

I have remarked that the mortality increases with the increase of cold ; that in warm days, fewer die ; and that the disease abates as the weather grows milder.

It is fatal particularly to animals in their first and second years.

It is not certain whether it be contagious ; it probably is not. Every year the same causes exist and produce the same effects.

In a number of bodies which I opened I found no signs of inflammation: the belly was relaxed, instead of being distended, as in the blood-disease or the swollen paunch ; no smell was exhaled, even when the body was kept three days in the month of July ; all the flesh was white and infiltrated ; the blood-vessels empty, except the hemorrhoidal vessels ; the pituitary membrane of those subjects which had bled at the nose was bloody ; the glands of the mesentery were voluminous ; in the chest and lower belly, appeared an effusion of reddish serosity, and some hydatides ; in the liver were some flukes ; it was large, and the gall-bladder was filled with bile ; the first two stomachs contained much alimentary matter ; that in the *manypplies* was dry, and in the *red*, fluid ; there was none in the intestines : the bladder was either empty, or contained bloody urine ; the reins were in a very good state.

Is this a simple or a complex disorder ? It is certain that it bears some symptoms and marks of the *blood-disease*, and others of the *rot*. Those which it has in common with the former, are coloured evacuations, great thirst, and internal effusions of a reddish liquid. The season in which it makes its appearance is also that in which the blood disease does most mischief. On the other hand, the slowness of the animal's motions, the paleness of the nostrils, lips and gums, the infiltration of the flesh, the hydatides, the liver-flukes, &c. are indications of the *rot* : there is, indeed, no swelling below the nether jaw ; but all those which have died of the *rot* have not had this symptom. After having weighed all circumstances and compared what happens in the red disease with the appearances in the blood-disease and the *rot*, I am rather inclined to refer it to the latter.*

The red disease is to be attributed to the manner in which sheep are managed in Sologne. They are led to the fields the

* All the details into which I have entered on the subject of this disease may be seen in a work entitled *Observations sur plusieurs maladies des bœufs*, &c. printed in 1782.

whole year round, in all kinds of weather, even when there is nothing to eat; they are not fed while housed, or they have so little given to them, that they frequently suffer from hunger; the lambs are born in a state of debility, and do not find milk enough in their mother's bag to strengthen them. In the month of May, the ewes begin to be milked, by which means, the nourishment of the lambs is rendered still more scanty.—How is it possible for animals reared with so little food to have a good constitution? and is it not to be expected that many should die during the first or second years of their life? The country, besides, is extremely moist; the sheep-houses are low, the plants watery, which also contributes to render the sheep liable to every kind of debility.

Bleeding, and cooling remedies have not succeeded, and success was not to be expected from them, as the symptoms of the diseases indicate a total loss of strength: setons, strengthening remedies and tonics have been found serviceable; I have also found advantage in merely putting the animals upon a regimen of dry herbs, and especially of broom.* I have prescribed, with effect, several glasses full, for some days successively, of a decoction of alkekengi berries or winter-cherries, or of the middle bark of elder, or of sage, or hyssop, or pennyroyal, or of any other aromatic plant, adding to it 4 or 8 grammes of nitre for each pint of water. Notwithstanding the cures which have been effected by these remedies, they must not be relied upon, if the disease is far advanced; they are to be used with confidence only at its commencement: probably, the sheep which I treated were in the first stage of the disorder.

Preventives are principally to be depended upon. The extent of the mischief, the loss it occasions, the little skill which country people possess in the administering of remedies, the carelessness and extreme negligence of the greater part of them, the expensiveness of drugs, and the care required; all these circumstances demand that we should give directions how to keep off, as much as possible, the red disease.

Mortality among sheep may be avoided, 1. by stocking farms with none but animals raised in parts that are known, and

* By a natural instinct, sheep in Sologne eagerly attack the broom, particularly for the sake of the pods filled with seed. When they can do this, the red disease ceases. Would it cease without this food? I will not assert it, for I believe the broom is very serviceable if used with moderation. It is an aperient and tonic plant. I know that in some countries they carefully gather the pods of the broom, to give them to sheep in winter, and that they are found beneficial.

not suspected of engendering the red disease ; 2. by not suffering the sheep to go out in bad, that is to say, in wet weather ; 3. by feeding well the ewes that are with lamb or that give suck, and their young ones, while housed ; 4. by never milking them ; 5. by not leading the young lambs to meadows from which their mothers are sometimes kept ; because they are liable at an early period to lay the foundation of a rot ; 6. by hanging within their reach bags of salt for them to lick ; 7. by not folding, or only during the greatest heats ; taking care to bring home and house the flocks at the approach of rain or storms ; 8. lastly, by keeping the sheep-houses dry.

The most essential object of care is to feed the sheep well while housed.

Of Colds.

Some sheep are more liable to take cold than others ; sudden changes from hot to cold ; rains ; the coolness of the night air when they are folded ; these things occasion colds among sheep. If the complaint is only a thickening of the humour which covers the pituitary membrane, the nostrils are stopped, or a mucus more or less fluid runs from them, the animals snort frequently, and raise their head in order to breathe more easily through their mouth.

If the complaint extends to the wind-pipe and lungs, the animals cough and appear to suffer more.

When the disorder is light, no remedy is necessary ; it cures itself. But a cold is sometimes so violent as to require nursing : the sick sheep should be put by themselves in some place kept moderately warm ; they should be fumigated with boiling water, either pure or infused with aromatic plants, in order to give tone to the enfeebled organs ; good food should be given to them, and they should not be led to the fold again until the stoppage or the cough has ceased.

The precautions proper to prevent colds, may be found under the article that treats of *Folds and Folding*.

Of the Tetanus.

Young sheep are sometimes attacked by a *tetanus* or species of convulsion, which sometimes kills them ; it is either a symptom of some other disease or a disease itself.

If the tetanus is symptomatic, it is cured with the disease which it accompanies ; if it is not, it requires a particular treatment.

A sheep may have convulsions occasioned by the pain of an operation ; when the pain ceases, the convulsion abates and finally ceases of itself.

I have seen several lambs seized with involuntary movements, especially in the legs and head ; the legs were distorted, and remained in that condition some time ; nor did they in every instance recover ; the head was agitated and drawn back.— Some recovered without the assistance of any remedy ; others, and they were the most numerous, died after languishing some time. They would not suck, nor could they be made to swallow milk, on account of the jaws and gullet being closed.

This disease is, in some parts of the country, called *cordis* (*cor-tes*), in Ardèche for instance, because of the stiffness of the convulsed parts. It has been imagined that by cutting a nerve the disorder might be cured : this is not impossible ; but which nerve is to be cut ? It appears to me that if the lambs affected by the tetanus are of a sanguine habit, it would be of use to take a little blood from their heads. However, I offer this merely as a conjecture ; for, as yet, I know no remedy upon which reliance may be placed

Of Convulsions (Maladie convulsive) or Madness (Maladie folle.)

Both these names are given to a disorder which has symptoms common to some others. The animal attacked by it has, from time to time, extraordinary motions ; it goes as chance directs ; totters, as in the falerie and the staggers ; it falls, and its limbs are convulsed, as in epileptic fits : if it be taken hold of, it is found not to support itself, and seems to have no more strength. I have never had an opportunity of seeing instances of this disorder. From all I can learn concerning it, it appears to me to be related to what is called *St. Vitus's dance*. Animals in this state are rather burdensome than profitable. Farmers dispose of their flocks when they see them seized by this disorder, which terminates in death ; some, after having at different times sustained losses from it, have been deterred from keeping any more flocks.

I regret that I cannot explain the causes of this disorder. Some persons have attributed it to the soil and the fodder ; but

in Beauce, where it has within a few years prevailed very much, the soil is the same now that it always has been; yet this disease has not been known many years. It would be easy to determine whether a change of food would have the desired effect.

If the animals are of a sanguine habit, there is no risk in bleeding them in the jugular vein, once or twice, with the intermission of a few days. It would perhaps be beneficial to throw cold water upon their heads. These however are mere conjectures upon which I insist the less, as the disease is not known to me, and as I have read no description of it.

Of Vertigo, Dizziness or Staggers.

This is one of the diseases which at present engages most attention. The reason is easy to be conjectured. Many means are known of preventing the sheep pox, the rot, the blood-disease, the scab, the swelled paunch and others; but hitherto none is known for preventing the vertigo. From all quarters I have heard complaints on this subject, which merit much attention.

It has been thought that the vertigo is most prevalent in a season which succeeds a wet and mild winter, in farms exposed to the overflowing of some river, and in low sheep houses. In order to render this opinion, which may be just, worthy of implicit confidence, it ought to be confirmed by observations continued several years.

It is unfortunate that the symptoms of vertigo do not appear before the last stages of the disorder. If shepherds paid more attention to it, they might perhaps discover earlier symptoms: yet, in truth, this is hardly to be expected from men of so little information, who, besides, having many sheep to attend to at once, are not able to distinguish those which are unhealthy, before the disease has made great progress. It would be necessary for the proprietors themselves to be, in some measure, the shepherds of their own flocks, or at least to see them so often as to know each individual, and to examine them in every state.

Mr. Hazard does not consider the vertigo as a disease,* but as a symptom of several affections. His opinion will appear well founded if it be recollected that in fact there are different

* See an interesting letter from *Mr. Hazard* to *Mr. C. Pictet* of Geneva, Vol XXII of the *Annales de l'Agriculture Française*.

disorders in which the animals behave as in the vertigo : but it is more than a symptom when it is occasioned by tenias within the skull ; in this case, it is what is called in medicine a *pathognomonic* symptom. The opinion of *Mr. Huzard*, however, may be the most correct, and does not at all contradict what I have to say respecting the vertigo.

The following symptoms usually attend the vertigo ; the animal, in its walk, is irregular and staggering ; it sometimes is ahead of the flock and sometimes remains behind ; it goes off and loses itself ; its head is heavy ; it turns round towards one side only, sometimes for a considerable while ; raises its head in the air ; falls and rises frequently. It then strays in the fields and eats nothing, either because it cannot see, or because the disease takes away its appetite ; it lies senseless and stupified ; it gradually wastes away and dies. The progress of the disease is generally very slow ; sometimes however it is rapid.

Mr. Yuart, professor of agriculture at Alfort, says that having, in winter, given tansy to his sheep, he had less vertigo than usual among them that year. This may easily be tried, as tansy is very common ; and, at any rate, other bitter herbs may be used in its stead.

The cause of vertigo is not to be sought for in the chest, nor in the lower belly ; these cavities present no other appearances than they do in cases of cachexy. The state of the head has induced a belief that it is to be found within the skull. In fact, if it is opened after the animals death, one or more hydatides are commonly found, sometimes united, sometimes separate, formed by pretty thick membranes, which contain globular *tœnias*, having four suckers, and swimming in a limpid liquor. I have seen some which contained nearly a glass-full of liquid, and which occupied much room in the head. Sometimes the bone becomes thin in the places against which the hydatides press ; in this case, it almost always happens that an abundant serosity is interposed between the lobes of the brain, and fills the ventricles. A closer inspection would probably discover other particulars.

It is the general belief that vertigo attacks sheep only during their second year. Some also, it is said, have it during their first year. I have been assured that sheep of three or more years old have been known to turn ; this may have been owing to some other cause.

Some farmers are of opinion that the vertigo is occasioned by a stroke of the sun while the animal is at pasture. Its head,

as is known, is constantly held low ; but, in this position, as the sun shines directly upon the occiput, which is hard, thick and covered with wool, especially in the merino, it can scarcely hurt the inside of the head. Those races whose head is without wool, would be more exposed to the vertigo than the Spanish sheep ; it would be more frequent in the south than in the north, which is contrary to experience. Disease occasioned by strokes of the sun are inflamatory, but the vertigo is not of this class.

Others think this disease attributable to a deficiency of nourishment, and imagine that the young animals which have not sucked long enough, or which have not had sufficient pasture nor fodder, are more subject to it than others. But I have known flocks violently attacked by it, although the lambs were weaned late, their spring and summer pastures were good, and each one, when housed, had every day a sufficient portion of after-grass and some handfuls of good provender.

This disorder has also been attributed to the folding of lambs late in the season, when rains are frequent and the nights long. They may indeed suffer from this cause ; but vertigo does not result from it : my flock never suffered from this disease before the year 1807, yet my lambs are always folded until the 11th of November.

A distinguished veterinary,* who superintends one of the government establishments, is of opinion that the cutting of the jaw teeth contributes much to it ; but he offers no evidence. If the vertigo was merely a convulsion, a spasmodic disease, one might be disposed to think that it is occasioned by the difficulty which these teeth find in making their way. Although I do not think his opinion well founded, yet I have advised him to pursue his inquiry, and to observe attentively all that happens at this period of the animal's life. Mr. Voisin, a physician at Versailles, attributes the vertigo to a serous obstruction of the brain ; he regards the formation of hydatides only as a consequence of that state, which he compares to the *hydrocephalus* of children. This likewise is no more than conjecture.

According to some German authors, a too great heat in the sheep-houses, by weakening the young lambs, produces vertigo. Yet I have seen this disorder fatal to many that had been reared in very airy places, rather cold than warm ; a great proportion of them were apparently vigorous.

* Mr. Schneider, director of the imperial establishment of la Sarre

Mr. Frédéric-Charles-Gustave Gerike, a Westphalian, published, in 1805, in German, a treatise on the nature and cure of the vertigo in sheep, which has been translated into French. This writer, after examining and discussing all the opinions hitherto offered, embraces one which is peculiar to himself.— He maintains that the vertigo is occasioned by violent blows on the head which the animals frequently give themselves, either in frisking about, or in butting one another. During their tender age, their skull is thinner than when they are above two years old. These concussions wound some one of the numerous glands contained in the mass of the brain. The secretion of this gland being interrupted, lymph is collected, which extends it so as to form a sack or vesicle, whose volume continually augments; such is his account. This theory would appear more probable than the others, if the author had told us how *tœnias* are formed in these vesicles, and what the glands are of which he speaks; no glands in the brain being known beside the brain itself; and, in the last place, why rams, whose blows are more violent than those of the ewes, are not more subject than the females to vertigo.

No sure nor even probable means have been fallen upon as preventives against the vertigo; means of cure only have been attempted. The following are those with which I am acquainted.

Instead of entirely shearing the lambs, the wool has been left upon their heads until they are eighteen months old. This precaution has been found useless; several proprietors have never remarked so much vertigo among their young animals as when the wool has been left upon their heads a year.

Mr. Voisin has given to sheep, in this disorder, several doses of a decoction of madder-root; his example has been followed by several persons; particularly by the superintendant of the imperial establishment at Arles: some have been successful, others have not. The insufficiency of this remedy has occasioned it to be abandoned; *Mr. Voisin* himself, who frankly owned that he considered it rather as a preservative than as a curative, has not thought proper to insist upon its efficacy.— Since, however, it has effected some cures, this remedy is good in certain cases which ought to be well understood*.

* The receipt is: boil an ounce of madder-root, for a quarter of an hour, in three pints of water, and make the animal drink that quantity each day, in five or six doses, at nearly equal intervals of time.

Recourse has also been had to trepanning. This operation, which is easily performed, has been practised upon sheep in many countries. As the hydatide is commonly on the surface of the brain, it appears as soon as the piece of bone is cut out, and it may be removed whole. I have witnessed this operation a number of times, but have never known it to effect a cure. Some of the animals lived eight days after being trepanned. *Mr. Charles Pictet*, a year ago, said that he had in his flock a sheep upon which *Mr. Maunoir*, a surgeon of Geneva, had operated more than a year before: this is a rare instance; the animal commonly dies two or three days after. No dependence therefore is to be placed upon an operation which always or almost always fails.

In consequence of accounts which have been received, that in Germany they could cure the vertigo, inquiries have been made with a view of discovering the means. The method employed is to pierce the skull, not with a trepan, which takes away too large pieces of the bone, uncovers too great a surface of the brain, and tears the skull, but with an instrument which is much more easily managed; the accounts received were those of the first attempts made by *Messrs. Riem and Reuter* in 1791. The following is a description of the instrument, and of the manner of operating, from a Memoir read by *Mr. Morel de Vindé* before the agricultural society of the department of *Seine-et-Oise*.

It is composed of two pieces: one is a pointed rod of steel, about two inches and a half long, with a handle at one end, shaped like a pear, and at the other end terminating in a triangular point. This rod is near two lines in diameter; and tapers a little towards the handle.

The other piece is a syringe, about 4 inches and a half long; and 1 inch diameter, terminated by a pipe screwed on, 2 inches long, comprehending its collar, and arranged so that the collar is of 6 lines, and the stem 2 inches.

The inside of this pipe is made of the same diameter with the rod, in such a manner that when the latter is put into the pipe, the collar of the pipe covers 6 lines of the handle, only letting the point of the rod project 4 or 5 lines, to which the extremity of the pipe is exactly fitted on every side; this projection of the point of the rod beyond the pipe, which embraces 6 lines of the handle of the rod, prevents the pipe from retreating any more

The greatest difficulty of the operation is to discover the place where it ought to be made. The shepherd ought to examine well the sick animal ; to observe towards which side it turns ; to try, by shaking its head, if he can hear in what part the collection of water is situated ; to feel with his thumb whether some part of the skull does not yield to the touch ; to employ, in short, all possible means for discovering the place where the puncture should be made.

If the disease has continued long, and the water is on the surface, the place is more easily discovered, on account of the thinness of the skull.

When the place is discovered, the shepherd must prepare three or four plasters of strong pitch well softened and spread upon bits of skin 8 or 9 lines in diameter ; he must then examine whether the syringe is in good order and screws tight into the pipe.

He then must shear the animal's head, from the foretop to the ears, as close as possible ; then unscrewing the pipe of the syringe, and introducing into it the rod, so that its point may project 5 or 6 lines beyond the extremity of the pipe, he must pierce the skull of the sheep, and push in the rod so far that the extremity of the pipe may enter with it into the skull ; then he must withdraw the rod, leaving the pipe sticking in the skull.

If the place has been fortunately chosen, a little water will immediately come out, which may be seen in the pipe ; then the syringe is to be quickly screwed upon the pipe remaining in the skull, and the water to be gently pumped out.

In drawing the piston, some resistance is to be expected ; it is commonly occasioned by the sack which endeavours to come out ; then the syringe and the stem are to be taken gently and with the greatest care from the skull, and the sack which follows the stem may be taken hold of by the fingers, and the hydatid completely removed.

The syringe and its pipe may be applied several times, if one is confident of having found exactly the place of the sack, and of being able to draw it out.

When the operation is ended, one of the plasters is applied, after warming it, so that it may take firm hold and completely stop the wound.

If unfortunately the proper place is not hit upon the first time, the operation is to be repeated, until the right place is discovered: each of the holes is to be covered with a plaster of pitch

The animal must then be kept upon good food, not too abundant, and consisting of green fodder, if it can be had, if not, of the tenderest dry fodder, with a little provender every day, until a cure is effected.

The shepherd, after the operation, must carefully wash and clean the different parts of his instrument, wiping and drying them with a warm cloth, and taking particular care to preserve the point of the instrument from rusting.

Mr. Gerike's method differs from the one which I have just described; as he does not employ the syringe, but prefers a simple puncture, through fear lest the piston should draw out parts of the brain itself.

He advises, after introducing the trocar covered by the pipe, to draw it out, and leave the pipe in the skull; then, without screwing on the syringe, merely to incline the head of the animal, and let the water run out without being pumped. He thinks that piercing the sack by the trocar, and merely suffering the water to run out, is sufficient to effect a cure. He then advises to pour into the wound some drops of a tincture of myrrh, and lastly, as in the other method, to apply a pitch plaster.

Mr. Valois, a veterinary at Versailles, has successfully tried *Mr. Gerike's* method, and appears to prefer it to every other.

Mr. Yvart is one of those who have made the most attempts to cure the vertigo, without trepanning; he has varied the manner of making the puncture; at first using the trocar, and afterwards a simple pricker or awl. His theory of the disease, and that which he has taught to his scholars, agree with the theory of all those who have reflected upon it. After many trials with the trocar, he has concluded that the awl makes a neater puncture, and may be made to penetrate more or less, as the operator pleases. *Mr. Yvart*, his brother, his son, and *Mr. Rappolt*, have agreed among themselves to perform operations, and to make observations. The instrument which they use is 4 inches long, including the handle, the iron is 15 lines. It is as thick as a goose-quill, is round, and tapers off to a point; its point is not too sharp, that it may not break, and that it may slide easily over the blood-vessels and nerves which it may meet with.

Whether the trocar or the awl be employed, the first thing is, to be certain of the spot which must be pierced, in order to find the hydatide or hydatide, which are commonly in the cerebrum : if they were between the cerebrum and the cerebellum, they could not be reached without killing the animal.

Mr. Rappolt, in order to point out as clearly as possible the parts which may be pricked, supposes a rectangular figure formed on the head of the animal by lines drawn from one eye to the other, from one ear to the other, and from each eye to the ear on the same side of the head with it ; which figure would be divided into two equal parts by a line passing from the top of the head at right angles to the line connecting the ears and to that connecting the eyes. Within one of these rectangles the operation should be performed. In order to render the directions still plainer, he supposes two triangles, one on each side of the head ; the base being a line drawn from the eye to the ear, and the two sides being drawn, one from the eye, the other from the ear, and meeting in the middle of the head at the centre line before described. Within these triangles, punctures may be made without any risk ; in this way, the middle of the head would be preserved, which must not be opened, because the animal would inevitably perish. In rams which have horns, the puncture should be made a little behind and above the horns ; it would be just the place pointed out in the supposed rectangles and triangles.

The trocar possesses over *Mr. Yvart's* instrument the advantage of piercing only to a certain depth, and of being manageable by persons of little experience ; but the hole which it makes is much larger, and consequently it may be more injurious. It is true that *Mr. Yvart's* instrument requires a steady hand ; I should however prefer it to the trocar: when it is employed, no incision in the skin is necessary, which must not be drawn, that the opening in it may correspond with that in the skull, in order to facilitate the discharge of the water. The operator, holding the instrument firmly between his thumb and his fore and middle fingers, so as not to suffer it to penetrate deeper than he wishes, places the other two fingers upon the animal's head, that his hand may be steady, which is absolutely necessary. Too much force should not be applied ; it is better, if the instrument does not penetrate deep enough the first time, to insert it again. The skull being pierced, the instrument is gently pressed through ; 6 or 8 lines are commonly sufficient, and often more than sufficient, when the skull is flexible and thin. The instrument is quickly drawn out, and is followed by the hydatide, either full or empty ; it is carefully extracted, either with a pin

or with the fingers ; the head is turned down, to let as much water as possible run out, which is accelerated by putting a finger in the animal's mouth to make him move his jaw. Sometimes neither hydatide nor water comes out ; in this case, the instrument is again gently introduced without stirring it about, in order to pierce or loosen the hydatide. It is not necessary always to draw out the pellicle of the hydatide, it is sufficient to have pierced it.

Messrs. Yvart and Rappolt, both before and after the operation, content themselves with keeping the diseased animals separate from the rest, with no other regimen than good nourishment in small quantities ; they put nothing upon the wound, except some drops of spirit of turpentine ; washing it with wine would be sufficient. The wound must be kept clean ; every other day it should be opened, during a week, either by taking off the scab, or by inserting the awl, in order to let out the water which may be collected ; for the whole of it is not always discharged at the time of the operation. *Messrs. Yvart and Rappolt*, object to the syringe for drawing out the water and the vesicle, because by employing this instrument the brain is disturbed, and even small portions of it taken away, and because the nerves and blood-vessels are torn, by which means the animals may be killed ; they think that simply discharging the water is sufficient to effect a cure : in this they agree with *Mr. Gerike*. The frequency of the punctures does not prevent the animal from getting well.

This operation succeeds with difficulty upon rams, on account of their horns.

A great proportion of the animals operated upon by *Messrs. Yvart and Rappolt*, have been saved ; a great number not radically cured, have lived longer than they would have done had the disease been neglected. *Mr. Yvart* deems it an indispensable condition that the operation be performed only in dry weather, and that the animals be kept in a dry place.

In short, if only a few individuals of a flock may be saved by this operation, it is so easy and occasions so little expence, that it is well worth attempting ; it is unfortunately proved by experience that an animal attacked by the vertigo, if not attended to, always dies. The oftener the operation is repeated, the greater will be the perfection and certainty to which it may be brought. *Mr. Yvart* has already performed many cures : *Mr. Vulois*, a veterinary at Versailles, is said to have been successful, as well as *Mr. Petit* and *Mr. Louchard*, both

veterinaries, one, of the department of la Somme, the other, at Lonjumeau. This last, as I have been informed by *Mr. de Neuvery* mayor of Bievre, operated last year, for the mayor, upon four thaives, which have since brought fine lambs, & are in good health. A month ago, he performed the same operation upon a male lamb, which is now well. In short, out of twenty operations which he has performed within eighteen months, nine have been completely successful. He has hitherto employed the trocar.

In the month of April 1808, at my house in Paris, *Mr. Huzard* with *Mr. Desplas* operated, in my presence, upon one of my thaives, which recovered completely. *Mr. Huzard* made use of a trocar, but smaller than that employed for men.

I advise proprietors of merinos to make the experiment whenever they have an opportunity, particularly with the awl, that its advantages may be ascertained; and to keep an account of the results, that they may become generally known.

The success already obtained promises more; and there is room to hope that a disease which sometimes makes havoc in fine flocks, will henceforward do comparatively little injury.— I have dwelled upon this disease longer than on the rest, because it can be attacked only by mechanical means, and because the part whence the evil is to be extirpated is very delicate.

It often happens that a sheep holds its head towards one side, appears stupid, and is restless, without having the vertigo.— This may be occasioned by a stoppage in the head; or by worms, called *oestres*, in the nostrils or in the frontal or ethmoidal sinuses: I shall speak of this farther on. The animal, in this case, sneezes and snorts frequently; a thick matter runs from the nose. Unless attentively observed, these movements of sheep may be mistaken for a real vertigo.

In other disorders which have their seat in the head, or which affect that part by sympathy, the animals have the appearance of vertigo; as in the *tetanus*, *madness*, *dropsy in the brain*, &c.: but, by attending to all the symptoms, there is not much risk of making a mistake.

Hoiving or Sudden swelling of the paunch.

It sometimes happens that sheep have their paunch suddenly swollen. The common French name for this disease is *empansement*, and signifies that the evil is seated in the paunch.

The cause of it is not doubtful ; it proceeds from a superabundance of food, or of some gas produced by the fermentation of the matters contained in this stomach. When a flock, after having lived for some time upon dried fodder, is suffered to remain too long in a pasture whose grass is tender and relishing, indigestions are apt to be caused in those sheep which eat more than the rest, or whose stomachs are weak. An excess of grain would be productive of the same consequences. In some situations, the same thing happens without any excess of food ; it may be caused by turning them into a pasture of clover or luzerne, or even into a field of oats or wheat, wet by rain or dew : the humidity disposes the aliments to a sudden fermentation ; gases are disengaged which distend the paunch, suspend respiration and the circulation of the blood, and commonly kill the animal in a short time. It is remarkable that sheep have *hoved* in consequence of having remained an hour, in winter, during frost, in a field of luzerne. I have experienced this in my own flock.

It has been supposed that the gas which causes the inflation possesses a deleterious quality, and for this reason causes death. This is possible ; but a rapid distention is sufficient, by mechanical causes alone, to produce great disorder and to suffocate the animal.

Some persons have attributed this complaint to the nature of the grass, pretending that luzerne and clover in particular are most apt to produce it. It is more probable that the inflation is caused by these grasses only because they ferment quickly ; for the same thing would happen if they were suffered freely to feed in fields of green wheat, oats, barley, pease, lentils, lupins, vetches, &c. In the *ci-devant* pays de Caux, cows (for they also are liable to this disorder) are tied to stakes in patches of clover, the only kind of meadow in the country ; so that they can only eat a certain quantity. They are removed to different places, several times a day, and great care is taken to let them have no more than is proper for them. They are fed in this way only during fine weather ; and they are seldom attacked by the disorder in question.

The symptoms of this disease are, a sensible augmentation in the volume of the belly, on the left side ; a sluggishness in walking ; diminution or loss of strength ; stumbling ; difficulty of respiration ; the animal opens its mouth as if it wished to throw up the food or the gas by which it is oppressed. When violently attacked, it struggles with the disorder but a few minutes, and falls down dead. If the body be opened, the

paunch is found to be full of alimentary matter, or the gas which is there formed rushes out with impetuosity.

Sheep may be preserved from hoving, 1. by taking care not to let them eat too much ; the quantity of food proper for them, as well while housed as when at pasture, may to a certain degree be determined ; (see what has been said under the articles *Foddering* and *Pasturing*) 2. by not turning them into meadows of young grass, when wet ; or by not suffering them to remain there long, but only to pass through quickly, so that they may eat only the ends of the grass ; it is better that they take but very little, and be made to pass through several times, that they may have time to digest a part of what they eat, and that the paunch may not be suddenly distended. It is customary in some places, as has been mentioned, to cut clover or luzerne, or young pease or vetches, and to give them to the sheep while housed, or to put them in racks carried to the fields where the plants grow ; but what is given to the sheep is mowed the preceding day, that it may begin to be dry before the animals eat of it. This wise precaution has been dictated by fear of the sheep being hoved.

When a sheep has its belly swollen, nothing should be given to it to eat ; its mouth should be kept open by means of a gag ; it should be forced to run ; its back and belly should be rubbed, in order to drive the gas out of its paunch : in many instances, nothing more is necessary. *Gilbert* advises to throw it into the water : I am not certain that this advice is good. If the disorder is very violent, recourse is to be had to alkaline substances, such as lie, soap-water, potash, lime-water, or, which is still better, liquid ammonia. Whichever of these substances is at hand, it should be given in the following doses ; viz. of lie or lime-water, 2 decilitres ; soap-water, one glass ; liquid ammonia, from 20 to 25 drops, which the animal must be made to swallow. The dose is to be repeated once or twice, as may be needful ; some injections should also be given ; but if the symptoms are very threatening, the paunch must be opened with a knife ; and a tube, made of reed or elder of the size of one's finger, introduced into the wound. The trocar would be much preferable to a knife, which cannot be so well directed. By plunging it with force, rather in a perpendicular than in a horizontal direction, into the middle of the left flank, at an equal distance from the last rib, the haunches and that part of the spine called lumbar vertebrae, the paunch is opened. The tube is to be pushed in, and the trocar drawn out ; the air immediately makes it escape, sometimes carrying with it matters that stop the tube, which may be cleared by means of a long probe with

a button on the end. The tube must be left in some time, to facilitate the escape of the gases which continue to be formed, until no more come out. The circumference of the wound is then cleaned with warm wine, and it is covered with a pledget of turpentine. As a trocar cannot always be procured, it is better to make use of a knife than to let the animals die.

In the mean time, to chirurgical means may be added medical and dietetic treatment; and alkalies may be administered, as has been prescribed, and injections somewhat acidulous: the animals should be led out and made to walk; they should be lightly rubbed with a wisp of straw.

I have had sent to me from England a tube made of iron wire covered with skin, and terminated by an oval bit of pewter, pierced with several holes communicating with the tube. The person by whom it was sent says that, by inserting the instrument into the paunch through the mouth and the œsophagus, it enables the air to disengage itself and to escape. I gave it to a veterinary, who has assured me that he could make no advantageous use of it: indeed it appears to me difficult to introduce it; I believe it would even oppose the escape of the air, by stopping the orifice of the stomach.

In the department of Ardèche, it is said, a hosed sheep has been cured by drawing the air from the intestines through the anus, by means of a syringe. If this is true, and if the attempt is renewed with success, this last remedy would be preferable to every other, on account of its extreme facility; syringes may be had almost every where. It is to be hoped that this experiment may be repeated, and an attempt made even to draw the air through the mouth.

No food should be given to the animal before its paunch is emptied, and its excrements have some consistence: its food may be gradually increased in quantity; at first, it should be straw, after-grass, fine bran; that is to say, aliments which will not ferment.

It has been advised to give to sheep that are hosed a cold decoction of aromatic plants, such as balm, with 2 grammes of sulphuric ether. I do not know whether this remedy has been found successful.

Worms and Insects which infest sheep.

Several species of worms and insects infest sheep. The most remarkable worms are the tenias; among which may be

distinguished that which in French is called *hydatigène*, because it is enveloped in a hydatide or sack containing an aqueous humour. It is also called *cerebral tænia*, globular or vesicular tænia: it has been mentioned under the article vertigo. This worm is found in various parts of the body, particularly in the head; it appears also in the chest and the lower belly, even enchased in the viscera. Another sort of tænia, that which is annular and shaped like a ribbon, is found in the intestines. The operations already mentioned are the only possible means of destroying the worms in the head: as to the annular worm in the intestines, it can be attacked only by vermifuge medicines, either taken through the mouth or injected; but the symptoms which indicate it should be well known. The only case in which these remedies ought to be employed, is when these worms have been found in the bodies of several sheep that have died, and it is thence presumed that the others likewise have them. One year at Rambouillet, we gave to lambs among which we suspected that some were attacked by these worms, soot mixed with milk. We cannot say with certainty that those which took the remedy had worms; but none of them fell sick; several died before this remedy was employed. If injections are thought adviseable, decoctions of bitter herbs and oily substances, that kill worms, should be used.

A species of worms is produced and grows in the nose of sheep; it is hatched from an egg deposited there by a fly.— This worm buries itself in the nose, and increases in size, to the great annoyance of the sheep. It may be discovered by the efforts which the animal makes to get rid of it; it holds down its head, raises it again, shakes it, snorts from time to time, and sometimes turns round as if it had worms in its brain: people are very apt to be deceived. These worms are short, round, entirely white, except the head, on which is a brown spot.— Sometimes sheep get rid of them by sneezing. In order to make them come out more easily, or to kill them, the sheep which are infested by them are exposed to the fumes of sulphur, or rather, of spirit of turpentine, or some other essential oil. When this method is employed, it is necessary to present the fumes to the animal's nose only at intervals, and for a few moments at a time, that it may have an opportunity of breathing, and not be suffocated. The worms may die in the nose, and not be able to come out. In this case, inflammations ensue, which are attended by ill consequences. The trepan, which is of little use in the vertigo, is often successful when employed to extract the worms from the nasal cavities, because the skull, in this case, is not touched

Flies sometimes deposit eggs in the vulva of ewes ; or in the wounds which rams get, in fighting, at the roots of their horns ; or in those occasioned by bites of dogs. A little spirit of turpentine destroys the worms hatched from the eggs.

We have not the same resources against the flukes which live in the biliary pores of the liver, and even in the gall-bladder ; nor against the crinodes (*filiaria equi*) which are found in the tracheal artery and the bronchia. These worms are filaceous ; they are three or four inches long. The presence of the former may be conjectured when symptoms of the rot appear, and the latter are indicated by a violent and frequent cough. The worms can be attacked by no particular remedy ; they are connected with disorders which favour their multiplication. By preventing the disorder, the production of the worms is hindered.

It remains to speak of two insects ; the tick (*acarus*) and the louse (*pediculus ovis*). The former is most common in woodland countries ; it sticks to dogs and sheep ; it clings to them with its feet ; it cannot be removed without drawing blood from the place where it fixes itself. Lice infest the different parts of the body ; cause itchings, when they are in great numbers ; torment and fatigue the animal, and make it sensibly grow lean. The latter insects are destroyed by applying some fat substance to them ; they cannot resist the impression even of the air, for the day after shearing they all disappear from sheep which were full of them. The Eng^l'sh employ arsenic and corrosive sublimate. Mr. Jefferson has addressed a memoir to the Institute, in which he blames this practise, on account of the dangerous nature of those substances, and proposes a method which appears to be good. Take a common bellows, and adapt to its extremity a tin tube containing had tobacco, which is set on fire ; let one man hold the sheep between his knees, let another open the different parts of its fleece, and let a third, by means of the bellows, blow the smoke over all the different parts of the animal's body successively ; under its belly ; upon its legs and between its thighs. It is asserted, that in eight hours one hundred and fifty sheep may be cured in this way ; the ticks and lice die in twenty four hours. After the operation, the sheep must be kept some time in the open air, that the tobacco smoke may not injure them*.

I have often suspected that sheep swallow insects together with the leaves of plants ; especially when they go to pasture

* A little snuff, or sweepings of tobacco, put upon the parts containing the insects, are said to answer every purpose.

where spiders have made their webs, and have caught numbers of little cantharides, or other insects likely to corrode the membranes of the stomach. I have often been struck by the great quantities of these spider-webs and of the insects caught in them, especially upon wild-poppies (coquelicots), which are sometimes covered with them, and I have suspected that subsequent mortalities ought to be attributed to them rather than to any noxious quality in the plant. It is also possible that sheep may be injured by eating plants which have been gnawed by insects, without swallowing the insects. I offer these remarks as mere conjectures, which it would be well to examine by observations which I have not yet had an opportunity of making.

Of Tumours, Fractures and Wounds.

A flock which is well fed and well attended, is not very liable to these three kinds of accidents. But when one happens, it must be attended to. Sometimes, at the lower part of the cheeks of sheep, are seen gatherings which may be the consequences of disease. These gatherings are always critical and favourable; all that is necessary, is to discharge the matter which they contain, by means of a scalpel or a pen-knife, to cleanse the wound with warm wine, and afterwards to dress it with spirit of turpentine, yolks of eggs and brandy.

If a sheep breaks its leg, as sometimes happens in leaping a ditch, or by means of a horse or carriage, it is easy to reduce the fracture, although it may have happened some time. For this purpose, take two, three or four small splints of wood; lay them over the junction of the ends of the fractured bone; cover them with soot and whites of eggs beaten together; wrap the whole in tow, sufficiently tight to prevent the splints from moving, but taking care not to bind it round too tight, as it might occasion a mortification. The animal must be put by itself, on good litter; and fodder should be given to it upon the ground or in a low manger: if treated thus, it will soon recover and walk.

By means of little boots, the legs of lambs that were bowed have been straightened.

For simple wounds nothing is necessary, if they happen when nothing is apprehended from the heat of the weather; in summer they should be attended to, on account of the flies, which may be kept off by putting upon the wound a little spirit of turpentine. Wounds occasioned by blows or bites demand more care: they should be washed with some brisk liquor, as lavender brandy, arquebuse-water, red water (l'eau rouge) &c. For the wounds made by shearers, see article *Shearing*.

For other swellings, see articles *Anthrax* and *Spider*,

Of purifying Sheep-houses.

During a pestilential and contagious disease among sheep, it is beneficial to keep the sheep-houses clean, to make the air circulate freely through them, and to renew the litter in them.—When the sickness has ceased, it is proper to purify the houses before sheep are put there again.

Confidence had long been placed in aromatic fumigations, such as the burning of juniper-branches or berries, or resinous substances : but, in the present case, it is not required merely to substitute an agreeable for a disagreeable smell. Fumigations, unless they destroy the power of the deleterious gases, and the activity of the destructive miasmata, are of no service. The inutility of such fumigations have at length been discovered, and vapourisations of vinegar employed in their stead ; these have not been found more efficacious.

The true means are the following: begin by removing all the dung; open the doors and windows; wash with boiling water the racks, the mangers and the walls, to the height of three feet; take away the ground of the floor, to the depth of 3 inches, and put new earth in its stead.

After this, in order to obtain completely the end proposed, the following process should be employed; we are indebted for it to *Mr. Guyton de Morveau*, and it has been attended with the happiest effects.

Place upon a chafing-dish of live coals a broad earthen pan containing 12 grammes of common salt a little moistened; carry this apparatus into the sheep-room, and pour upon the salt 9 grammes of oil of vitriol: shut the doors and windows, and leave the place immediately, so as not to breathe the suffocating vapour, which will fill the whole building: keep all shut until the fumes are entirely dispersed ; the sheep may then enter with safety.

Ægagropila.

This name is given to substances sometimes round, sometimes of an oblong shape, found in the fourth stomach of sheep as well as of other ruminating animals. They are covered with a greyish crust, and have an excrementitious smell. If one of these substances be opened, a mass of filaments will be

found wrapped together, composed of bits of wool swallowed by the sheep when they lick themselves, or when they take from each other's backs ears of grain or parcels of fodder, or when they browse the leaves of bushes to which flocks of wool adhere. Some persons imagine that these masses are a mixture of wool, which makes the chief part, and of a very small quantity of vegetable matter, particularly eglantine. But they are found in the stomachs of animals which live where eglantine does not grow.*

These substances found in the stomach have been the occasion, more than once, of consequences nearly fatal to suspected persons; and of much embarrassment to the judges. Some farmers have insisted that malicious persons, with a view of injuring them, made these balls and threw them in the way of the flocks which swallowed them. Men have been unjustly punished upon suspicion of this crime. It is to be hoped that the courts of justice will hereafter show more understanding in their decisions, and not attribute to malice the operations of nature. These lumps of wool are made round by the pressure of the sides of the stomach; and the juice of the stomach covers them with a crust which has been mistaken for pitch.

It is not certain what effect these substances may have upon the health of the sheep in which they are found.

The veterinaries deem them harmless. They are found in the major part of the sheep killed by the butchers, which are apparently in full health. Others say that the *ægagropilæ* may be fatal; they draw this inference from the quantity of them found in the bodies of several sheep which died after being in a state of debility and oppression; from ten to sixteen have been found in one stomach; it must be confessed that, however small they may be, so great a number in the fourth stomach, which is not large, must greatly impede its functions; and although the animals, upon being opened, showed no other unhealthy symptoms, it cannot be denied that their death might have been occasioned by these substances. Admitting that *ægagropilæ* cause sickness, the only way of preventing them is to keep the flocks away from bushes, and to place the racks in so erect a position that the fodder may not fall upon the fleeces. I do not think any medicines can reach the fourth stomach, and dissolve such compact masses of wool. These medicines would be lost among the substances contained in the three

* Sometimes, lambs, when their mothers have wool around their teats, swallow some of it. The shepherds should be careful to remove it.

other stomachs, or they might occasion disorders worse than the original evil.

In order to know every thing relative to *ægagropilæ*, consult a very good tract by *Mr. Chabert* in the *Instructions vétérinaires*. This subject has several times been treated in the *Annales de l'agriculture française*, particularly in vols. **XXIII**, **XXVII** and **XXXIX**.

Of Shepherds and Dogs.

I shall terminate this work by an article which might as well have been placed at the beginning.

Good shepherds are so necessary, that unless they can be procured, fine flocks are not to be hoped for.

Those who judge only from appearances, think that shepherds have nothing to do; because they see them wandering slowly about the country with their flocks. In some parts of the country, the shepherds knit; but they would do better to give up all such occupations as may withdraw their attention, which ought to be incessantly bent towards their flocks.— Besides, all their labour does not consist in leading the sheep to the fields and tending them while there. The following details will show that they have much to do in the course of the year, and that even those moments are not lost in which they are supposed to be entirely idle.

Shepherds are divided into *travelling* and *sedentary*; some duties are common to both, and some peculiar to each. In several parts of France, the travelling shepherds conduct their flocks, in the summer, to the mountains, and bring them back, to pass the other seasons either on the farms of their owners, who house them and feed them with fodder laid up for the purpose, or in parts where the grass grows, such as la Crau d'Arles, the sea coast in the department of Var, &c. These latter flocks remain in the open air all the year round. The travelling shepherds, being almost continually at a distance from their employers, have opportunities of committing great frauds, Care should therefore be bestowed in the choice of these men, and it would be proper for the master to go from time to time to the place where they are stationed, to overlook them, and make them render an account of themselves; it would be desirable even to have a confidential person constantly with them. The business of shepherds, during their journeys and their abode on the mountains and in the low country, has been already described.

It is customary, in many places, to give the shepherds very trifling or no wages, but to permit them to have in the flock a certain number of sheep maintained at the cost of the master : the increase of these sheep and their wool belong to the shepherds, who do not even pay for the shearing. This custom is attended with many ill effects : men should never be put in situations where they may cheat with ease and impunity.— The shepherd's sheep are always in good condition, their wool is the handsomest and most abundant ; they seldom die ; the dogs, to whom they are well known, suffer them to feed in the richest pastures, and often in forbidden places ; the shepherds themselves carry to them into the fields bread from the house ; in the sheep-house, the best fodder is always given to them.— Lastly, there is danger that, if the shepherds lose any of their own sheep, they may replace them by others which may introduce some disease into the flock. In some places, proprietors permit, not only shepherds, but all their other servants to have sheep among their flocks. No greater abuse exists, as may be easily imagined. Proprietors of fine flocks no longer suffer such mixtures and prefer giving to their shepherds and other servants good wages and presents.

A shepherd should never kill a sheep without the order of his employer, nor be permitted to have the skins of those which die, nor should he be employed to buy or sell sheep, unless his integrity is well approved.

Since merinos have come into high repute, it has been discovered that shepherds, during the season of folding, sometimes lend out, in the night, the rams, to cover sheep in the neighbourhood ; that they exchange full blooded animals for such as are mixed ; that others sell lambs just yeaned, under pretence that the ewes had cast their young, or that the lambs had died.

It is desirable for a shepherd to know how to read and write ; that he may make memorandums, and examine, from time to time, the number of sheep in his flock. If he cannot read and write, his memory must supply the deficiency. Some shepherds not only know the mothers of all the lambs, but the qualities of each remaining individual, and those of their ancestors, whether sold or dead. The marks by which they are able thus to distinguish them, are peculiarity of shape, different shades in the colour of the wool, spots, differences in the thickness of the wool, the size, the manner of walking, the sound of the voice. I have known a shepherd who, when his flock returned from the fields towards evening, could take the lambs, when they were weary and perplexed, and give them to their several mo-

thers, without any hesitation. I knew another who, in the morning, before entering the sheep-house, if he heard an ewe bleat as if she had lambed during the night, could tell which one it was, without seeing her. Habit even teaches to know the age of a sheep by merely looking at it. If, however, it be requisite that a sheep should not be confounded with the rest, the shepherd marks it, either in its ear or on some other part of its body.

A good shepherd is distinguished particularly by his management at the time of yeaning ; which is the most interesting period to the owner, because his property is then increased.—During all this time, a shepherd ought not to quit his flock ; he would do well even to sleep in the sheep-house.

When an ewe lams with difficulty, he should assist her :—for the most part, it is sufficient that he introduce his fingers, greased with butter or oil, his nails being pared close, between the orifice of the vagina and the head of the fœtus. The mother should be assisted only when she makes efforts to extrude her young one.

At the time of bringing forth, the fœtus presents the end of its muzzle, which projects, like a wedge, from the opening of the matrix ; the two fore feet are under the muzzle, and the hind ones folded under the belly ; they stretch back as the lamb comes out : such is the natural position. Sometimes lambing is difficult and even impossible. Three wrong positions render it difficult: 1. when the fœtus presents the top or one of the sides of its head, the muzzle being turned ; 2. when the fore-legs are folded under the neck or stretched out ; 3. when the umbilical cord passes in front of one of the legs. In the first case, the shepherd must push back the head, and draw the muzzle towards the opening of the matrix ; in the second, he must endeavour to find the fore-feet, and to bring them to the opening, or to bring out the head, and to draw after it the two fore-legs, or only one of them, that the shoulders may not present too great an obstacle. In the third case, the cord must be broken, without regard to the placenta, which comes out of itself when the lamb is dropped. After the lamb comes out, if the placenta were not to follow, it would be necessary to draw the cord, in order to detach it ; it should be removed at a distance from the mother, that she may not eat it*. It is very necessary that all the motions of the shepherd be gentle, which unfortunately is seldom the case ; these men are apt to be so violent as frequently to hurt both the mother and her young one.

* Every ewe would not eat her placenta ; but some have this sort of appetite ; they find a taste in it which pleases them.

If the opening at the pubis is not sufficiently large, or if the foetus is of a great size, or if it is still more badly placed than in the three preceding cases, it is impossible for the ewe to lamb; nothing can be done but to cut the foetus and extract it piecemeal, in order to save the mother: but great precaution is necessary, to avoid wounding organs of great delicacy and sensibility.

The shepherd, before he goes to the fields, should examine his ewes, and leave at home such as, by the largeness of their bag and other signs, appear to be near lambing; he should place them in a separate enclosure; and he should do the same at night, if necessary, when he goes his last round. Lambs dropped in the fields in the winter season are liable to be frozen; this must be guarded against as much as possible. The shepherd should be provided with a little pocket, in which to keep from the cold any lamb that may be dropped unexpectedly, until he returns to the house.

Two things may happen, which should be prevented; the lamb of an ewe that is too sick to suckle her young may leave its dam and suck some other ewe, or be entirely neglected in the midst of the flock; or the sick ewe may be sucked by some other lamb that takes advantage of her weakness, so that her own, after it is dropped, finds nothing in her bag: the shepherd must hinder this, by putting into a separate enclosure the ewes which are likely to lamb during the night. This separation is peculiarly necessary when any ewes lamb latter than the rest; for there is then danger that the stronger lambs may deprive those which are just dropped of the milk of their mothers. It is not uncommon to see a lamb suck an ewe which has just lambed, by passing between her hind legs; it becomes so impregnated by the matters that issue from the ewe as to deceive her, and she adopts it, either alone or together with her own.—When ewes return wet from the fields, they cannot always distinguish their own lambs; for the little creatures, getting under the fleeces of their mothers, cover themselves with water, which prevents the emanations by which their mothers distinguish them. A good shepherd may prevent the greater part of these evils; he cannot be expected to prevent them all, if the flock is numerous. When a lamb is just dropped it ought to be particularly attended to; as it grows stronger, it can take care of itself.

If an ewe has no milk, or if she dies at the time of lambing or soon after, the shepherd must give her lamb to an other ewe that has lost her young or that is able to suckle two. If an ewe that is feeble brings two lambs at once, he must take one away;