterious branch of the art, is, in fact, extremely simple. When the wound is considerable, and some important parts have been injured, the irritating treatment commonly adopted by farriers, often destroys the animal; and in slighter wounds, their stimulating applications rather tend to retard, than promote recovery. In deep and extensive wounds, affecting important parts, every method must

be employed, as early as possible, to prevent a fatal inflammation from taking place. Bleeding is the first remedy; and immediately after, let a purgative or laxative drink be given, receipts for which may be found under the head, *Gripes*, and other diseases. On no account should the wound be probed, or have any tents crammed into it; nor should any stimulating mixture be applied. The emollient fomentation (a decoction of mallows and elder) directed for swollen udder, is the only application that can be used with advantage, until the inflammation has subsided; the fomentation should be continued for a considerable term, and repeated frequently.

When the inflammation occasioned by the wound, has been removed it will be proper to examine it with a probe, to ascertain whether any matter be confined or not; as in that case, it may be necessary to enlarge the original wound, to give it vent, or make an opening in another more depending situation, that it may run off freely. Some stimulating application may also be proper at this period, such as a solution of blue vitriol, or

Tincture of myrrh,	2 ounces;
Corrosive sublimate,	12 grains.

One part of oil of turpentine to two parts of sweet oil form a good digestive, as it is termed. And, if an ointment is preferred—

Take of hog's lard,	8 ounces;
Bees' wax,	1 ounce;
Common turpentine,	6 ounces.

Melt them together; and, when taken from the fire, add one ounce of powdered verdigris; continue stirring the mixture until it is cold.

With respect to sewing up a wound, as it is called, there are circumstances which sometimes render it highly improper; in deep wounds, for example, where the external opening is not very large, or in wounds, where the divided parts have receded from each other, and there is difficulty in bringing them together; in the former case, the matter would be confined; in the latter, much irritation would be caused by the stitches. In both cases, the inflammation would be considerably increased; but in superficial wounds, and where a flap of skin is separated, it will be proper to stich it up; but on no account, should there be any stimulating fluid introduced, such as tincture of benzoin (frier's balsam) as Dr. Clater advises. It would be sufficient, should there be any dirt, or other matter, about the wound, to wash it off with warm water. Wounds of the belly, through which the bowels press out, are highly dangerous, and require the most delicate management. The first thing to be done, when this accident happens, is to put back the bowel into the belly as tenderly as possible; but if any dirt, hair, or other matter be observed on the intestine, it must be carefully washed off with warm water. When the bowel has been replaced, the wound must be stitched up, by means of a crooked needle and threads doubled, or small twine, well waxed (with bees wax;) a bandage is then to be applied. The animal is to be kept at rest, on a spare, open diet, of grass, or bran; and, if in any degree costive, a dose of castor oil may be given. The treatment of the wound is of little importance: the great object is to keep the bowel in its situation. It sometimes happens, that a great deal of air gets into the intestine, after it has escaped from the belly, and so distends it as to render it difficult if not impracticable,

to replace it through the original wound. When, after a careful, and patient trial, this is found to be the case, the wound is to be enlarged, so as to allow the bowel to be replaced. This must be done cautiously, the knife being guarded by the forefinger.

Bleeding from wounds seldom proves dangerous in cattle, and, if left to nature, generally stops in a short time; indeed it is the best plan not to meddle on these occasions: for, though the bleeding may appear formidable to persons not accustomed to such sights, it is really not dangerous; and unless some large vessel has been wounded, which bid defiance both to styptics and to pressure, it may safely be left to nature. Should it be thought necessary, however, to stop the bleeding, the most effectual mode of doing it, next to that of tying the blood-vessel, is pressure, by putting bolsters of tow or sponge to the bleeding part, and supporting it firmly with bandage. During the progress of the wound towards healing, the new flesh often rises above the surface, or appears to be produced too luxuriantly, to check this, a little powdered blue vitriol, mixed with bole, may be sprinkled on the part." —*White's Treatise.*

GRAIN SICK.

The first symptoms of this disease are a dull, heavy appearance of the eyes of the animal; she frequently shifts about from one side to the other, and when let loose, or driven about, complains very much. On examining her, a fulness may be perceived betwixt the hip and ribs, on the opposite side to the milking one, if pressed with the hand; this fulness will be felt to consist in the extension of the stomach. As the dis-

ease advances a loss of milk ensues, and a total dislike to any food.

This disease is caused by a surfeit of grain, and its remedies are bleeding and purging; the first to relieve the urgent symptoms, the second to remove the cause of the malady. The quantity of blood, according to Dr. Skellet, should not be less than from two to three quarts; but as he prescribes for large cows, in the vicinity of London, perhaps a smaller quantity would be preferable for animals of but middling size. The purging drink recommended by the same author is as follows.

Sulphur from 8 to 12 or 16 ounces, proportioning it to the strength of the animal.	
Nitre,	2 ounces;
Tumeric or Cummin seeds, of each	1 ounce.

Mix.

When this has operated in unloading the stomach, the weakness of that organ, the loss of appetite which ensues, and the deficiency of milk connected with it, will be repaired by medicines of an aromatic and bracing nature, such as coriander, ginger, aniseed, &c. Diluent liquors and mashes form the proper food for some days.

STRAINS AND BRUISES.

When these accidents occur in a considerable degree, or if an important part has been injured, bleeding is highly proper. As inflammation is the common effect of these injuries, fomentations are at first the most proper applications; and, when the inflammation has subsided, the liniment recommended for swollen

udder* may be rubbed on the part two or three times a day. When any part of the limbs has been strained, so as to occasion lameness, and it continues after this plan has been tried, it will be advisable to have recourse to a blister, which will be found more effectual than the most celebrated strain oil.

In slight bruises from the pressure of the yoke, or other causes, the following lotion is useful:

Gourlard's extract,	½ ounce;
Vinegar,	4 ounces;
Water,	1 pint.

Mix.

WARTS, OR HORNY EXCRESENCES.

These are affections of the skin which in cows do not go deep; they destroy the roots of the hair, wherever they form, and are of a firm and horny texture, and readily give way when pulled or roughly handled, which occasions them to bleed, and shows their connection with the vessels of the skin. They readily yield to emollient ointments, particularly to goose grease, which should be frequently rubbed on them till the excrescences fall off.

SWELLINGS ON THE JOINTS AND BONES.

Swellings on the joints and bones are generally very painful to the touch, attended with inflammation and fever. If the swelling comes on suddenly, and its increase is rapid, it generally terminates in suppuration. If situated on the joint, a discharge of the liquor of the joint, or joint oil, is the consequence, which is

* See N. E. Farmer, No. 30, p. 233.

dangerous and troublesome to cure. On the contrary if the swelling comes gradually, with little pain, and a hard callous substance is felt, and if early attempts are not made to stop its progress, it will end in a stiff joint, and all attempts to cure it will be in vain.

This disease generally proceeds from kicks or blows with stools, &c., or violent strains.

When the swelling comes on rapidly, with much pain and inflammation, bleeding and purging should be immediately recurred to. The purge should be.

Epsom salts,	1 pound;
Nitre,	2 ounces;
Ginger,	2 ounces;

Fomentations should be applied twice or three times a day. The following is recommended by Dr. Skellet:

Take of wormwood and southernwood, of each, two handfuls,	
Poppy heads, four or five handfuls,	
Elder flowers, a handful,	
Cammomile flowers,	4 ounces;
Bay and juniper berries, of each,	1 ounce;
Crude sal ammoniac, and potash, each	2 ounces.

Boil these materials in four quarts of spring water till reduced to three. Then foment the swelling with flannels, as hot as possible, for a quarter of an hour or more; after which, the flannels are to be bound over the part till the time of fomenting again. This operation may be repeated for two or three days, at which period the inflammation will probably be on the decline, when the following method must be adopted.

Take of Spanish flies in fine powder,	2 drams;
Spirits of ammonia,	4 ounces.

Mix together, and rub a little of the mixture into the part affected; after which a flannel roller is to be slightly put on, and kept on till a profuse discharge or blistering takes place, which will form into a crust, which should not be rubbed off.

If suppuration has already began, or the disease so far advanced that it cannot be avoided, it should be brought to a head as soon as possible; after which the following balsam may be applied once or twice a day.

Take of compound tincture of myrrh,	2 ounces;
Blue vitriol water,	½ ounce.

The vitriol water may be made by dissolving ten drachms of blue vitriol in powder, in a pint of hot water; the balsam to be well skaken together previous to using it. Should there be any discharge of the joint oil it may be necessary to proceed as hereafter will be directed, under the head, *Loss of joint oil.* When the scurf falls off, which the blistering has produced, and there remains any lameness, the following plaster should be applied.

Take of black and burgundy pitch,	1 pound;
Oxycroceum and Paracelsus,	4 ounces;
Bole armenian and dargon's blood,	4 ounces;

Mix.

When this swelling comes on gradually with little pain, and is of a hard, callous, or bony nature, fomentations will be of no use. But the hair should be first cut off the part affected, and some of the under mentioned blister rubbed well into the swelling with a knife or spatula; and it may be repeated for two or three successive mornings, or till a plentiful discharge is produced.

Take of quicksilver,	1 ounce;
Goose grease,	2 or 3 drams.

To be rubbed together in a mortar till the quicksilver is completely killed; then add the following in fine powder.

Take of Cantharides,	2 drams;
Sublimate,	1 dram;
Oil of Origanum,	2 drams;
Marsh mallow ointment,	2 ounces;
Goose grease,	1½ ounces;
Tar,	2 ounces;
Oil of vitriol,	1 dram;
Spirits of ammonia,	1 ounce.

Mix all well together.

After this operation. and the scurf has fallen off, if there should remain any hardness, and the animal is still lame, the blister may be repeated, which seldom fails to produce a perfect cure. If the animal seems weak in that part, after the above process, which is sometimes the case, the plaister of burgundy pitch, &c., before recommended, will be proper, in order to strengthen it.

SOFT SWELLINGS.

From bruises and other accidental injuries in getting up and lying down, cows are subject to soft or œdematous swellings of the joints, which are without any pain, heat or inflammation. They enlarge often to a considerable size, and yield readily to the pressure of the finger. Though this complaint is never attended with danger, it is troublesome to the animal from its size, and even difficult to remove, if it has been of long continuance. Its management depends on making an

opening into the swelling in the first instance, which may be done by running a hot iron into the lowest or most depending part of it, making two or three openings in this way where the fewest blood vessels are situated; and this operation requires particular caution, that the discharge may gradually come away, and that no vessels may be injured, from the danger of producing an internal hemorrhage, which would occasion a new increase of swelling and inflammation, instead of lessening the disease. When the openings into the swelling are properly made, and a gradual evacuation takes place, then the orifices are to be plugged up, within twenty-four hours, with a caustic composed of a small quantity of corrosive sublimate, in powder, placed on tow, which is to be first wetted, that the powder may adhere to it. The effect of this will be to cause a sloughing of the coats of the swelling, when a core to a certain extent will be brought out, by which means a suppuration will ensue, and the swelling be gradually reduced during its progress. The swelling is to be rubbed at the same time with the following mixture:

Linseed oil,	8 ounces;
Oil of turpentine,	2 ounces;
Oil of vitriol,	1 ounce.

Though the parts never regain entirely their natural size, yet by these operations, the animal will be enabled to move the joint without any inconvenience. After the wounds are healed, the remaining callous or swelling should be blistered two or three times, in order to make the joint more pliable. The blister most proper for the purpose is composed of Spanish flies and spirits

of ammonia, as directed under the head "Swellings on the joints and bones."

LOSS OF JOINT OIL, OR SYNOVIA.

Wounds, or punctures of the joints, often penetrate so deep as to pierce through the tendons and ligaments, occasioning a loss or discharge of the natural secretion of joint, viz.: Its oil, or synovia; the same accident may happen from any injury exciting inflammation, and that inflammation passing on till it produces an opening into the joint. This disease is always an alarming one, and the principle of cure is to produce the process of healing as quickly as possible, by exciting active inflammation; this may be done after the first effects of the injury have subsided, in consequence of bleeding, purging and fomenting, in the usual manner, and then applying the volatile blister to the joint, composed of Spanish flies, in powder, two drams, and spirits of ammonia, four ounces; at the same time the orifice is to be plugged with a tent, dipped in the following composition:

Sweet spirits of nitre,	3 drams;
Butter of antimony, and extract of lead, each	2 drams.

The blister and caustic may be occasionally repeated; the mixture every twenty-four hours, till the effusion of joint oil is completely stopped; then the following balsam may be applied once or twice a day, in order to heal up the wound:

Tincture of myrrh,	2 ounces;
Blue vitriol water,	½ ounce.

"The vitriol water may be made by dissolving ten

drachms of blue vitriol, in powder, in a pint of hot water; the balsam to be well shaken together previous to using it. The blister is to be well rubbed on the joint, till a plentiful discharge takes place from the surface, when it becomes no longer requisite. By this treatment a cure is generally effected, unless when the bones are materially injured along with the soft parts, and then any plan of cure will prove ineffectual. When weakness of the joint prevails, after the running of the joint-oil is stopped, which is generally the case, a plaster of pitch, &c., as recommended above, should be applied."—*Skellet's Treatise.*

MANGE.

This is a cutaneous disease, which is very contagious, for so many cows as come in contact with one labouring under the disorder, will be sure to catch it. Its symptoms are, a scarf on the external part of the body, which is always attended with an itching. This the animal shows, by having a continual inclination to rub the affected part or parts against any thing she can get at. Some say that it is caused by a kind of animalculæ, which burrows in the skin. It generally attacks those animals which are low in flesh, and have been fed on poor forage.

The first step in order to cure this disease, is to take a currycomb and gently curry off the scurf, in order that the medicine may have the better effect. After this the following application is to be rubbed on the parts affected, which may be repeated every three or four days till a cure is effected; and it seldom requires more than two or three applications:

Flowers of sulphur.	1 pound;
Spirits of turpentine,	½ pint.
Train oil, enough to make it into a thin liquid.	

HORN DISTEMPER.

This is a disease which has its seat in the horns. Cows are more subject to it than oxen, and it does not attack bulls; and steers and heifers, under three years old, it is said, are not subject to it. The distemper causes the pith of the horn to be gradually consumed. It is most commonly confined to one horn only, but sometimes appears in both. It is occasioned by poor keeping, by which the blood becomes thin and reduced, and does not circulate properly in the extremities. It is discovered by the sluggishness of the animal, loss of appetite, a coldness of the horn, and a disposition to lie down.

To cure this disease, the horn should be bored with a nail gimblet in such a manner as to effect the discharge of the matter which has become purulent. The hollow part should be well cleansed by vinegar in which a portion of salt has been dissolved, to be injected by a syringe. Dr. Deane recommended the injection of a mixture of rum and honey, with myrrh and aloes. Stimulating medicine, such as ginger, spices, &c., have been given, but these are injurious until the bowels have been evacuated. Laxatives, however, such as sulphur, glauber's salts, &c., prove servicea ble; and after the bowels are evacuated, and the horn well cleansed, good keeping will be necessary to effect the cure.

TAIL SICKNESS.

This is a distemper attended with weakness and sluggishness to which horned cattle are liable in the spring. The end of the tail becomes hollow, and relaxed, but not, as some have asserted, destitute of feeling. A cure is easily effected by the amputation of a small piece of the tail, which will be attended with a discharge of some blood. But when the tail is but little affected, and near to the end, a slit of an inch or an inch and a half, in the end of the tail, is preferable to amputation.

ULCERS.

An ulcer is "a solution of the soft part of an animal body, together with the skin." The symptoms of an ulcer, which is in a way to be healed, are granulations, or little eminences, arising from the surface, of a florid or reddish colour, small in size, and pointed at the top; the discharge, white and thick. This will generally be effected by giving the animal perfect rest, using mild and simple ointments, such as are composed of oil and bees' wax, or hog's lard, which is not rancid. Turpentine and lard melted together make a good ointment. The following has likewise been recommended:

Goose grease,	1 pound;
Hog's lard,	2 pounds;
Red lead,	3 ounces;
Pulverised alum,	1 pound.

The goose grease and lard are to be melted over a slow fire; the lead is then to be added in fine powder, which is to be constantly stirred till it becomes cold, in

order that it may be well incorporated. A little sulphur and nitre may be given by way of alternative.

If the ulcer assumes an inflamed state, and the surface is covered with a brown transparent matter, the following fomentation will prove useful.

Cammomile flowers,	½ pound;
Wormwood a large handful,	
Bay and Juniper berries, each	4 ounces;
Beer or ale grounds, emptins or yeast,	6 quarts;
Vinegar,	1 quart.

The whole to be boiled for a quarter of an hour.

Leeches applied to the edges of the ulcer will be serviceable, and purges of glauber salts or epsom salts.

If the ulcer becomes black and fœtid, with a cessation of every inflammatory symptom, and there appears to be danger of mortification, give an ounce of Peruvian bark every four hours; a little opium may be joined with it. Fomentation with hot vinegar will be found useful, When the parts suppurate, cut off the dead matter with a knife, and afterwards dress with some simple ointment.

If there is too rapid a growth of fungous matter, or what is called proud flesh, it may be well to rub in a small quantity of the following caustic over the whole surface of the preternatural growth, with a spatula.

Soft soap,	1 ounce;
Arsenic,	½ ounce;
Oil of vitriol,	½ ounce;
Spirits of lavender,	½ dram.

The soap and arsenic to be mixed first, and then the vitriol added by degrees. The whole may then be covered with the digestive ointment of tar and turpentine, prepared as mentioned in a former receipt. By

these means part of the growth will become dead in a few days, which may be cut or pared off, and the same caustic application made to the remaining part till the whole is destroyed.

In ulcers in fleshy parts there is often a preternatural callous, or hardened growth. This must be destroyed before a cure can be completed. In this case, the before mentioned caustic must be applied, but used with caution. The hard part is to be rubbed with it for half the extent of the swelling, beginning at the orifice. The dead parts are then to be cut away every two or three days, and the application is to be repeated till the cure is complete.

ON SHEEP.

For the foot-rot in sheep.—Take a piece of alum, a piece of green vitriol, and some white mercury—the alum must be in the largest proportion; dissolve them in water, and after the hoof is pared, anoint it with a feather, and bind on a rag over all the foot.

Another.—Pound some green vitriol fine, and apply a little of it to the part of the foot affected, binding a rag over the foot as above. Let the sheep be kept in the house a few hours after this is done, and then turn them out to a dry pasture. This is the most common way of curing the foot-rot in Middlesex.

Another.—Others anoint the part with a feather dipped in aqua fortis, or weak nitrous acid, which dries it at once. Many drovers that take sheep to Smithfield,

carry a little bottle of this about with them, which, by applying to the foot with a feather, helps a lame sheep by hardening its hoof, and enabling it to travel better. Some may think aqua fortis is of too hot a nature, but such a desperate disorder requires an active cure, which, no doubt, is ever to be used cautiously.

Another.—Spread some slacked quick lime over a house floor, pretty thick, pare the sheep's feet well, and turn them into this house, where they may remain for a few hours, after which turn them into a dry pasture. This treatment may be repeated two or three times, always observing to keep the house clean, and adding a little more quick lime before putting them in.

The foot must be often dressed, and the sheep kept as much as possible upon dry land. Those animals that are diseased should be kept separate from the flock, as the disorder is very infectious.

Prevention and cure for the foot-rot in sheep.—On suspected grounds, constant and careful examination ought to take place; and when any fissures or cracks, attended with heat, make their appearance, apply oil of turpentine and common brandy. This, in general, produces a very beneficial effect, but where the disease has been long seated, and becomes, in a manner, confirmed—after cleaning the foot, and paring away the infected parts, recourse is had to caustics, of which the best seem to be sulphuric acid, and the nitrate of mercury. After this, pledgets are applied, the foot bound up, and the animal kept in a clean, dry situation, until its recovery is effected. But it often happens, where the malady is inveterate, that the disease refuses to yield to any, or all of the above prescriptions.

The following mode of treatment, however, if carefully attended to, may be depended upon as a certain cure. Whenever the disease makes its appearance, let

the foot be carefully examined, and the diseased part well washed, and pared as nigh as possible, not to make it bleed; and let the floor of the house, where the sheep are confined, be strewn three or four inches thick with quick lime, hot from the kiln; and the sheep, after having their feet dressed in the manner above described, to stand in it during the space of six or seven hours.

In all cases, it is of great importance, that the animal be afterwards exposed only to a moderate temperature—be invigorated with proper food—and kept in a clean, easy, dry pasture; and the disease will be effectually remedied in the course of a few days.

To prevent sheep from catching cold after being shorn.—Sheep are sometimes exposed to cold winds and rains immediately after shearing, which exposure frequently hurts them. Those farmers who have access to the sea, should plunge them into the salt water, those who have not that opportunity, and whose flocks are not very large, may mix salt with water and rub them all over, which will in a great measure prevent any mishap befalling the animal, after having been stripped of its coat.

It is very common in the months of June and July, for some kinds of sheep, especially the fine Leicester breed, which are commonly thin-skinned about the head, to be struck with a kind of fly, and by scratching the place with their feet, they make it sore and raw. To prevent this, take tar, train oil, and salt, boil them together, and when cold, put a little of it on the part affected. This application keeps off the flies, and likewise heals the sore. The salt should be in a very small quantity, or powdered sulphur may be used instead of it.

To cure the scab in sheep.—Take 1 pound of quick-

silver, half a pound of Venice turpentine, 2 pounds of hog's lard, and half a pound of oil, or spirits of turpentine. A greater or less quantity than the above may be mixed up, in the same proportion, according to the number of sheep affected. Put the quicksilver and Venice turpentine into a mortar, or small pan, which beat together until not a particle of the quicksilver can be discerned; put in the oil, or spirits of turpentine, with the hog's lard, and work them well together until made into an ointment. The parts of the sheep affected must be rubbed with a piece of this salve, about the size of a nut or rather less. When the whole flock is affected, the shepherd must be careful in noticing those that show any symptoms of the disorder, by looking back, and offering to bite or scratch the spot; and if effected, he must immediately apply the ointment, as it is only by paying early and particular attention, that a flock can be cured.

To prevent the scab.—Separating the wool, lay the before-mentioned ointment in a strip, from the neck down the back to the rump; another strip down each shoulder, and one down each hip; it may not be unnecessary to put one along each side. Put very little of the ointment on, as too much of it may be attended with danger.

To destroy maggots in sheep.—Mix with one quart of spring water, a table spoonful of the spirits of turpentine, and as much of the sublimate powder as will lie upon a shilling.

Shake them well together, and cork it up in a bottle, with a quill through the cork, so that the liquid may come out of the bottle, in small quantities at once. The bottle must always be well shaken when it is to be used. When the spot is observed where the maggots are, do not disturb them, but pour a little of the

mixture upon the spot, as much as will wet the wool and the maggots. In a few minutes after the liquor is applied, the maggots will all creep to the top of the wool, and in a short time drop off dead. The sheep must, however, be inspected next day, and if any of the maggots remain undestroyed, shake them off or touch them with a little more of the mixture.

A little train oil may be applied after the maggots are removed, as sometimes the skin will be hard by applying too much of the liquid. Besides, the fly is not so apt to strike when it finds the smell of the oil, which may prevent a second attack.

This method of destroying maggots is superior to any other, and it prevents the animal from being disfigured by clipping off the wool, which is a common practice in some countries.

Cure for scab in sheep.—The simplest and most efficacious remedy for this disease was communicated to the Society for the Encouragement of Arts, &c., by the late Sir Joseph Banks; and is as follows:

Take 1 lb. of quicksilver, half a pound of Venice turpentine, 4 lbs. of hogs' lard.

Let them be rubbed in a mortar till the quicksilver is thoroughly incorporated with the other ingredients. For the proper mode of doing which, it may be right to take the advice or even the assistance of some apothecary, or other person used to make such mixtures.

The method of using this ointment is this: Beginning at the head of the sheep, and proceeding from between the ears, along the back, to the end of the tail; the wool is to be divided in a furrow, till the skin can be touched, and as the furrow is made, the finger, slightly dipped in the ointment, is to be drawn along the bottom of it, where it will leave a blue stain on the skin and adjoining wool.

From this furrow, similar ones must be drawn down the shoulders and thighs to the legs, as far as they are woolly; and if the animal is much infected, two more should be drawn along each side, parallel to that on the back, and one down each side, between the fore and hind legs.

Immediately after being dressed, it is usual to turn the sheep among other stock, without any fear of the infection being communicated; and there is scarcely an instance of a sheep suffering any injury from the application. In a few days the blotches dry up, the itching ceases, and the animal is completely cured. It is generally, however, thought proper not to delay the operation beyond Michaelmas.

The hippobosca ovina, called in Lincolnshire, Sheep-fagg, an animal well known to all shepherds, which lives among the wool, and is hurtful to the thriving of sheep, both by the pain its bite occasions, and the blood it sucks, is destroyed by this application, and the wool is not at all injured. Our wool-buyers purchase the fleeces on which the stain of the ointment is visible, rather in preference to others, from an opinion, that the use of it having preserved the animal from being vexed, either with the scab or faggs, the wool is liable to the defects of joints or knots; a fault observed to proceed from every sudden stop in the thriving of the animal, either from want of food, or from disease.

To cure the water in the heads of sheep.—Of all the various operations by which this distemper may be eradicated, I must, from experience, give the preference to one which will, perhaps, astonish such of your readers as form their opinions more from theory than practice. A number of medical men have already controverted the fact; and, with the utmost presumption, disputed my veracity to my face, after I had witnessed

its efficacy in a thousand instances. It is no other than that of putting a sharpened wire up the nostril quite through the middle of the brain, and by that means perforating the bag which contains the fluid causing the disease. This is, of all other methods, the most certain to succeed: but it has this unpleasant appendage annexed to it, if it do not cure, it is certain to kill.

This method of cure is not only the most expedient, but it is in every shepherd's power, and one which he can scarcely perform amiss, if he attend to the following plain directions.

The operation must be performed with a stiff steel wire, such as is used for knitting the coarsest stockings. It must be kept clean, and free of rust, oiled, and sharpened at the point. Care must be taken, however, that its point be only one-eighth of an inch in length, for if it is tapered like a needle, it is apt to take a wrong direction in going up the nostrils, fix in the gristle below the brain, and torment the animal to no purpose. If blunt in the point, it often fails to penetrate the bladder, which is of considerable toughness, shoving it only a little to one side; the safest way, of course, is to have the point of the wire sharp and short.

The shepherd must first feel with his thumbs for the soft part in the skull, which invariably masks the seat of his disease. If that is near the middle of the head above, where in two cases out of three, at least, it is sure to be, let him then fix the animal betwixt his knees, hold the head with one hand, laying his thumb on the soft or diseased part, and with the other hand insert the wire by the nostril, most on a parallel with the seat of the distemper, aiming directly at the point where his thumb is placed. The operation is performed in one second, for if he feels the point of the wire come in contact with his thumb, let him instantly set the animal to its

feet; and if the weather is at all cold, let it stand in the house over night.

If the disease is seated exactly in that part where the divisions of the skull meet, and consequently in a right line with the top of the nose, he must probe both nostrils; when, should he miss the bulb on one side, he will be sure to hit it on the other. If the seat of the disease cannot at all be found, and if the animal have all the symptoms of the malady, the water is then inclosed among the ventricles in the middle of the brain, and must be treated as above. Nothing can be done in the last case, save with the wire; but it is hard to cure them when so affected. I have found, on dissection, the fluid contained in many little cells in the centre of the brain; and though the wire had penetrated some of those cells, it had missed others.

By this simple operation alone, I have cured hundreds; and though I never kept an exact register, I think I have not known it to fail above once in four times at an average, in all the instances which have come under my observation; and some of these I knew to be injudiciously performed, the disease not being seated in a point which the wire could reach. I have at times cured a dozen, and ten in regular succession, without failing once, and I have again, in some cold seasons of the year, killed three or four successively.

Sir George M'Kenzie has insinuated, in his book on sheep, that I was the inventor of this mode of cure—but it is by no means the case.

The practice, I understand, has been in use among shepherds for ages past; but they were often obliged to perform it privately; their masters, like the professors about Edinburgh, always arguing, that the piercing of the brain must necessarily prove fatal. Sir George has, however, misunderstood my account

in this matter, in the Highland Society's Transactions; I did not mean to insinuate that it was with pleasure I discovered the art of curing them in this way, but only my success in that art. I mentioned in these Transactions, that when I was a shepherd boy, for a number of years I probed the skull of every sturdied sheep I could lay my hands on, without any regard to whom they belonged, and likewise took every opportunity of visiting my patients as often as possible; and as the country around me swarmed with them every spring and summer, my practice, of course, was of prodigious extent. It was several years before I was sensible of failing in one instance, which, however, it was often impossible to ascertain, they having left the spot sometimes, before I could again go that way: but many a valuable young sheep I cured to different owners, without ever acknowledging it, having no authority to try such experiments.

The following symptoms, after the operation, may be depended on. If the animal becomes considerably sick, it is a good sign that it will recover.

If it continues to grow sicker, and abstains from feeding for the space of two days, it is likely to die; and if in a condition to be fit for family use, ought to be killed forthwith. The flesh of the animal is none the worse for this disease; on the contrary, it is universally supposed by the country people, that their flesh is sweeter, more delicate and palatable, than any other. This, I suppose, must be owing to their tender age, it being unusual to kill any sheep so young, save lambs.

The first symptom of recovering is their bleating If once they begin to bleat occasionally, they are sure to recover, however stupid they may appear at that time. It seems that they are then becoming sensible

of the want of society, the only thing which causes sheep to bleat, and which for a long time previous to that, they had totally disregarded.

I must mention here, that the most successful curer of this distemper I ever knew, performed the operation in a different manner from the one practised by me, and above recommended. Instead of a wire, he carried always a large corking pin in his bonnet, and, like me, tapped every sturdied sheep he found, but always above, putting the point of the pin through the skull at the place where it was most soft, in the same manner as the trocar is used. As this does not at all endanger the sheep's life, I frequently tried this plan previous to that of probing with the wire; but, as far as I can recollect, I never cured one by that means.

I remember of once conversing with him on the subject, when he told me that he seldom or never failed of curing them upon their own farms; but that, in sundry neighbouring farms, he rarely cured any. From this, it would appear that on different soils, the animals are differently affected. I am now convinced that he must generally have inserted the pin so far as to penetrate the bottom of the sac, which I never had the sense to try, and which, if we reason from analogy, must prove as effective and less hazardous than the other; for it appears to me, that in order to ensure a recovery, it is necessary that the bottom, or lowest part of the sac, be penetrated.

Undoubtedly, the best mode of curing this disease would be, to extract the sac, and all that it contains, entirely. There is little doubt that, if this were performed by gentle and skilful hands, it would prove the most effectual cure; but as it is, I can attest that it seldom proves successful. The shepherds have not skill and ingenuity sufficient to close the skull properly

up again, or sow it in such a manner as is requisite to defend it from external injury; of course, I would rather recommend the mode in which they cannot easily go wrong, and which I have seen prove most beneficial, when performed by men of like acquirements with themselves.

To prevent the "sturdy," or water in the heads of sheep.—With regard to the causes inducing water in the heads of sheep, there is but one opinion entertained among shepherds, which is, that it is occasioned by a chilness in the back of the animal, on account of its being exposed to the winds, and the sleety showers of winter. These cause it to acquire a kind of numbness and torpidity, which, if often repeated, are apt to terminate in an affection to giddiness, and finally in a water in the head.

That this disease is occasioned solely by a chilness in the back, appears from the following facts:

1. It is always most general after a windy and sleety winter.

2. It is always most destructive on farms that are ill-sheltered, and on which the sheep are most exposed to those blasts and showers.

3. It preys only on sheep rising their first year, the wool of which separates above, leaving the back quite exposed to the wet and to the cold.

4. If a piece of cloth or hide is sewed to the wool, so as to cover the back, such a sheep will not be affected with the disease. The experiment is a safe, a cheap, and an easy one; and, exclusive of its good effects in preventing the fatal disease under consideration, it is the most beneficial to a young sheep that is not over high in condition, and administers the most to its comfort during the winter, of any other that I know. It keeps the wool from opening, and the sheep always dry and warm in the back, which, exposed to cold,

either in man or beast, it is well known, affects the vitals materially. When thus shielded the young sheep will feed straight in the wind, on the worst days, without injury, and, indeed, without much regarding the weather. This covering keeps them from the rain, prevents them from being shelled and loaded with frozen snow, and from destruction by cold, by leanness, and the water in the head. The expense attending it is so trifling, that it is scarcely worth mentioning. One pair of old blankets, of the value of four or five shillings, will furnish coats for forty sheep; and if these are carefully taken off on the return of spring, and laid aside, they will serve the purpose for two or three successive years.—*Farmers' Magazine.*

Practice of the Spanish Shepherds.—The first care of the shepherd on coming to the spot where his sheep are to spend the summer, is to give to his ewes as much salt as they will eat. For this purpose he is provided with twenty-five quintals of salt for every thousand head, which is consumed in less than five months; but they eat none on their journey or in winter. The method of giving it to them is as follows: The shepherd places fifty or sixty flat stones about five steps distant from each other; he strews salt upon each stone, then leads his flock slowly through the stones, and every sheep eats at pleasure. This is frequently repeated, observing not to let them eat on those days in any spot where there is limestone. When they have eaten the salt, they are led to some argillaceous spots, where, from the craving they have acquired, they devour every thing they meet with, and return again to the salt with redoubled ardour.

Pell-rot.—In this disease the wool falls off, but the skin does not become sore, but is merely covered with a white crust.

Cure.—Full feeding, warm keeping, and anointing the hard part of the skin with tar, oil and butter, mixed together.

Tick.—As these occasion a constant scratching, they prove injurious to the wool, and they sometimes occasion the death of lean sheep.

Cure.—Blow tobacco smoke into every part of the fleece, by means of a bellows. The smoke is taken into the bellows, the wool is opened, the smoke is blown in, and the wool is then closed. This is repeated over every part of the body, at proper distances. It is quickly performed.

Staggers.—A disease of the brain, which renders them unable to stand.

Cure.—Dissolve assafœtida in warm water, and put half a spoonful in each ear of the sheep. It is a speedy remedy.

Colds.—The principal indication of this is the discharge of mucus from the nose. Good feeding, together with some pine boughs given them occasionally, will cure this complaint. If pine boughs cannot be had, spread some tar over a board, and over this spread some salt, which will induce the sheep to lick up all the tar, and this will effect a cure. Whenever this, however, becomes habitual with old sheep, they should be killed off.

Purging.—If any are severely afflicted in the spring with this, which sometimes happens after being turned out to grass, house them, give them a dose of castor-oil, feed them with dry food, and give them some crusts of wheat bread. A slight purging will not hurt them.

Hove.—Sheep, like neat-cattle, when put into clover-pastures, sometimes have their stomachs distended by wind, so that they will die if not relieved. The swelling rises highest on the left side, and in this place let the knife be inserted, or other means used to the same effect.

Pining.—When the excrement of the lamb becomes so glutinous as to fasten the tail to the vent, it must be washed clean, and have the buttocks and tail rubbed with dry clay, which will prevent any further adhesion.

Sometimes it may be found necessary to bleed sheep, to allay some inflammatory disorder.

Daubenton recommends bleeding in the lower part of the cheek, at the spot where the root of the fourth tooth is placed, which is the thickest part of the cheek, and is marked on the external surface of the bone of the upper jaw, by a tubercle sufficiently prominent to be very sensible to the finger, when the skin of the cheek is touched. This tubercle is a certain index to the angular vein which is placed below.

The method of bleeding, after finding the vein, it is hardly necessary to describe.

Philip de Castro, a Spanish shepherd, has written a short treatise on the diseases of sheep in Spain, and of their management there; and he recommends that bleeding should be performed in a vein in the fore part of the dug. The essay of this shepherd is believed to be worthy of some further notice.

He says the merino sheep of Spain are subject to the following diseases:

The Scab.—Cured by juniper oil, when the weather is wet, or by a decoction of tobacco in dry weather.

Basquilla.—Occasioned by too much blood. Cured by bleeding in the dug, as before mentioned.

Moderez.—(Lethargy) occasioned by pustules formed on the brain. The sheep keep turning, while feeding, to the side where the pustules are formed. Few recover, and the disease is infectious. Some get well in part by pricking the part affected with an awl; but those attacked with this disorder should be killed off.

Smallpox.—Being blisters, which first appear on the flanks, and spread over the body. It is produced by

drinking stagnant waters. The diseased sheep are to be kept apart from the rest, as the disease is infectious, and when the blisters break anoint them with sweet oil.

Lastly, *Lameness.*—This appears to be the same as is described by Mr. Livingston.

He observes that the legs of sheep are furnished with a duct which terminates in the fissure of the hoof; from which, when the animal is in health, there is secreted a white fluid; but when sickly, these ducts are stopped by the hardness of the fluid.

He adds that he had, in some instances found the sheep relieved by pressing out the hardened matter with the finger from the orifice of the duct in each foot. Perhaps it may in some cases be proper to place their feet in warm water, or to use a probe, or hard brush, for cleansing this passage.

He concludes by observing, that probably the ill health of sheep, in wet or muddy pastures, may in some measure be ascribed to the necessity of keeping these ducts free and open.

Frequently changing flocks of sheep from one farm to another, where the pastures are equally good, is very beneficial to them. We know a flock which, for several years past, have been pastured on different farms, by being let out to different farmers on shares, which are much the finest looking sheep to be found any where in the neighbourhood where they belong.

The farmer who would rejoice to see our country so far independent, as to become stocked with woollen fabrics of our own making, must feel himself impelled by his patriotism to endeavour to afford his share of supplies of wool, which are so needful to our infant manufactories; and he who is insensible to a love of country, may still find a powerful incentive to the raising of sheep in consulting his own interest.

The raising of merino sheep, in particular, is undoubtedly very profitable; and the nearer the farmer brings his breed to that of the full-blood, the greater will be his profit. Like every thing, however, which innovates upon ancient usages, the merino has its prejudices to encounter; and the savage who first introduced the use of his bow and arrow to his countrymen, no doubt had the same. But let the sensible and spirited farmer persevere, and in the end his merino flock will afford him a rich harvest; the pleasure and profit of which his weaker neighbour must forego, as a tax on his prejudices.

ON SWINE.

Of the Diseases in Swine.—A hog is a very bad creature to doctor; therefore, to prevent their diseases, should be an object of our attention.

Keep him well if you can, but not so as to burden him with fat in hot weather; keep his body open, and there will be little danger of his being sick. Brimstone, in small doses, is excellent for a hog; antimony is also good; but if you can get neither, chamber ley put in their swill will answer a good purpose. It is necessary to keep a hog's issues open. The practice of feeding store hogs three times a day is not good: whereas, if they are fed only morning and night, they keep their appetite, eat their food clean, and grow the faster.

To cure the measles in swine.—It sometimes happens, though seldom, that swine have the measles: while they are in this state, their flesh is very unwholesome food. This disorder is not easily discovered while the animal is alive, and can only be known by

its not thriving or fattening as the others. After the animal is killed and cut up, its fat is full of little kernels, about the size of the roe or eggs of a salmon. When this is the case, put into the food of each hog, once or twice a week, as much crude pounded antimony as will lie on a shilling. This is very proper, for any feeding swine, even though they have no disorder. A small quantity of the flower of brimstone, also, may be given among their food when they are not thriving, which will be found of great service to them. But the best method of preventing disorders in swine, is to keep their sties perfectly clean and dry, and to allow them air, exercise and plenty of clean straw.

Another.—Rub them all over with a stiff brush dipped in cold water, then boil parsley roots and rue in salt water and give it them to drink.

Rupture in swine.—When a number of swine are bred, it will frequently happen that some of the pigs will have what is called a "rupture;" *i. e.*, a hole broken in the rim of the belly, where part of the guts come out and lodge betwixt the rim of the belly and the skin, having an appearance similar to a swelling in the testicles. The male pigs are more liable to this disorder than the female. It is cured by the following means:

Geld the pig affected, and cause it to be held up with its head downwards; flay back the skin from the swollen place, and, from the situation in which the pig is held, the guts will naturally return to their proper place. Sew up the hole with a needle, which must have a square point, and also a bend in it, as the disease often happens between the hinder legs, where a straight needle cannot be used. After this is done, replace the skin that was flayed back and sew it up, when the operation is finished. The pig should not

have much food for a few days after the operation, until the wound begins to heal.

For a fever.—Let them bleed in the tail, and give them, thrice a day, water wherein pepper and parsnip roots have been boiled.

For the swine pox.—Take an ounce of nitre, pound it, and dissolve it in a pint of cider; add to it half a pint of sweet oil and one spoonful of honey, to be given to the swine lukewarm.

For catarrhs.—Take two ounces of coriander seed, one of ginger, three of honey, and half an ounce of tumeric; let it be powdered fine and boiled in three quarts of new milk, then let the hog drink it.

Of drenches.—It is a practice among people in general, when their hogs are sick, to put a rope in their mouths and hang them up to drenching. This is a very bad practice; for while you are pouring your medicine down, the hog will squeak, and ten to one the liquid goes down the windpipe and chokes him. If you can give your hog his medicine in milk or some other food, that he will drink, it is well; if not, do not force it down in the manner of drenching, but give it to him in the form of a glyster. This is always safe, and as effectual as any method whatever.

Issues.—The issues in a hog are places on the inside of their legs, which are porous, like a pepper-box top. Here, it seems, is the most immediate outlet for the superfluous fluid of the body; when these get stopped (as hogs are fond of filth and mire) the hog loses his appetite, and becomes sick; then to drenching and choking as before hinted; whereas, if his issues were rubbed and picked open, he would immediately recover.

Fattening of Swine.—The Hon. Mr. Peters, of Pennsylvania, has asserted that fatting hogs should always be supplied with dry rotten wood, which should be

kept in their pen, for the animals to eat as their appetites or instincts may direct. It has been supposed, likewise, that swine thrive better when they can obtain fresh earth, which they are observed often to swallow with greediness. The probability is that nature directs these creatures to the use of such substances as absorbents to correct the acidities of their stomachs. Charcoal, it is said by some, will answer a similar if not more valuable purpose; and that if swine are supplied with this last mentioned substance they show but little inclination for rooting, and are much more quiet in their pens than under ordinary treatment.

Mr. Peters, and some other eminent agriculturists, have asserted that food for swine is much the best for fattening them, when it has been soured by fermentation, and it is even supposed that one gallon of sour wash will go as far as two of sweet for this purpose. And an English writer tells us that "the best method of feeding all kinds of grain to hogs, is to grind it to meal, and mix it with water, in cisterns made for the purpose, in the proportion of five bushels of meal to a hundred gallons of water; the mass to be well stirred several times each day, until it has fermented and become acid, when it will become ready for use. In this way two or three cisterns must be kept for fermenting in succession; and the profit will pay the expense."

Hogs cannot be fattened so cheaply in very cold as in temperate weather, unless they are guarded with great care against the inclemency of the season. In the winter too, acid or fermented food cannot so well be procured for them, as the low temperature of the air will stop fermentation, if not freeze the wash under ordinary circumstances. The food for swine may be fermented by being kept in an apartment kept at near summer heat by a stove. The wash may also be kept warm by steam introduced according

to Rumford's plan. But heating *liquids* by steam is not so easy a process as would seem at the first thought. There must be a large [that is large in proportion to the quantity of liquid to be warmed] and strong boiler, with two safety valves, one opening outwards to let out the steam, if by the sudden increase of heat it should acquire so much elasticity as to endanger the bursting of the boiler; and one valve opening inwards to prevent the sides of the boiler from being collapsed, or crushed inward, or the liquid from being forced out of the cistern through the steam tube into the boiler by the weight of the atmosphere. Then there must be steam tubes rising some height above the surface of the wash in the cistern, and descending, vertically, to near its bottom. The steam must be so elastic as to overcome not only the pressure of the atmosphere, but also the additional pressure of that part of the liquid in the vessel, containing the wash, which lies above the opening or end of the tube where the steam is discharged into the vessel.

Various means may be used to give the wash a temperature conducive to fermentation. Water-tight tubes filled with hot air, from a furnace or a stove, might answer the purpose by being carried through the cistern containing the wash to be fermented. But for common farming purpose, we believe it will be best either to keep up a moderate degree of heat in the room or cellar in which the wash is kept for fermentation, by means of stoves, or to make use of kettles or caldrons set in brick in the common way, in which, after the materials have been well boiled, the liquid must be kept of a proper temperature for fermentation, by occasionally heating them. Wooden vessels, or circular rims of wood, may be so adapted to the tops or rims of these kettles, that the whole will contain three or

four times the quantity, which the kettles alone would hold. In these, roots and other food might be steamed and fermented, at the will of the owner or superintendant of the process. Where fermentation is the object, it may be well to mix with the sweet wash a little of that which is already soured, to serve as yeast or leaven.

The following system of rearing and fattening swine on an arable farm is recommended by a writer in the Farmer's Magazine. Upon a tillage farm consisting of three hundred acres, whereof two hundred are kept under the plough, he is of opinion that a considerable sum may be annually gained from keeping swine, were the arrangement made in a systematic manner. One main advantage of such a branch of rural economy arises from little or no capital being required to carry it on, while the trouble and outlay attending it scarcely deserve notice. With the addition of one acre of broad clover, and one acre of tares, for the summer and autumn months, and the like extent of ground for turnips and yams during the winter and spring months, this stock of swine may be amply supported.

Were two breeding sows kept on a farm of the size mentioned, and their produce reared by the farmer, it may be calculated that forty swine, weighing seven or eight stone each, would be annually fed off, in the months of January and February each year, the time when pork is most in demand. That such a number of swine can be supported and fed upon the offals of a three hundred acre farm, and other auxiliary articles specified, may be pronounced a certain fact.

The breeds he recommends are the hardy smaller sized varieties, but not the Chinese, or any of the pot-bellied sorts; because he has found that such breeds will thrive and grow fat where larger and finer breeds would starve.

In fattening for bacon and flitches the larger breeds are chosen; and in breweries, distilleries, oileries, and dairies, fed on grains, oil-cake, and milk; but where arable farmers keep swine of this description, as is the practice in some of the western counties, the method is to rear chiefly on raw potatoes and Swedish turnips, and to fatten on these roots, boiled or prepared by steam, with a mixture of oat, barley, or bean and pea-meal. Their troughs should often be replenished with a small quantity of food at a time, and kept always clean; and their food changed occasionally, and seasoned with salt. If proper care be taken, says a late writer, a feeding pig should not consume more than six Winchester bushels of oats made into meal. It ought to be shelled before it is ground, the same as for family use, but need not be sifted.

In fattening sucking pigs all that is requisite is to keep the mother well lodged and nourished. Weaned pigs when to be fattened are kept constantly on whey, or skimmed or butter-milk, with frequently an addition of peas or beans, or barley-meal. Such good keeping not only makes them increase rapidly in size, but renders them fit for the butcher at an early age. Swine are sold to the butcher at different ages, and under different names; as pigs when a few weeks old; as porkers at the age of five or six months; and as full grown hogs at from eighteen months to two years old. The young pigs are commonly roasted whole; the porkers are used as fresh or pickled pork; and the full grown hogs are for the most part converted into ham and bacon. The demand for porkers, which for London in particular is very great, and which continues almost throughout the year, is chiefly supplied from the dairies within reach of that metropolis.

Of curing Pork and Bacon.

The curing or pickling of pork is carried on to a considerable extent at many of our sea-ports. The carcase is cut in pieces, and packed in casks or kits, made for the purpose, containing from one to two hundred weight. Salt is dissolved in water till the mixture be strong enough to swim an egg; it is then boiled, and, when cold, poured upon the pork: when the end of the cask is fixed in, the article is ready for being sent to market. Henderson, a late writer, has given particular directions for the curing of bacon, founded upon a long course of experience, which, therefore, deserves to be more generally known.

The curing of bacon is thus described by Henderson, after much experience. After the carcase has hung all night, lay it upon a strong table, or bench upon its back; cut off the head close by the ears, and cut the hinder feet so far below the hough as will not disfigure the hams, and leave plenty of room to hang them by; then take a cleaving knife, and if necessary, a hand mallet, and divide the carcase up the middle of the back bone, laying it in two equal halves: then cut the ham from the side by the second joint of the back bone, which will appear on dividing the carcase; then dress the ham, by paring off the flank or skinny part, so as to shape it with a half round point, by clearing off any top fat that may appear; the curer will next take off the sharp edge along the back-bone with his knife and mallet, and slice off the first rib next the shoulder, where he will perceive a bloody vein, which he must take out, for if it is left in, that part is apt to spoil. The corners must be squared off where the ham was cut out.

In killing a number of swine, what sides you may nave dressed the first day, lay upon some flags or boards, piling them up across each other, and giving each pitch a powdering of saltpetre, and then covering it with salt: proceed in the same manner with the hams, by themselves, and do not omit giving them a little saltpetre, as it opens the pores of the flesh to receive the salt, and, besides, gives the ham a pleasant flavour, and makes it more juicy. Let them lie in this state about a week, then turn those on the top undermost, giving them a fresh salting: after lying two or three weeks longer, they may be hung up to dry in some chimney, or smoke house; or, if the curer chooses, he may turn them over again without giving them any more salt, in which state they may lie for a month or two without catching any harm, until he has convenience for drying them. Henderson practiced for many years the custom of carting his flitches and hams through the country to farm houses, and used to hang them in their chimneys, and other parts of the house to dry, some seasons, to the amount of five hundred carcases; this plan he soon found was attended with a number of inconveniences, and therefore he invented a smoke house.

Henderson's smoking house is about twelve feet square, and the wall, about seven feet high: one of these huts requires six joists across, one close to each wall, the other four laid asunder, at proper distances. To receive five rows of flitches, they must be laid in the top of the wall; a piece of wood strong enough to bear the weight of one flitch of bacon, must be fixed across the belly end of the flitch, by two strings, as the neck end must hang downwards; the piece of wood must be longer than the flitch is wide, so that each end may rest upon a beam; they may be put so near to

each other as not to touch; the width of it will hold twenty-four flitches in a row, and there will be five rows, which will contain one hundred and twenty flitches; as many hams may be hung at the same time above the flitches contrived in the best manner we can. The lower end of the flitches will be within two and a half or three feet of the floor, which must be covered five or six inches thick with saw-dust, and must be kindled at two different sides; it will burn, but not cause any flame to injure the bacon. The door must be kept close, and the hut must have a small hole in the roof, so that part of the smoke may ascend. That lot of bacon and hams will be ready to pack up in a hogshead, to send off in eight or ten days, or a little longer, if required, with little less of weight.

After the bacon is salted, it may lie in the salt-house as described, until an order is received, then immediately hang it up to dry. Henderson found this smoke house to be a great saving, not only in the expense and trouble of employing men to cart and hang it through the country, but it did not lose nearly so much by weight this process.

In the disposal of bacon, whatever is shipped for London market, or any other, both bacon and hams, must be packed into a sugar hogshead, or something similar, to hold about ten hundred weight. Bacon can only be cured from the middle of September, until the middle of April.

AGRICULTURAL

AND

MISCELLANEOUS RECEIPTS.

OF GARDENS.

A KITCHEN garden, well stored with vegetables, is highly important to the former, as the use of these supersede the necessity of consuming much meat; a practice equally consistent with economy and good health. When we perceive that the food of the cottagers of Ireland, is principally milk and potatoes; that these are a race of people which are healthy, robust, well-made, with strong, quick, and ardent powers of mind; and when we perceive that those savage nations which, for want of other food, are obliged to subsist entirely on fish or other meat, are generally the most stupid, squalid, and ill-made; we certainly cannot draw conclusions in favour of eating great quantities of flesh.

It is advisable to have a close high fence round your kitchen and fruit-gardens. This, in the first place, renders every thing within it secure from pillagers; and also serves to keep out fowls. Another benefit, consists in keeping off the strong cold winds of the

spring, which are very injurious to the young plants, and also to the fruit, which is then about putting forth.

Dung that is old, and destitute of the seeds of weeds, ought only to be used in manuring a kitchen-garden, and the ground ought not to be ploughed, but deeply dug, for all vegetables which root deeply in the ground. Nothing further need be said, with regard to a kitchen-garden, than that a loose mellow soil, with a southerly exposure is the best; that it ought to be kept rich; that as fast as weeds rise, they ought to be extirpated; and that no weeds ought to be suffered to go to seed within the garden.

If the garden be of a wettish or stiff soil, it will be greatly benefitted by being thrown up into high ridges in the fall; at the same time, this will assist in destroying the seeds of weeds; but particularly in destroying insects which may be breeding in the soil.

To destroy Insects.

In some seasons the vegetables in our gardens are almost annihilated by worms of several species. Fall ploughing, or spading the ground just before frost sets in, and strewing the ground with fine salt in the spring some time before the seeds are sown, are said to be sovereign remedies against these petty but powerful depredators.

Some vegetables are offensive to all insects; such as the elder, especially the dwarf kind, the onion, tansy, and tobacco, except to the worm that preys on the plant. The juice of these may therefore be applied, with effect, in repelling insects; and sometimes the plants themselves, while green, or when reduced to powder, particularly the latter, when made into snuff.

Set an onion in the centre of a hill of cucumbers,

squashes, melons, &c., and it will effectually keep off the yellow striped bug, that preys upon those plants while young.

No doubt a plant of tobacco, set in the same way, would answer a similar purpose; or, perhaps, to sow a few tobacco or onion-seeds in the hill, when planting, would have the same effect; and the growing plants from these seeds could be taken away, when no longer wanted as protectors.

Of other substances, sulphur is perhaps the most effectual, as every kind of insect has an utter aversion to it.

Powdered quick-lime is deadly to many insects, and perhaps offensive to all.

The same may be observed of soot, wood-ashes, and other substances which are strongly alkaline; and also of common salt finely powdered, brine, old urine, &c.

Calomel is also deadly to insects; and camphor, and terebinthene substances are offensive to them.

After premising thus much, we shall now speak of insects separately, and begin with the

Canker-worm.

THE female of this insect comes out of the ground very early in the spring, and ascends the tree to deposit her eggs, which she does in suitable places in the bark; where they are brought forth, and the young brood live on the leaves of the tree.

The only effectual remedy is, to prevent the insect from ascending the tree; and this may be done in various ways; but the easiest, perhaps, is as follows:

First scrape off the shaggy bark round the body of the tree, to the width of two or three inches; then

make up a mixture of oil, or blubber, with suitable proportions of sulphur and Scotch snuff; and with a brush lay this on the scraped part, forming a ring round the tree an inch or two wide; and no insect will ever attempt to pass this barrier, as long as the composition has any considerable moisture left in it.

Let it be repeated when it inclines to harden; though perhaps this is not necessary. Let it be done early in the spring, before the insect comes from the ground.

Another method, which it is believed will be found equally effectual, though attended with more trouble, is to scrape off the shaggy bark from the body of the tree; and then whitewash that part well with lime and water and a little sulphur added.

In place of this, however, Mr. Forsyth directs that the body of the tree be covered with a composition of old urine, kept some time for the purpose, soap-suds, fresh cowdung; and this he says will keep off all insects. Let it be laid on plentifully.

Another method, we have heard recommended is to fasten a strip of sheepskin, with the wool outwards, round the body of the tree, taking care that no place be left for the insect to creep up between the strip and the bark. The wool should be frequently combed to keep it loose.

A streak or ring of tar made round the body is also effectual, as long as the tar remains soft; but, as it soon becomes so hardened on the exterior, that the insect can crawl over, it requires to be repeated very frequently. Perhaps such a ring of tar and oil, or blubber, mixed together, would answer better.

Lastly, a strip of oiled paper put round the tree, with the lower edge projecting out considerably, forms a barrier which the insect cannot pass. Let the lower edge of the paper be kept well oiled.

In regard to all insects which are injurious to trees, by climbing them, and committing depredations upon them, in various ways, we believe, from the most correct information we have been enabled to obtain, from various sources, that, by taking the earth away from the roots of the trees, very early in the spring, and destroying whatever may appear to be the abode of any insects; and then returning the earth back, mixed with a small quantity of sulphur, sprinkling some of this upon the surface, will keep every insect from ascending any such tree.

The effect of sulphur, for this purpose, is very durable. Probably one operation of this kind will last for several years; though, on this point, we have no particular information. Other repellants of insects may be found repellants only for a time, more or less limited; but perhaps may answer the purpose for one spring; such as quicklime, fine salt, old urine, strong soap-suds, a strong decoction of tobacco, onions, &c.

Let either of the four last mentioned ingredients be applied, boiling hot, to the roots, after first taking the earth away, as before mentioned.

Curculio.

This is a bug, about the size of that which eats into the pea, and has proved very troublesome to most of the smooth-skinned fruits, and even to peaches, apples, and pears, in different parts of the country contiguous to Philadelphia. It has also made its appearance about Albany.

It ascends the trees in the spring, and as the fruit advances it makes a wound in the skin, and there deposits the embryo; from which a maggot is first produced. This preys upon the fruit until it dies and falls

off; when the maggot makes its way into the earth, and is there changed into a bug, which is ready to ascend the tree the next spring, and make its deposit in the fruit, as before.

One method of keeping this and all other insects from trees, as practised by Col. Nichols, near Easton, is to tie a small bag of common salt round the tree. A ring put round the tree, of a mixture of grease, or blubber mixed with salt and some of the other ingredients before mentioned, would perhaps answer a better purpose, and be attended with less trouble.

A recipe of his, which he says he has practised on peach trees with advantage, in regard to their health, is:—

"Take away the dirt from around the root, and where you find gum issuing out, there you will also find a white maggot, which is carefully to be taken away; then wash the body and roots with strong brine, which you will repeat now and then in the spring and summer."

We will mention two other methods, which are said to be infallible, for keeping all insects from trees: One is, bore a hole in the body of the tree, and fill the hole with mercurial ointment (*unguemtum coeruleum*) and cork it up tight.

The other is, bore a hole in the north side of the body of the tree, and fill it with spirits of turpentine, and cork it up, as before. Where the latter article is put into the hole, it should be bored slanting downwards, to keep this liquid from running out before the cork can be put in.

If these remedies are effectual, and we have considerable confidence in them, it must be owing to the essence of either of these substances becoming diffused

throughout the tree, and thus rendering it noxious to insects.

Caterpillars.

THE above directions, for keeping Canker-worms from trees, are equally applicable to these insects.

Grubs.

LARGE maggots produced from the eggs of a species of the butterfly, very injurious to Indian corn, while young, by eating the roots. Frequent ploughings, manuring the land with lime, soot, ashes, or salt, all tend much to keep them out of the soil.

Top or spindle worm.

WHITE worms, resembling grubs, found in the central hole which is formed by the leaves of Indian corn; and they there eat off the stem which forms the top of the plant. They are mostly to be found near barn-yards, and in rich spots.

They are discovered by their excrement appearing on the leaves. Sprinkling the corn with a weak lye of wood-ashes will extirpate them.

Black Worms.

ASH-COLOURED worms, with black stripes on their backs. When full grown, they are of the thickness of a goose-quill, and about an inch and a quarter long. They hide in the soil by day, and commit their depredations by night. They eat off young plants above ground, and frequently endeavour to draw them under. It is said that manuring the ground with salt will drive

them from it, and that lime and ashes will also have nearly a similar effect.

Red Worms.

THESE are slender, about an inch long, with a hard coat, and pointed head. They eat off wheat, barley, and oats, above the crown of the root; and they also eat through turnips, potatoes, &c. No positive remedy is known, unless it be manuring with the manures before mentioned, which are offensive to all insects. Summer-fallowings are also recommended, as depriving them of their requisite food.

Palmer Worms.

ABOUT half an inch in length, with many legs, and very nimble. They give to apple-trees the same appearance that the canker-worm does.

Mr. Dean says, that great numbers of them appeared, in the year 1791, in Cumberland, Massachusetts, and ate off all the leaves of the trees, except the membraneous parts; but that next year they disappeared. They let themselves down from the trees by threads, similar to the spider.

No remedy known.

Timber-worms.

THE smaller kind merely eat into the sap of wood, and turn it into powder-post, as it is commonly called. Felling timber about the middle of winter, the time it has least sap in it, will obviate this difficulty.

The large Boring-worm takes its residence chiefly in pine timber. If the trees be scorched in a light

flame, says Mr. Deane, or steeped in salt-water, it will destroy these worms, or prevent their entering the wood.

Hessian-fly.

WELL known for its ravages in wheat. Remedy: Immerse the seed-wheat ten or fifteen seconds in boiling hot water; cool it suddenly; dry it, with lime or gypsum sprinkled upon it, and sow it immediately. This process will assist its growth, in addition to its killing the nits of the fly, which, by a good glass, are said to be discernible near the sprouts of the grains that are infected. This remedy stands well attested by several publications, and is believed to be effectual.

Maggots.

TROUBLESOME to the roots of cabbages, turnips, and radishes. Give the ground a previous manuring with salt, which it is believed will be found effectual. Some weak brine applied to the roots of the plants, just after a rain, is also recommended. It should not be too strong, lest it injure the growth of the plants.

Yellow-striped bug.

FORMIDABLE to the young plants of cucumber, &c. In addition to what has already been said, of the remedies for keeping off these intruders, we would recommend sprinkling the plants with a little sulphur, or Scotch snuff, which it is believed will be found equally efficacious.

Turnip-fly.

THIS insect eats the seed-leaves of the young turnip-

plants, and thus destroys them. One remedy is to sow the ground with a mixture of old and new seed, and, as these will come up at different times, a part of the one or the other will stand a better chance of escaping.

Sowing a suitable proportion of tobacco seed with the crop will, no doubt, answer every purpose for keeping off this insect. But as common salt is found to be an excellent manure for this crop, we would recommend about three or four bushels of this article, made fine, with as many pounds of sulphur, and perhaps one or two of Scotch snuff, well mixed together, to be sown on the ground, just as the plants are coming up; and this, we venture to say, will be found effectual in keeping off these insects.

Garden-flea.

VERY destructive to young cabbage plants, while in the seed-leaf. Remedy: Sow some onion or tobacco-seeds with the seeds of the plant; or sprinkle some sulphur or snuff on the growing plants. Soapsuds sprinkled over them is also good.

Lice.

THESE infest cabbages, particularly; but are destroyed by the frosts. They are easily extirpated by smoke, particularly that of tobacco.

Weavel.

A LITTLE black bug, very destructive to wheat either in barns or granaries. On thrusting your hand into a bin of wheat infested with them, considerable warmth

will be felt; but, as they are usually collected together, every part of the heap or bin should be examined.

Sulphur snuff, put up in little papers, or bags, and properly distributed among the wheat, in the bin, will keep them out, or drive them out when they have got possession.

Grass-hoppers.

Prodigious quantities of these are sometimes generated in upland-mowing grounds. Upland pastures do not produce so many, owing probably to the feet of the cattle destroying many, before they are brought forth. Low wet meadows or pastures seldom produce many of them. The only known remedy against them, and it is sometimes very inadequate, is to destroy them by raising large flocks of turkies and other poultry, which feed on them.

Lice on cattle, and ticks on sheep, may be added to the catalogue of destructive insects.

Where colts and young neat-cattle become lousy, by reason of poor keeping, or otherwise, the lice are to be destroyed by oiling the creature, or washing it with a decoction of tobacco; and they should have better keeping, to prevent a return of the lice.

And where a sheep becomes full of ticks, which will sometimes kill the animal if not removed, they may be destroyed by a fumigation of tobacco smoke, as is described under sheep.

But the easiest method is to part the wool of the animal on each side of its spine from its head to its tail, and drop in some Scotch snuff along in each opening, and this will soon free the sheep of its vermin. Where it requires immediate relief, however, recourse should be had to the method first-mentioned.

TO MANAGE A DIARY.

Directions to the cow feeder.

Go to the cow stall at 6 o'clock in the morning, winter and summer; give each cow half a bushel of the mangel-wurzel, carrots, turnips, or potatoes, cut; at 7 o'clock, the hour the dairy maid comes to milk them, give each some hay, and let them feed, till they are milked. If she refuses hay, give her something she will eat, such as grain, carrots, &c., during the time she is milking, as it is absolutely necessary the cow should feed while milking. As soon as the woman has finished milking in the morning, turn the cows in the airing ground, and let there be plenty of fresh water, in the trough; at 9 o'clock give each cow 3 gallons of the mixture, as follows: to 8 gallons of grain add 4 gallons of bran or pollard; when they have eaten that, put some hay into the cribs; at 12 o'clock give each 3 gallons of the mixture as before; if any cow looks for more, give her another gallon; on the contrary if she will not eat what you gave her, take it out of the manger, for never at one time let a cow have more than she will eat up clean. Mind and keep the mangers clean, that they do not sour, At 2 o'clock give each cow half a bushel of carrots, mangel-wurzel, or turnips; look the turnips, &c. &c., over well, before giving them to the cows, as one rotten turnip will give a bad taste to the milk, and most likely spoil a whole dairy of butter. At 4 o'clock put the cows into the stall to be milked; feed them on hay as you did at milking-time in the morning, keeping in

mind that the cow whilst milking must feed on something. At 6 o'clock give each cow 3 gallons of the mixture as before. Rack them up at 8 o'clock. Twice in a week put into each cow's feed at noon, a quart of malt-dust.

The daily expense of subsisting each cow on the above feed will be about two shillings.

Directions to the diary-maid.

Go to the cow-stall at 7 o'clock; take with you cold water and a sponge, and wash each cow's udder clean before milking; dowse the udder well with cold water, winter and summer, as it braces, and repels heat. Keep your hands and arms clean. Milk each cow as dry as you can, morning and evening, and when you milk each cow as you suppose dry, begin again with the cow you first milked, and drip them each; for the principle reason of cows failing in their milk is from negligence in not milking the cow dry, particularly at the time the calf is taken from the cow. Suffer no one to milk a cow but yourself, and have no gossiping in the stall. Every Saturday night give an exact account of the quantity of milk each cow has given in the week.

To choose a milch cow.

As to a choice of breeds for a private family, none in England, (says Mr. Lawrence,) probably combine so many advantages as the Suffolk dun-cows. They excel both in quantity and quality of milk; they feed well after they become barren: they are small sized, and polled or hornless; the last a great convenience. The horns of cows which butt and gore others, should

be immediately broad tipped. There is a breed of polled Yorkshire or Holderness cows, some of them of middling size; great milkers and well adapted to the use of families, where a great quantity of milk is required, and where price is no object, and food in plenty. If richer milk and a comparison of the two famous breeds be desired, one of each may be selected, namely, the last mentioned, and the other of the midland county, or long horned species. Colour is so far no object, that neither a good cow nor a good horse can be of a bad colour; nevertheless, in an ornamental view, the sheeted and pied stock of the Yorkshire short horns, make a picturesque figure in the grounds.

The Alderney cows yield rich milk upon less food than larger stock, but are seldom large milkers, and are particularly scanty of produce in the winter seasons. They are, besides, worth little or nothing as barreners, not only on account of their small size, but their inaptitude to take on fat, and the ordinary quality of their beef.

To determine the economy of a cow.

The annual consumption of food per cow, if turned to grass, is from one acre to an acre and a half in the summer, and from a ton to a ton and a half of hay in the winter. A cow may be allowed 2 pecks of carrots per day. The grass being cut and carried, will economize it full one third. The annual product of a good fair dairy cow, during several months after calving, and either in summer or winter, if duly fed and kept in the latter season, will be an average of seven pounds of butter per week, from five to three gallons of milk per day.

Afterwards, a weekly average of three or four

pounds of butter from barley, half the quantity of milk. It depends on the constitution of the cow how nearly she may be milked to the time of her calving, some giving good milk until within a week or two of that period, others requiring to be dried eight or nine weeks previously. I have heard (says Mr. Lawrence) of 20 lbs. of butter, and even 22 lbs. made from the milk of one long-horned cow in seven days : but I have never been fortunate enough to obtain one that would produce more than twelve pounds per week, although I have had a Yorkshire cow which milked seven gallons per day, yet never made 15 lbs. of butter in one week. On the average three gallons of good milk will make a pound of butter.

POULTRY.

To manage young chickens.

THE chickens first hatched, are to be taken from the hen, lest she be tempted to leave her task unfinished. They may be secured in a basket of wool or soft hay, and kept in a moderate heat, if the weather be cold, near the fire. They will require no food for 24 hours, should it be necessary to keep them so long from the hen. The whole brood being hatched, place the hen under a coop abroad, upon a dry spot, and, if possible, not within reach of another hen, since the chickens will mix, and the hens are apt to main and destroy those which do not belong to them. Nor should they be placed near young fowls, which are likely to crush them, being always eager for their small meat.

The first food should be split grits, afterwards tail

wheat, all watery food, soaked bread, or potatoes, being improper. Eggs boiled hard, or curd chopped small, is very suitable for first food.

Their water should be pure and often renewed, and there are pans made in such forms, that the chickens may drink without getting into the water, which, by wetting their feet and feathers, numbs and injures them; a basin in the middle of a pan of water, will answer the end; the water running round it. There is no necessity for cooping the brood beyond two or three days; but they may be confined as occasion requires, or suffered to range, as they are much benefitted by the foraging of the hen. They should not be let out too early in the morning, whilst the dew lies upon the ground, nor be suffered to range over wet grass, which is a common and fatal cause of disease in fowls. Another caution requisite is to guard them against unfavourable changes of the weather, particularly if rainy. Nearly all the diseases of fowls arise from cold moisture.

For the period of the chickens quitting the hen, there is no general rule; when she begins to roost, if sufficiently forward, they will follow her; if otherwise, they should be secured in a proper place, till the time arrives when they are to associate with the other young poultry, since the larger are sure to overrun and drive from their food the younger broods.

To fatten poultry.

An experiment has lately been tried of feeding geese with turnips cut in small pieces like dice, but less in size, and put into a trough of water; with this food alone, the effect was that 6 geese, each when lean

weighing only 9 lbs., actually gained 20 pounds each in about 3 weeks fattening.

Malt is an excellent food for geese and turkeys, grains are preferred for the sake of economy, unless for immediate and rapid fattening: the grains should be boiled afresh.

Other cheap articles for fattening are oatmeal and treacle; barley-meal and milk; boiled oats and ground malt.

Corn before being given to fowls should always be crushed and soaked in water. The food will thus go further, and it will help digestion. Hens fed thus have been known to lay during the whole of the winter months.

Cure of dropsy in the crops of young turkeys.

This kind of dropsy is announced by a dull look, paleness of the head, loss of appetite, and aversion to food. The birds allow themselves to be approached and seized with facility, and they are without strength. Very soon a slight swelling of the crop is added to these symptoms, which, in ten days, becomes very considerable. I have taken nearly a pint of water from one. By pressing upon the crop of some of them, a certain quantity of matter is discharged by the bill, but never enough to entirely ease the crop. All these symptoms increase, and the bird dies at the end of 15 or 18 days' illness.

I sought after the cause of this disorder, and it was easy to find that it was occasioned by the stagnant water of which these animals drunk; in the course of the year the heat had been great, and there was little rain. The heat had hatched a vast swarm of small red worms, resembling ascarides. It is quite certain

that these insects must have been swallowed by the turkeys, and from this cause, and the bad quality of the water which they had drunk, a great degree of inflammation in the crop would ensue, with a stoppage of the passage which conducts to the gizzard. I divided the turkeys into three classes; for those who were still sound, I ordered grain and good water; with all that were diseased I practised the operation of tapping with a lancet, in the lowest part of the crop. I injected at the opening, by means of a small syringe, a slight decoction of Jesuits' bark, mixed with a little brandy, which was repeated twice in the course of the day. Next day the wound was better marked. I made again the same injection, and two hours after, I forced them to eat a little of the yolk of an egg, mixed with some crumbs of bread. At the end of three days, the wound in the crop was closed, which I might have prevented, but finding a natural opening in the bill, I made them take, during eight days, in their drink, the same substances which had been injected; and they were, by degrees, put upon their usual diet. I need not add, that clear water was given them instead of that of the standing pools. Ten of these animals had died before my arrival; two perished during the treatment, and the rest of the flock, which might be about forty, either escaped the disease or were cured.

GRAFTING.

Mr. Forsyth describes several methods of grafting:

1. Grafting in the rind, which is proper only for large trees.

2. Cleft grafting, which answers well on small stock or limbs, and has been mostly practised in this country.

3. Whip-grafting, or tongue-grafting, which is also proper for small stocks only; and, as Forsyth says, is the most effectual of any, and the most in use in Great Britain.

4. Inarching, or grafting by approach. This is done where the stock to be grafted on, and the tree from which the graft is taken, stand so near together that they may be joined.

Forsyth says, that grafts, or scions, should be cut off from the trees before the buds begin to swell; that they should be laid with the cut end downwards, and buried half their length in earth, having the tops covered with litter, to prevent their drying too much; that they should be all of the growth of the former year; that they should always be taken from healthy, fruitful trees; for, if taken from sickly ones, the grafts often partake of the distemper; that, if taken from young luxuriant trees, they may produce luxuriant shoots; but will not be so productive, as those taken from fruitful trees; that those which are taken from lateral, or horizontal branches are to be preferred to those of the strong and perpendicular shoot; and that none should be taken from the sprouts of trees.

Mr. Forsyth prefers the whip-grafting, for common cases; but, for these, Mr. Deane prefers the cleft-grafting. This, he says, is most commonly practised in this country, and is attended with success. It is done on the stocks in the nursery, or on the small limbs of trees. The proper season for it is just before the leaves begin to open. The head of the stock must be cut off sloping, and a slit made sloping the opposite way, deep enough to recieve the scion, which should

be cut like a wedge, with the outside thicker than the inner.

The rind of the scion must exactly join the rind of the stock. The slit should be opened by a wedge of hard wood; the scion should then be gently put in its place and the stock closed. After this, the whole must be daubed round closely with a mortar made of a mixture of loom and fresh horse-dung, so as completely to exclude the access of air; and this mortar must be surrounded with a winding of tow, or old cloths, to prevent the rains from washing it away. The scion should be covered nearly to the top with this mortar; and it should also extend two or three inches downwards round the stock.

In place of this mortar, Forsyth recommends a plaster made of pitch, turpentine, and beeswax, which is in like manner to be daubed closely round so as to exclude the external air. The mortar, however, if well made, and well applied, will answer very well. It should be composed of fine loam, not clay; because clay will contract and crack open, when dried.

Cleft-grafting may be successfully performed on trees, where the fibre of the outer bark runs round; such as the peach, plumb, cherry, &c., by first cutting through that bark, with a knife, at the place where the cleft is to be made, and in the same direction it may be expected to run; when the rest of the operation may be as easily performed as on other trees.

Whip-grafting is performed by cutting off the head of the stock sloping; then making a notch in the slope, from the upper part downward, a little more than half an inch deep, to receive the scion, which must be cut with a slope upward, and a slit made in this like a tongue, which is to be inserted into a slit made in a

slope of the stock; and the scion is then set in, so that the rinds of each join exactly together. The scion is then fastened by a ligature to keep it steady, and then surrounded with mortar, or the plaster, as before.

Grafting in the rind is performed by cutting off the stock square; slitting down the bark a small distance, and raising it up, so that the end of the scion may be inserted between it and the wood: the scion is made with a shoulder, cut in about half its thickness, and the other half is sloped off gradually, so as to give it the form of a wedge; the cut side being flat and the bark-side being untouched. This wedge or tongue is inserted under the bark, with the shoulder fitted to the stock; the raised bark is then pressed close and bound round, and the plaster is applied, as before mentioned. It is usual, in this case, to insert three or four scions in one stock.

Mr. Preston, of Pennsylvania, says he has grafted scions which came from Holland, which were apparently dried, and they grew; but that he failed in other instances, where the bark of the scions appeared to have become somewhat rotten.

He was also successful in grafting scions of the appletree, as late as the 20th of June, when the leaves of the trees were full grown.

Management of Bees.

SWARMING depends on the increase of bees, and a queen being ready to lead them. Their breeding begins sooner or later according to the forwardness of the spring, the fruitfulness of the queen, and the populousness of the hive. When bees carry in farina or pellets on their thighs, it denotes they have commenced breeding, which may be as early as February,

and not finish till October; and when their numbers are much increased they show indication of swarming, by their clustering in great quantities below the resting board.

They never rise but on a fair day, and sometimes will settle, and for some cause return to the stock, probably for want of a queen being with them. Some hives will cast three times, but mostly only twice. The second cast may be expected within three or four days, and never later than ten days after the first. Should a stock overswarm itself it will perish, unless strengthened; this may be ascertained by observing the quantity of bees afterwards seen to enter. It is necessary in the swarming season from April to July, particularly in May and June, to observe the hives on a fine day; in general the bees issue forth about noon—from nine to two o'clock or about three in the afternoon.

To hive bees.

Bee keepers should have spare hives by them, prepared to hive the bees as soon as they are settled: for should the sun shine hot on the swarm it may take another flight and may possibly be lost entirely. The manner of hiving them must be regulated by the nature of the place on which they settle. The custom of preparing hives varies; a clean new hive only requires the loose straw to be rubbed off with a cloth; if any dressing be used, fennel dipped in ale and sugar will best answer the purpose. Have ready a cloth whereon to place the hive, and a wedge to raise it; if the swarm should settle on a branch, shake the best part of it into the hive, place it on the cloth on the ground, and continue to disturb the swarm where it

settled, and the hive being left underneath, they will all go in; or cut the branch off, and gently place it in the hive. Should the bees settle on the ground, place the hive over them; and though bees are not apt to sting at this time, the hiving should be performed quietly. Avoid talking and breathing on them, and if any of them are crushed, they will resent it; therefore, to prevent accident, invariably use the bee dress, which will give confidence. All swarms are to be sheltered and left near to where they settle till the evening; thence to be removed very gently to the appointed place.

To unite swarms, and reinforce stocks.

It is essential when there are weak swarms of bees, that they should be strengthened. The idea, so prevalent, of the greatest number of hives producing the most honey and wax, is erroneous; for the great part of the bees are necessarily employed in rearing the young, and therefore the number of those who are occupied in collecting honey is not near so great as has been imagined; for every swarm, the least as well as the greatest, is provided with a queen, equal in fecundity to the queen of the large stock, and as the brood she brings continually demands the labour and attendance of nearly half the bees, this circumstance renders the other moiety, from the smallness of their number, unable to accumulate a large quantity of honey in the short time it mostly abounds, and therefore honey cannot be obtained in glass hives or otherwise, but from a strongly-peopled hive.

Hive the swarms or casts in the usual way, and at about eight o'clock the same evening spread a cloth on the ground, near to the hive required to be rein-

forced; bring the new swarm, and strike it down rather hard, flat on the ground. The bees will then fall in a cluster; quickly place over them the stock to be reinforced; in ten minutes they will have united and become as one family, to be removed the same evening to its former situation.

Or, each cast or swarm may be hived separately. In the evening, turn the crown of the hive into a pail, and set the other hive exactly over it; in the morning, the bees from the bottom hive will have ascended.

The system of uniting, so very important, is but little practiced, and has been overlooked by many cultivators; but it is absolutely necessary to have the hives well peopled and completely sheltered from wet, which are the principal and main objects to be particularly attended to in the art of bee keeping; and the advantages of uniting swarms will be found particularly beneficial in working the glasses with the newly invented double-topped hives.

To feed bees.

With the aid of feeding it is perfectly easy to bring any hive of bees through the winter; but to ensure the success of a very light stock, it is essential to keep it always warm and dry. Feeding is absolutely necessary when more honey has been taken than the hive can afford, by means of small hives or glasses. Such stocks as are intended to be kept through the winter should weigh twenty pounds or upwards, at the end of September, but casts and late swarms seldom attain this weight, unless two or more should have been united. The composition for feeding consists of moist sugar and new beer, the proportion of one pound of sugar to a pint of beer, simmered to the consistency

of treacle: to be inserted into the hives, by means of small troughs, at night, and removed the next morning early. Should a hive be very poor and weak, it is better to feed in larger quantities each time.

To manage honey.

To judge of the best honey, it should be of a bright pale colour, thick, and a little aromatic. To obtain it from the combs in its pure state, it must be left to run from them without pressing. The colour shows whether it is fine or inferior. If wanted to press some in the comb, choose the fairest and such as have not been broken; wrap each comb in white paper, such as lines the blue cover of loaf sugar. Set it edgeways as it stood in the hive, and it may be preserved many months. The combs meant to be drained, must be cut in slices. Lay them on a hair-search, supported by a rack over the jar, in which the honey is to remain; for the less it is stirred after draining, it keeps the better. Fill the jar to the brim, as a little scum must be taken off when it has settled. A bladder well washed in lukewarm water, ought to be laid over the double fold of white paper with which it is covered.

To take the honey without destroying the bees.

The following easy method of taking the honey without destroying the bees, is generally practiced in France. In the dusk of the evening, when the bees are quietly lodged, approach the hive, and turn it gently over. Having steadily placed it in a small pit, previously dug to receive it, with its bottom upwards, cover it with a clean new hive, which has been properly prepared, with a few sticks across the inside of

it, and rubbed with aromatic herbs. Having carefully adjusted the mouth of each hive to the other, so that no aperture remains between them, take a small stick, and beat gently round the sides of the lower hive for about ten minutes, or a quarter of an hour, in which time the bees will leave their cells in the lower hive, ascend, and adhere to the upper one. Then gently lift the new hive, with all its little tenants, and place it on the stand from which the other hive was taken. This should be done some time in the week preceding midsummers' day, that the bees may have time, before the summer flowers are faded, to lay in a new stock of honey, which they will not fail to do for their subsistence through the winter.

To manage bees generally.

The best situation for bees is to the north, with a range of hills wooded on the summit, and toward the base, enriched with heather, skirted to the east with a stream from the rocks. To confine this rivulet, the bee-master should sow the sandy beach with the seed of furze, and cover it with a light surface of earth. The furze would soon vegetate; and blooming, in the course of three years, overpay his labour, by providing the bees with pasture on soil otherwise barren, and the margin of the brook would gradually rise to restrain its encroachment on fertile lands. Suppose a white clover field to the south of the hills, and south from the field a large garden, where hardy winter greens have been allowed to flower, as early food for the bees. White mustard should also be sown very early in patches near the hive; but not nearer than one yard. A few dwarf flowers may come within two feet, but tall grown ones would assist insects to get

up. To the west, it would be desirable to have a shrubbery, a wood, a broomy common, or heather moor.

The stations for the hives must be six yards asunder, and never nearer than three yards. The board on which they are placed ought to be of one piece; or if joined, the under side of the joining should be lined with a thinner board fixed closely with wooden pins. The edges of this rounded standard should project four inches all round from the hive. Place it on three wooden pillars sixteen inches long, ten inches above the ground, but six inches of its length should be firmly thrust into the earth, in all its length to be sixteen inches. The pillar in front should be an inch shorter than the other two, and the three pillars should be within twelve or fourteen inches of the outer edge of the board, to exclude rats and mice. For the same reason no tall growing plant, no wall, nor any means for ascent should be within three or four feet of the hive. In fine weather, the entrance to the hive must be four inches long, and an inch and a half in depth.

In the beginning of the fine season, when the bees can get food, or have stores remaining, the bee-master has nothing to do but to keep the ground about the hive clear from weeds, and from whatever might enable vermin to climb there. Yet as a thriving stock inclines very soon to swarm, the hives must be frequently looked after, from eight in the morning till five in the afternoon. The symptoms are generally thus: The little city seems crowded with inhabitants.—They are continually in motion during the day; and after working time, they make loud noises. The drones may be seen flying about in the heat of the day, and the working bees go with a reeling motion and busy hum. When the bees come regularly out

of the hives, let no noise, no interruption incommode them: but if they fly along, as if they were unsettled, some tinkling noise or the loud report of a gun, will make the fugitives repair to the nearest lodgings. If there is an empty hive with combs and some honey in it, they will readily go there. If a new hive is used, remember to smooth it well within, and singe off loose straws. Perpendicular sticks should never be employed. Four cross sticks at equal distances will support the combs. Old hives do very well for late swarms that are not to be preserved through the winter; but box hives are best for them, as the bees work fastest there. They are not, however, fit for being kept through the cold seasons.

It is to be observed that great haste in forcing a swarm into the hive may disperse them. Give them time to settle undisturbed, though keep a steady eye on their motions: but whenever they gather into a cluster, lose no time in placing the hive over them. If the swarm rest on any thing that can be brought to the ground, spread a clean linen cloth: lay two sticks on it, two feet asunder; lay the body on which the swarm have fixed, gently on the sticks; covering it with the hive by a motion the least perceptible; and taking care that the edges of the hive rests upon the sticks. Cover hive and all with a cloth; for the sun might allure the bees to rise again. When they have gone into the hive, cover it with its own board, and carry it cautiously to its station. Bees are apt to leave their hive even after they begin to work, so they must be watched till evening, and throughout the ensuing day. Whenever they are sure to remain, fix the hive to its board with a little lime round the edges; and crown it with green sods to keep out too great heat or rain.

If a hive divides into two swarms, it is a sign that each swarm has a queen. Put each into old hives or boxes; but they must be kept separate. If a cluster of bees about the size of a small plum are seen together, the queen will generally be found there. Separate them, and with a drinking glass turned down, you may seize the queen. Put her, and a score or two of her subjects into a box full of holes, large enough to admit air, and yet not to allow the bees to escape. Feed her with honey combs, and keep her in reserve in case of the death of a queen in one of the hives. When a hive ceases to work, it is a sure sign the queen is no more. Then the bee-master may wait an hour and not see a loaded bee enter the habitation. But if the spare queen be taken late in the evening, wetting her wings to prevent her escape, and introduce her to the desponding society, they will receive her gladly, and begin to work.

If a hive fights among themselves, be assured there are two queens: and they will destroy each other, if one is not taken away to keep.

When bees are to swarm a second, or more times, they do not come out in clusters: but they make a sound called bellings, which may be heard; ceasing for a little, and renewed again and again. If there are different tones, it is certain there are several young queens in the hive. It is only by putting the ear close o it, that the sound can be heard distinctly.

PRESERVING MEATS, &c.

If meat be intended merely for family use, and to be used in two or three months, the following pickle

deserves to be recommended:—Water, one gallon; salt, nineteen ounces; saltpetre, one ounce and a half; sugar, half pound.

The Russians are fond of the flavour of juniper berries, and add a pound of bruised juniper to a gallon of pickle.

A tea-spoonful or two of cayenne pepper to the gallon, greatly increases the preserving power of the pickle.

To cure gammons, first sprinkle them as soon as they are cut and trimmed, with a little (Liverpool) salt. Let them lay together for twelve hours: take them out of the tub, drain and wipe them; then rub them separately with a mixture of twelve parts of common salt and one part saltpetre, well dried and then ground fine. Rub in this mixture well; lay them in the pickling tub, and the next day rub them again with a similar mixture. The day after fill up the tub with a brine made in the proportion of 18 oz. salt, 1 lb. molasses, and 1 oz. saltpetre, to the gallon of water. In this pickle they may stay for a fortnight. Then take them out, drain, wipe and smoke them.

If they are suffered to make their own brine by means of dry salt and saltpetre entirely, they will loose too much of the juices of the meat, and becomes hard and dry.

I have successfully cured beef in summer thus:

I killed an ox in the middle of August, at nine o'clock in the evening; it was cut up at 3 o'clock in the morning. The pieces were quickly rubbed with a mixture of ten parts of salt, and one part of saltpetre, and put into a barrel. In the mean time a brine composed of 1½ lbs. of salt, 2 oz. of saltpetre, and half an ounce of common pepper, to the gallon of water, was

ready over the fire, and when the beef was all packed in the barrel, it was poured on boiling hot. This prevented and destroyed all fly-blows. In a week, the pieces were taken out, drained and wiped; the pickle was boiled over again, scummed, and again poured boiling hot on the meat when re-packed. The process answered the purpose perfectly.

A method of preserving cream.

TAKE twelve ounces of white sugar, and as many grains of finely powdered magnesia, and dissolve them in a small quantity of water, over a moderate fire. After the solution has taken place, 12 oz. of new cream should be immediately added, and the whole uniformly mixed while hot. Let it then gradually cool, and pour it into a bottle, which must be carefully corked. If kept in a cool place, and not exposed to the air, it may be preserved in a sweet state for several weeks, and even months.

To prevent bottled cider from bursting.

MAKE a strong frame of plank, say, 1½ or 2 inches thick and nine deep, by locking it together edge-wise, place it in the cellar, and sit the bottles of cider in it, (after being well corked) as close as possible, until it is entirely filled, except the space for one bottle, which must be left to commence taking them from, when wanted for use. Then put clean sand on them, and settle it between the bottles, by throwing on alternately water and sand, until the sand is well settled half way up the neck of the bottles. In that situation the bottles will be preserved, filled with the very best cider for any length of time.

By placing ice on the sand over the quantity of bottles proposed to be used a day, it will be as if put into ice water.

To prevent Skippers in Bacon.

TAKE of red pepper finely powdered one table spoonful for every joint of meat, and rub it on the meat with the salt, when it is first cut up. It has been often tried, and was never known to fail in producing the above effect.

Extirpating Rats and Mice.

LAY bird lime in their haunts; for though they are nasty enough in other respects, yet being very curious of their fur, if it is but daubed with this stuff, it is so troublesome to them, that they will even scratch their skins from off their own backs to get it off; and will never abide in the place where they have suffered in this manner.

To make a Pickle or Brine for Beef.

To eight gallons of water add half a pound of saltpetre, one pound of brown sugar, and one quart of molasses, with as much fine salt as will make it float an egg light, taking care that the salt dissolves lest it be too strong—skim it well and it is fit for use.

Your beef or tongues should be put in cold water and remain 24 hours, then drained for an hour or two, previous to being put into the pickle.

Beef tongues, veal, or mutton for smoking should not remain longer in pickle than ten days.

This pickle need not be boiled, (which operation tends to harden the meat) but will remain perfectly sweet till spring, when, after your beef is used or taken out, it will be found the very best in which to cure shad, giving them a delicious flavour, and fine red colour throughout.

This receipt is offered with confidence to the farmer, as one of the very best ever adopted. And it is the opinion of the writer, will answer fully as well for pork, with the exception that the latter should not be soaked in water.

Manner of preserving Eggs perfectly fresh for twelve months.

Having provided small casks like oyster barrels, fill them with fresh laid eggs, then pour into each cask, the lumps being taken out, as much cold thick lime water as will fill up all the void space between the eggs, likewise completely cover them. The thicker the lime water is the better, provided it will fill up all the interstices, and be liquid on the top of the cask. This done lay on the head of the cask lightly. No farther care is necessary, than merely to prevent the lime from growing too hard, by adding occasionally a little common water on the surface, should the lime appear to be growing hard, and keeping the casks from heat and frost.

The eggs, when taken out for use, are to be washed from the adhereing lime in a little cold water, when they will have the appearance and qualities of fresh laid eggs, the lime preserving them from shrinking or putridity.

To preserve hams, or other smoked meat, through the summer.

WRAP up the meat in tow, of either flax or hemp, after shaking out the loose shives, and pack it in a tierce or barrel, taking care that there be next the tierce and between every piece of meat, a thick layer of tow packed in as close as possible; then set it away in a dry cellar or upper room. It is enough that the barrel or tierce be sufficient to keep the mice out, as no fly or insect will enter the tow.

Tow and flax are such bad conductors of heat, that a piece of ice will be preserved a long time wrapped up in tow. Cut straw also answers extremely well to keep hams in. Ashes are apt to communicate a bad taste to meat. Care should be taken to prevent the flies from having access to the meat before being packed away.

Preservation of butter.

ONE part of loaf sugar, one part refined salt-petre, two parts of the best pure salt are to be pulverised together and kept for use, one ounce of this to be mixed thoroughly with 16 ounces of the butter as soon as it is freed from the butter milk; it is then to be put into a close and perfectly clean dry vessel, from which the air is to be carefully excluded, and it will remain good for many years.

To cultivate hemp.—The soil.

THE soils most suited to the culture of this plant, are those of the deep, black, putrid, vegetable kind,

that are low, and rather inclined to moisture, and those of the deep, mellow, loamy, or sandy descriptions. The quantity of produce is generally much greater on the former than on the latter; but it is said to be greatly inferior in quality. It may, however, be grown with success on lands of a less rich and fertile kind, by proper care and attention in their culture and preparation.

To prepare the ground.

In order to render the grounds proper for the reception of the crop, they should be reduced into a fine mellow state of mould, and be perfectly cleared from weeds, by repeated ploughing. When it succeeds grain crops, the work is mostly accomplished by three ploughings, and as many harrowings; the first being given immediately after the preceding crop is removed, the second early in the spring, and the last, or seed earth, just before the seed is to be put in. In the last ploughing, well rotted manure, in the proportion of 15 or 20, or good compost, in the quantity of 25 or 33 horse cart loads; as without this it is seldom that good crops can be produced.

The surface of the ground being left perfectly flat, and as free from furrows as possible; as by these means the moisture is more effectually retained, and the growth of the plants more fully promoted.

Quantity of seed, &c.

It is of much importance in the cultivation of hemp crops, that the seed be new, and of good quality, which may in some measure be known by its feeling heavy in the hand, and being of a bright shining colour.

The proportion of seed, that is most commonly em-

ployed, is from two to three bushels, according to the quality of the land : but, as the crops are greatly injured by the plants standing too closely together, two bushels, or two and a half, may be a more advantageous quantity.

As the hemp plant is extremely tender in its early growth, care should be taken not to put the seed into the ground at so early a period, as that it may be liable to be injured by the effects of frost ; nor to protract the sowing to so late a season, as that the quality of the produce may be affected. The best season, on the drier sorts of land, in the southern districts, is, as soon as possible after the frosts are over in April, and, on the same descriptions of soil, in the more northern ones, towards the close of the same month, or early in the ensuing one.

Method of sowing.

THE most general method of putting crops of this sort into the soil is the broadcast, the seed being dispersed over the surface of the land in as even a manner as possible, and afterwards covered in by means of a very light harrowing. In many cases, however, especially where the crops are to stand for seed, the drill method in rows, at small distances, might be had recourse to with advantage ; as, in this way the early growth of the plants would be more effectually promoted, and the land be kept in a more clean and perfect state of mould, which are circumstances of importance in such crops. In whatever method the seed is put in, care must constantly be taken to keep the birds from it for some time afterwards.

This sort of crop is frequently cultivated on the same pieces of ground for a great number of years,

without any other kind of intervening; but, in such cases, manure must be applied with almost every crop, in pretty large proportions, to prevent the exhaustion that must otherwise take place. It may be sown after most sorts of grain crops, especially where the land possesses sufficient fertility, and is in a proper state of tillage.

After culture.

As hemp, from its tall growth and thick foliage, soon covers the surface of the land and prevents the rising of weeds, little attention is necessary after the seed has been put into the ground, especially where the broadcast method of sowing is practised; but, when put in by the drill machine, a hoeing or two may be had recourse to with advantage in the early growth of the crop.

In the culture of this plant, it is particularly necessary, that the same piece of land contains both male and female, or what is sometimes denominated simple hemp. The latter kind contains the seed.

When the crop is ripe, (which is known by its becoming of a whitish yellow colour, and a few of the leaves beginning to drop from the stems; this happens commonly about thirteen or fourteen weeks from the period of its being sown, according as the season may be dry or wet, the first sort being mostly ripe some weeks before the latter:) the next operation is that of taking it from the ground, which is effected by pulling it up by the roots, in small parcels at a time, by the hand, taking care to shake off the mould well from them before the handsful are laid down. In some districts, the whole crop is pulled together, without any distinction being made between the different kinds of

hemp; while, in others, it is the practice to separate and pull them at different times, according to their ripeness. The latter is obviously the better practice; as by pulling a large proportion of the crop before it is in a proper state of maturity, the quantity of produce must not only be considerably lessened, but its quality greatly injured by being rendered less durable.

After being thus pulled, it is tied up in small parcels, or what are sometimes provincially termed baits.

Where crops of this kind are intended for seeding, they should be suffered to stand till the seed becomes in a perfect state of maturity, which is easily known by the appearance of it on inspection. The stems are then pulled and bound up, as in the other case, the bundles being set up in the same manner as grain, until the seed becomes so dry and firm as to shed freely. It is then either immediately thrashed out upon large cloths for the purpose, in the field, or taken home to have the operation afterwards performed.

Process of grassing hemp.

The hemp, as soon as pulled, is tied up in small bundles, frequently at both ends.

It is then conveyed to pits, or ponds of stagnant water, about six or eight feet in depth, such as have a clayey soil being in general preferred, and deposited in beds, according to their size and depth; the small bundles being laid both in a straight direction and cross-wise of each other, so as to bind perfectly together; the whole being loaded with timber, or other materials, so as to keep the beds of hemp just below the surface of the water.

It is not usual to water more than four or five times in the same pit, till it has been filled with water.

Where the ponds are not sufficiently large to contain the whole of the produce at once, it is the practice to pull the hemp only as it can be admitted into them, it being thought disadvantageous to leave the hemp upon the ground, after being pulled. It is left in these pits four, five, or six days, or even more, according to the warmth of the season, and the judgment of the operator, on his examining whether the hempy material readily separates from the reed or stem; and then taken up and conveyed to a pasture field, which is clean and even, the bundles being loosened, and spread out thinly, stem by stem, turning it every second or third day, especially in damp weather, to prevent its being injured by worms, or other insects. It should remain in this situation for two, three, four, or more weeks, according to circumstances, and be then collected together when in a perfectly dry state, tied up into large bundles, and placed in some secure building, until an opportunity is afforded for breaking it, in order to separate the hemp. By this means the process of grassing is not only shortened, but the more expensive ones of breaking, scuething, and bleaching the yarn, rendered less violent and troublesome.

After the hemp has been removed from the field, it is in a state to be broken and swingled, operations that are mostly performed by common labourers, by means of machinery for the purpose, the produce being tied up in stones. The refuse, collected in the latter processes, is denominated sheaves, and is in some districts employed for the purposes of fuel. After having undergone these different operations, it is ready for the purposes of the manufacturer.

Fruit trees.

THE seeds of a nursery should be planted in rows five or six feet apart, that carrots, potatoes, or bush beans may be planted between them. This will be an inducement to keep the nursery clean. Cherries, peaches, plumbs, and other stone fruit, should be planted while the stones are moist, or with the meat on them. In this way they come up with more certainty. It is a good practice to plant the seeds in beds, and to remove the young trees to the nursery. This will give an opportunity of early removing the tap root, and of increasing and directing the lateral roots. The dwarfs in a nursery are not worth cultivating, and ought to be removed; there are commonly enough thrifty trees without them.

In taking up trees, care should be used not to injure the roots. The tap roots should be cut off, the broken roots pruned with a sharp knife, and the lateral roots should be carefully preserved, and should have sufficient room in the ground to spread. The trees when set out should have the same aspect, as when standing in the nursery. It is useful to place a small quantity of hay or straw around them, to prevent the sun from taking up too much of the moisture, and to keep the ground from becoming dry and hard. This should be removed before snow falls, lest it harbour mice.

On dry land, not exposed to be moved by frost, transplanting is safest and best in autumn; otherwise in the spring. Trees are more thrifty, will bear sooner, and more plentifully, near fences, and will less incommode the cultivation of the field.

In forming the head of the tree, all the limbs, which will be likely to rub across other limbs, should be

early removed. By neglecting to do this in season, the tree may be injured by causing large wounds. By pruning when the circulation is most active, the wounds will soonest be healed.

It is safest, when the wounds are large, to cover them with some kind of plaster to keep out the water and air, and prevent rotting. Mature trees, it is said, will produce more and fairer fruit by being pruned when in blossom.

When mice have injured the bark, it is useful to cover the wound with dirt, or some kind of plaster. When entirely girdled, the tree may be preserved by connecting the under and upper lips of the bark with a suitable number of scions. It is a good preservation against injuries by mice, to tread down the snow, when it first falls, for a foot or two about the tree."

How to produce the best of Fruit.

TAKE a scion from a tree, the growth of the preceding year, of the choicest fruit to be found—cut this scion into pieces of two, three or four inches in length, dip the ends cut into warm rosin so as to prevent the sap issuing out—plant the pieces in soil suitable for an orchard. A number of shoots will spring up; from these select the most thrifty for growth, lop down the remaining shoots and cover them faithfully with earth, and in a short time they will become roots to nourish and hasten the growth of the tree. An orchard may be produced in this manner at least two years sooner than from the seed.

Recipe for making good yellow Butter.

A gentleman from Scotland has lately called at this

office, and requested us to promulgate the following recipe for the benefit of those farmers who supply our market with butter.—He was led to make the suggestion in consequence of having noticed that our butter made after the cattle are put to hay, is almost universally white. He says that in his country the dairy women avoid this by grating some orange carrots, the juice of which, after being strained, is mixed with the cream previous to churning. Butter thus manufactured acquires not only a beautiful yellow colour, but a flavour which adds greatly to its value. The quantity of carrot juice necessary to be used for this purpose may easily be ascertained: indeed the judgment of the manufacturer cannot fail to suggest very nearly the quantity necessary to give a proper colour.

Art of dressing Flax so as to resemble Silk, as practiced in Germany.

TAKE one part of lime, and between two and three parts of wood-ashes; pour over them a due proportion of water to make a strong and sharp lie after they have stood together all night, which must be poured off when quite clear. Tie handfulls of flax at both ends, to prevent its entangling, but let the middle of each be spread as open as possible, in a kettle, on the bottom of which has first been placed a little straw with a cloth over it.

Then put another cloth over the flax, and so continue covering each layer of flax with a cloth till the kettle be nearly full. Pour over the whole the clear lie, and after boiling it for some hours take it out, and throw it in cold water. This boiling, &c. may be repeated, if judged requisite.

The flax must be each time dried, hackled, beaten,

and rubbed fine; and, at length, first dressed through a large comb, and then through a very fine one. By this process the flax acquires a beautifully bright and soft thread. The tow, which is beaten off, when papered up and combed like cotton, is not only used for many of the same purposes, but makes an excellent lint for wounds.

Mode of whitening Straw.

In 1806, a new method of whitening straw was discovered in Germany. This consists in steeping it in muriatic acid saturated with potash.

The straw, thus prepared, never turns yellow, is of a shining white, and acquires great flexibility.

Preserved Strawberries.

To one pound of ripe strawberries put one pound of powdered loaf-sugar, laying alternately on a deep dish-layer of each. Let them remain thus for twenty four hours, then boil them in a syrup till they are all of a colour. In order to determine when they are done enough, cut one of them open.

Then, taking them out, boil the syrup to the consistence of a jelly, let it remain till cool, then put in your strawberries, and let them boil up once; take them off, and when cool, put them into a pot for use.

Hop-Beer.

For a half barrel of beer take half a pound of hops and half a gallon of molasses; the latter must be poured by itself into the cask. Boil the hops, adding to them a teacupfull of powdered ginger, in about a pailful and a half of water, that is, a quantity suffi-

cient to extract the virtue of the hops. When sufficiently brewed, put it up warm into the cask, shaking it well in order to mix it with the molasses. Then fill it up with water quite to the bung, which must be left open to allow it to work. You must be careful to keep it constantly filled up with water whenever it works over. When sufficiently wrought to be bottled, put about a spoonful of molasses into each bottle.

RULES TO BE OBSERVED REGARDING THE IMPROVEMENT OF WASTE LANDS.

In the cultivation of wastes, the following rules are laid down by the most successful improvers.

1. Not to put in practice any scheme of improvement, without the fullest deliberation, nor without the command of an adequate capital.

2. Not to begin on too great a scale, nor until, by experiment it be found, that the design is suitable to the soil, situation and climate.

3. When the intention is to cultivate peat-moss, not to begin cropping, till at least one season after the drains are completed, and the soil thoroughly reclaimed from superfluous moisture. In flow or spongy mosses a longer time is necessary, and it is desirable to expose the soil to the action of the atmosphere, during the frosts of winter.

4. To plough or delve peat-moss in autumn, that it may be effectually exposed to the winter frost and rains, and not to the summer's heat, which hardens it, and prevents its decomposition.

5. Whatever is done, to do it *effectually;* not to

think of laying on four acres, the manure necessary for three, nor the lime, chalk, earth, clay, sand or gravel, upon two acres, that should be employed in covering only one.

6. To carry on the improvement of waste lands, without encroaching upon the dung necessary for the improved part of a farm, as dung ought never to be brought from a good soil to lay on a bad one. Unless dung therefore can be procured from a neighbouring town or village, it will be better to leave the lands in their natural state, except in cases where the soil, by being pared, burnt, limed, or marled, or covered with chalk, clay, earth, &c. will pay the expense of the improvement.

7. The last rule is, to lay down land, improved from waste, more especially in high and bleak situations, as soon as possible into grass, and to retain it in that state as long as it is tolerably productive. For though grain and roots may be cultivated on waste lands, when properly improved, yet grass pastured, particularly by sheep, is principally to be depended on for improving all weak soils, in barren districts. In such cases, it is from grass alone that remuneration can be looked for by the improver of waste lands. Even though soils of this description do not produce grass in much abundance, or of good quality, yet when in pasture they produce something, and a stop is put to farther expenditure.

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OF THE

AMERICAN POCKET FARRIER

AND FARMERS RECEIPT BOOK,

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