

merous flock; by bleeding a whole flock, those sheep would be injured whose fibres are soft and relaxed, as well as those which have a disposition to cachexy. No drinks appear capable of preventing a contagious disease. I have known a method to succeed, which, at first view appears cruel, but which must be acknowledged to be certain. It is to kill in the open fields and to bury deep in the earth the sheep which are first attacked by the disease: care been taken to cut their skins. Many a farmer, by making this sacrifice, has preserved almost the whole of his flock.

If, in defiance of all precautions, or in consequence of too few, the sheep-pox appears in a flock, the sheep must be attentively nursed. Those which are infected should be separated from the rest, and kept in a place by themselves. If it be the summer season, that place should be as airy as possible; if winter, it should be kept at a moderate temperature; the greatest cleanliness should there be observed; every thing that comes from it, dung, dead animals, utensils, all should be put out of the reach of the other animals, in order to prevent the disease from being communicated. The diet of the creatures must be food of a good quality, fresh fodder, if it can be procured, and a mixture of fine bran and oats or pounded pease with water containing a little salt. The strength of such as appear most affected should be supported by making them swallow wine twice a day, each dose being about a quarter of a pint, or an equal dose of a decoction of a root of parsley or lentils, or infusion of some aromatic plant, such as thyme, lavender, sage, wild marjoram, &c. It has sometimes been found serviceable, when the animals could not eat at the rack, to make them swallow bread soaked in wine and passed through a sieve.* If gatherings appear, they must be opened when arrived at maturity, and dressed with a composition of equal parts of spirit of turpentine and yolks of eggs, with the addition of a little brandy. The sheep which have been sick should not be put again with those which are well, before the expiration of two months from the time of their being attacked; care should previously be taken to wash them well, and to cleanse the sheep-houses. See, farther on, the method of purifying those abodes for sheep.

Of the Scab or Itch.

The scab is a disorder of which proprietors have a great dread, because it gives to the sheep which are attacked by it, a hideous appearance, and thus does discredit to their flocks.

* The Sapaniards bruise a small quantity of garlick, and boil it in water, with red pepper; they make each sheep, morning and evening, swallow about the fourth of a wine-bottle of this liquor.

A sheep may be known to have the scab, when some filaments of the wool exceed the others in length, and fall out: if the disorder arrives at a great height, the whole fleece sometimes falls. The animal, itching violently, rubs itself against walls, trees or racks, or the hurdles of the fold, and scratches and bites itself. If there was no other symptom, the matter would be doubtful, because the same thing happens when the sheep are incommoded by beards of grain, thorns or insects, such as lice, ticks, &c. but besides this, in the scab, the wool is stained with mud in the places which the animal can reach. Another sign is said to be, the more rapid drying of the fleece, after rain, in certain spots, in which spots there is scab, for in these places the heat is greater; but this is very uncertain. The surest symptom is when, upon removing the wool from every part where the sheep scratches itself, the skin is there found to be thicker, hard lumps are felt under the fingers, and the skin appears scaly, encrusted or covered with little pimples which, at first, are red and inflamed.

The scab attacks almost every part of the body; it begins upon the rump, near the tail, and upon the back, and afterwards spreads over the sides and the neck: it does not appear upon the lower part of the thighs, the shoulders, nor the udder.

Sheep affected with the scab, eat and ruminate well for a long time, and lose none of their ordinary habits; some even grow fat, if well fed: it is only when the disease arrives at the utmost violence that they cease to take food & that they become lean, and fall into a decline. It is observed that if the scab covers the neck, it becomes less flexible, on account of the callosity which the skin acquires, and that the animal walks without bending. Few proprietors, who are not grossly ignorant or excessively careless, suffer the disease to arrive at this height.

Some naturalists have regarded the scab as the effect of an insect, a species of mite (*acarus scabiei*) which resembles those which grow in cheese, being only a little smaller.

It has been supposed that there are two sorts of itch, the one dry, and the other moist, differing from each other in this respect, that in the latter, when the crusts are taken off, a yellowish water is found underneath, which is sometimes pretty thick, and that frequently small pustules are scattered here and there upon the body of the animal, filled with an acrid serosity: but this distinction appears to me to be useless, and tending to perplex the discovery of the true symptom of the scab, that is,

eruption. These differences depend only upon the greater or less violence of the disease, according to the constitution of the individuals which it attacks, and the period at which it commences ; in fact, these shades of difference are observable in a flock. What happens to men justifies my opinion ; for wounds in some persons, covering themselves over with a crust, are completely cured as soon as it falls, while in other persons several successive scabs are formed, under which matter is often found until it is in a manner exhausted. In general, the scab which is called moist, might be termed *inveterate*.

Upon the skin of sheep an eruption is sometimes seen which causes no itching ; the wool which cover the parts affected is reddish and rough ; it is a species of plica which has not yet been observed.

Merinos are more subject to the scab than other races, on account of the thickness of their fleeces.

They are liable to this disease at all seasons of the year, more particularly in autumn ; the heat of the houses brings it out : sheep of all ages are subject to it. A lamb born of a scabbed mother does not bring this disease with it at its birth ; and even does not take it by sucking. Negligent shepherds, to excuse themselves, attribute the causes of the scab to a multitude of things which have no relation whatever with the disorder ; they unjustly lay the blame of it to hogs and geese coming into the stables, to the dung of fowls and horses, to the urine, &c.

The scab is either spontaneous, or caught by communication. In the first case, it seems to be owing to dust, to a want of litter, to bad weather and to unwholesome food. All flocks which travel far, those which lie upon filth, which are exposed in the fold to sudden showers, to rains and to fogs, which lie on ground too cold, and those which are not well fed, are subject to attacks from this disease. One gives it to another ; so that from a single one it may spread through a flock, and even through whole flocks ; these will infect all the sheep which approach or touch things against which they have rubbed themselves. Yet some individuals pass several times through an epidemic without catching the distemper.

No preservative can be depended upon, without a good shepherd. A proverb says, *what the man is worth, so much the land is worth* ; one may also say, *what the shepherd is worth, so much the flock is worth*. One ought therefore, above all things, to procure a careful and attentive shepherd ;

proprietors who are so fortunate as to find men of this description, have the satisfaction of seeing their flocks always free from scab.

Preservatives against this disease should be particularly attended to ; they are, to avoid, as much as possible, exposing the flocks to bad weather, to feed them well, to let them drink when the weather is hot, not to over fatigue them when they are driven far, and to keep them clean in their houses. A very good precaution, upon the arrival of a flock after a journey, is to wash, when the weather is fine, each animal separately, sponging and rubbing it thoroughly : this precaution, which I have never failed to use when sheep have come to me from Spain, I have always found successful. I have even plunged into the water ewes very big with young, without occasioning any one to miscarry.

To prevent the disease from being introduced by contagion, communication with other flocks should be avoided. If, notwithstanding these precautions, the scab makes its appearance, those which are attacked by it must first be separated from the others, and one or other of the following remedies, according to circumstances, must be employed.

Many have been proposed, which proves how much inquiry the cure of this disease has occasioned. Every person adopts some one, or makes alterations in that which is communicated to him ; each person thinks his own method the best. Some receipts are simple, some are complex ; in some are found useless drugs, or such as destroy the effect of one another ; several are very nearly alike : all may have effected cures, because all contain one or more salutary ingredients. I shall confine myself to a small number ; which I shall select from among those with which I am acquainted, and whose success I have myself witnessed.

It should be observed that the remedies ought generally to vary according as the scab is more or less recent, and according as it is more or less extended. In some instances, scarcely any thing is necessary ; in others, a regular treatment is required ; sometimes violent means must be employed. The receipts to which I confine myself are sufficient for every case.

1. When the scab consists merely of a few pimples, nothing more is necessary than to scrape them away with one's nails, or rather with an instrument, and to apply to the part a small quantity of spittle impregnated with a little common salt melted

in the mouth. This application is to be repeated two or three times, if necessary.

2. Juniper oil (*huile de cade*)* and spirit of turpentine, one third of the former, and two thirds of the latter.

3. Empyreumatical oil.

4. A mixture of suet, in summer, of mutton-fat, in winter, with spirit of turpentine; four fifths of suet or fat, and one fifth of the spirit.

5. Flour of sulphur, common salt, gunpowder, in equal portions, mixed with oil of spike.

6. Lie, with which the sheep, after being shorn, are to be washed and rubbed hard.

7. A decoction of hellebore-root, either black or white, or of tobacco leaves; a pound of either in four pints of water boiled down to three: 2 pounds of salt of tartar or 2 ounces of blue vitriol may be dissolved in it, and, instead of water, vinegar may be employed.

8. After scraping each pimple, a little spirit of turpentine is poured upon the place, if it is necessary to wait some time before shearing. As soon as the shearing is done, the following remedy is applied; 10 pounds of tobacco-leaves or hellebore-root, boiled in a sufficient quantity of water; mixed with two pints of spirit of turpentine diluted with yolks of eggs (this is sufficient for a hundred sheep;) this mixture is thrown into a tub, and the animals plunged into it one by one, and rubbed with a hard brush; the next day but one and the two following days, they must be washed in running water. After these three washings, they must be again immersed in the tub, and again washed. During this treatment, the flock should be well fed.

9. Arsenic, 3 pounds; copperas, 20 pounds; for one hundred sheep. Put these ingredients in a caldron, with about 100 pints of water; reduce the whole by boiling to two thirds of the original quantity: let as much water then be poured in as has been boiled away; suffer it to boil a few moments longer; then take it off and pour it into a tub.

* The *cadier* (*juniperus oxycedrus*,) is a juniper tree of the southern parts of France, whose berries are larger than those of the ordinary juniper.

To apply this remedy, a part of the flock, newly shorn, is placed in a fold made upon bare ground; each sheep is brought in its turn to the tub; three men seize it; one holds its hind-legs, another its fore-legs, and the third prevents the liquid from getting into its ears; it is plunged twice into the tub, and, every part of its body is then rubbed with proper brushes.— This remedy has been employed upon ewes near yeaning, upon such as had yeaned the night before, and upon new-born lambs, without the least ill consequence.

On account of the arsenic which is the base of this composition, it should be used with the greatest care. The proprietor of the seep must himself be present, attend to every thing, and permit not the least negligence; fatal effects might otherwise ensue. The hands of the men should be completely covered with gloves. After the operation, the tub, the gloves and the wooden utensils which were employed must be burnt; the animals must be suffered to remain four and twenty hours upon ground where not a bit of straw is to be found; this ground must afterwards be covered over with fresh earth; and the remains of the wash must be buried.

Either No. 1 or 2 will answer for the lowest degrees of the scab; if it is more extensive, recourse must be had to No. 3, 4 or 5; if it continues some time, No. 6, 7 or 8 should be used; lastly, it is almost indispensably necessary to adopt the 9th remedy, or something equivalent to it, in case of general and inveterate scab. I, as yet, know of no other way: it is the part of those who shall discover other means as efficacious, and not attended with so great inconveniences, to communicate to us their knowledge.

If it be true that the scab is occasioned by insects, it is not surprising that fat substances, irritating matters, and arsenic especially, destroys them. I know that in the museum of natural history, the skins of animals are preserved from insects by means of an arsenical soap.

Whatever remedy be used, the most essential thing is to rub hard all the scabbed parts of the body.

Before readmitting into the sheep-house a flock which has been treated for the scab, the place should be purified by the means pointed out in the article concerning the *purification of sheep houses*. Without this precaution, the sheep would rub themselves against places impregnated with the infectious matter, and thus take the disease again; time, expense and trouble would thus be bestowed in vain.

Although I am convinced that external remedies are almost always sufficient to cure even an in-eterate scab; yet I should not, in some cases, disapprove of internal remedies employed in aid of external applications. What appears to me most proper and most simple, is a mixture of flour of sulphur with oats, bran and common salt or saltpetre, put into troughs or mangers. The oats, the bran and the salt are to induce the sheep to take the sulphur. A dose for two should consist of sulphur, 1 ounce; salt or saltpetre, 2 ounces. Some persons recommend for each animal a mixture consisting of one quarter sulphur, one quarter salt, and one half elecampane-root: it has even been proposed to give half a grain of corrosive sublimate during ten days, and a grain the ten following days, in three gills of water for each animal. The last two remedies may be good, but I question the necessity for them; I prefer the first.

Of Tettors.

Sheep sometimes have tettato; they are known by small pimples which form ulcers and crusts, from which oozes a fetid humour. The animal appears to suffer much from this disease.

There is a kind of tettato which contains no fluid matter; it is dry and mealy.

I do not think that tettato are contagious. I have seen some individuals in a flock, very few in number, who had tettato above their hoofs and cheeks; they had no effect upon the rest of the flock, although they remained with it a long time.

After trying various means, which have all been found useless, it has been thought best to kill the diseased animals, which are troublesome, disagreeable to the view, and unfit for propagating, as the disorder may be hereditary. This perhaps is the wisest plan.

Yet it is advised to separate from the rest those which have tettato, to wash them three times a day with a strong decoction of liquorice-root, in which is dissolved 1 drachm (has os) of corrosive sublimate to a pound and a half of the decoction. If this treatment, continued three or four weeks, produce^s effect, the tettato may be rubbed twice a day with a mixture of a small portion of nitre with 2 ounces of honey; or they may be washed with a decoction of 2 ounces of tobacco in two pounds and a half of vinegar, in which has been dissolved 2 ounces of green vitriol. To aid this or other similar treatment, the animals

should be moderately bled, and put on a diet of straw and pure water.

Black muzzle.

This disorder is related to the scab and to the tetter ; its seat is commonly the muzzle of the animal, whence it sometimes extends along the sides of the head, as far as the ears ; it is distinguished by brown crusts or scabs, sometimes larger, sometimes smaller.

It seems to be occasioned by wounds made by the animals on that part of their head as they go among stubble, brambles, thorns or stones ; the filthiness and heat of the stables, lice and scab, contribute also to give it to them. Lambs are subject to it, when the udder of their mothers is covered with dirt.

This disorder is remedied by rubbing the crusts, and anointing them with a composition of one part flour of sulphur, and two parts fat or suet ; it is to be applied in dry weather, care being taken that none gets into their eyes. The sheep which have this disorder should be separated from the rest, that they may not communicate it.

Thrush (Chancre.)

Lambs are often lost by a disorder analogous to that of young children which is called *aphthæ* or *thursh*.

The lambs which are attacked by it have the whole inside of their mouth and their lips covered with small pimples, which torment them a great deal, and render it difficult for them to suck. If the disorder continues some time, they die through want of nourishment.

This disorder cannot be deemed very contagious, for the mothers do not catch it from the lambs which suck while they have it. It may perhaps be communicated from one lamb to another, on account of their similarity in age and weakness. It is a hazardous idea, as it may suggest salutary precautions.

When all this great desire is entertained to preserve the lambs which are affected with this disorder, the milk of each one's mother must be expressed into its mouth several times a day.

A mixture should be made of pepper, salt and vinegar ; and, with a brush of linen dipped into it, the mouth and lips of the lamb should be several times well rubbed. This remedy is sufficient : it commonly effects a cure.

Lameness or Disorders of the foot.

Many things occasion sheep to limp: the fatigue of a long journey often produces this effect; but it does not last long; rest during a few days is sufficient to make it disappear. Other causes produce more lasting effects, which require attention.— These animals sometimes run splinters, bits of stubble of corn or other plants, nails and even pins into their feet^{*}; sometimes they wound themselves by treading on glass or flint-stones; sometimes small stones or lumps of dirt get between the two toes of the foot; lastly, the hoof sometimes grows too long and is bent at the extremity.

Lameness occasioned by the above causes is easily cured, if attended to in the beginning. By examining the lame foot, the cause of the evil may be removed; the part should be washed with simple lotions of Goular water, or have a little spirit of turpentine applied to it. When the length of the hoof impedes the animal's walking, it should be cut shorter.

Lameness has been attributed, in some instances, to a particular disorder called, among other names given to it in France, *foot-rot* (*pourriture des pieds*). I have seen it in the environs of Paris, where it is not unknown. Mr. *Huzard* has met with it in Piémont and in England. Mr. *Chabert* says that it is endemical upon the banks of the Gironde, in bas Médoc, in the Pyrenees, &c. These two intelligent men call it *souchet*. Mr. *Charles Pictet*, one of the compilers of the *Bibliothèque Britannique*, has given a description of it, having observed it in his flock near Geneva.

This is nearly what *M. Pictet* says: “ At first, only a faint redness appears in the cleft, or at most a slight oozing around the hoof; the lame foot is hot: some time after, an ulceration takes place at the junction of the two claws, either on the inside or the outside of the hoof, from which runs a white fetid matter. At this period of the disorder, the animals suffer more: they are feverish[†]: they not only limp more, but they cannot even support themselves; they lie down; and when they eat they commonly kneel. When the disease has made

^{*} One of my rams, a very fine one, just before the rutting season, fell to limping with one of his fore-feet: on examination, a pin was found there, which was taken out, and a little spirit of turpentine put into the wound. The animal soon recovered, and was fit for service.

[†] One can never be certain that a sheep has a fever; when examined, even in a state of health, such is its timidity, that its pulse is accelerated.

considerable progress, collections of purulent matter take place under the hoof, which run out at its juncture with the skin.— Sometimes the hoof rots and comes off, and the whole foot becomes one ulcer; the tendons and muscles mortify, and even the bones rot; the fever increases. At other times the matter is collected under the sole, which it consumes.” Mr. *Pictet*, declares that he has known worms to be produced.

A skilful person of Piedmont, mentioned by Mr. *Pictet*, has distinguished three sorts of foot-rot. The first is seated beneath the epidermis, between the two claws of the foot; the second, under the hoof; and the third attacks the bones. In my opinion, this distinction is groundless; the learned Piedmontese appears to me to mistake three degrees of the same disease for as many diseases.

What are the causes of the disease in question? is it confined to certain individuals, or is it epidemical? is it propagated by contagion? The solution of these questions is of much consequence in determining the mode of treatment.

I do not think any proof exists of the foot-rot being occasioned by other causes than those which I have mentioned. Mr. *Chabert*, who has written upon this subject, assigns none; only he judiciously remarks that the foot of a sheep, owing to its particular formation, is more liable to this disease than that of any other quadruped. The disease is sometimes mild & simple; a greater degree of intensity renders it violent and complicated. Thus may be explained the distinctions attempted to be made among several affections of the foot. The foot-rot is not always epidemical; it commonly attacks a part only of the animals. Mr. *Pictet* does not doubt its being contagious; he mentions two facts in attestation of this opinion. In his flock the disease commenced among a small number of animals; in six weeks, it pervaded the whole: some were lame in one foot only, others in two or three, and even in all four. This is the first fact; the second is as follows. Having put ewes which were well under a shed which had served as a shelter to rams attacked by the foot-rot, without removing the litter, they all caught it in a fortnight. But it may be objected that the animals falling sick one after another, even in a place where diseased sheep had been kept, is no sure indication of contagion: they may all have been placed in similar circumstances; for instance, the disorder may have been occasioned in them all by mud or pebbles from the same pasture, or by some other cause. I am far from denying contagion, but it does not seem certain.— When doubt exists, it is prudent and it is my advice, to use as

much precaution as if the disorder was proved to be contagious.

From these reflections it follows, that when a flock is received, it should be kept separate for some time; that as soon as any one of the sheep limps, its foot should be examined; that if several limp, still greater attention should be given.

I cannot imagine why the foot-rot has been supposed to be occasioned by the abode of the sheep in places where hogs have been kept; I have seen flocks attacked by it that had had no communication with those animals.

The treatment must be more or less active, according to the degree and state of the disorder. If any extraneous substance is in the foot, it must be taken out; this is the first thing to be done. In case the gland of the fork is choaked, it must be extirpated, and the wound dressed with a pledget dipped in Goular water*. For a mere oozing, the same remedy may be applied, previously washing the part gently each time with a sponge. But if the foot is hot, and is very sensible in any part, an abscess is to be expected, either next to the sole or the hoof: in whichever part it is formed, as soon as it is supposed to contain matter, it must be opened and entirely emptied; it is better to hasten than to retard this operation. With a good scalpel or a very sharp penknife, the sole must be cut open; or the hoof must be pared away, beginning at the extremity of the claws, until the abscess is laid bare, which must be well cleansed by lotions of wine, and sprinkled with blue vitriol powdered. If the disease, through negligence or any other cause, has made great progress and eaten into the foot, a new incision should be made, all the gangrenous parts should be taken out; the carious parts of the bones may also be scraped; the part should be seared with fire or a red-hot iron: the rest of the dressing should be done with a mixture of yolks of eggs and turpentine, in equal quantities, adding thereto a little pure brandy or camphorated brandy. There is no danger to be apprehended from taking away parts of the hoof, or even the whole of it, if necessary, because it soon grows again. Every day the bandage should be taken off, the wound cleansed with red wine, and the above mentioned mixture applied, diminishing the quantity as the sore heals. The foot must be wrapped up. It has been proposed to have boots made; but it is easier to make use of linen, which may be changed, and which is pliant; boots, if many animals at

* It is composed of water, extract of Saturn and brandy, in the proportions of one pint of water, one spoonful of the extract, and one of brandy.

once required dressing, would be very expensive, and would not prevent the necessity of linen. It is better to sew the bandage on than to tie it, which, by being too tight, might bring on gangrene; if s-rings are used, they must not be tied tight. As long as any running continues, the sore will not be completely healed; it is commonly a symptom, at this period of the disorder, of caries in the bones. In order to produce an exfoliation, which is indispensably necessary, a tincture of aloes should be injected into the wound. As soon as an animal is cured, it should be no longer left among the sick ones; but it should at first be put into pastures quite clear of thorns and stones, and should not be driven fast.

During the above treatment, the sick sheep should be fed with after-grass, or a little provender composed of oats or other grain, and fine bran. If they cannot stand on their feet, their food should be put within their reach.

Every time the litter is renewed, what is taken from the place where the sick sheep are kept, should be buried beneath the dunghil: as a precaution against contagion.

The place which contains the sick should be kept very clean. In order to dissipate the infectious smell, fumigations may be made with nitric acid, if the apartment is small.

Mr. *Chabert* ranks among the diseases of the feet of sheep, that which is called *canker*, to which like the horse they are subject. This disease, which within a few years has become common, is not dangerous, and yields easily to the remedies which I have mentioned, as I have myself experienced. It is an ulcer formed upon the hoof itself whose fibres grow soft and run into a fetid matter which is blackish and reddish. The sole is spongy, and the bone of the foot rots. The sheep appears to suffer much. Mr. *Chabert* thinks that this disease happens when the flocks feed upon sandy soils, the sand easily insinuating itself between the scales and the small cracks occasioned by dryness. The treatment is the same as in the foot rot.

The Spider or diseased udder.

Some ewes, when they give suck, and after weaning, have their bag choked. Oftentimes, this is attended with no ill consequence, and the obstruction removes itself; but it sometimes happens that pus is formed; in some cases, the tumour even ends in gangrene, and becomes mortal. The shepherds,

in France, call this disease *spider*, either because they imagine it to be caused by the sting of a spider, or because it extends itself, around the point where it is first formed, over the mamillary glands.

I attribute it to two causes: 1. to uncleanness in the sheep-houses, or to the hardness of the soil on which the fold is sometimes made; 2. to the blows which mothers sometimes receive from their lambs while sucking. Lying upon filth and clods of dirt, causes an irritation in the udder, which produces inflammation; this may be avoided by frequently changing the litter in the sheep-houses, and by smoothing the fields. If the disorder is owing to the second cause, it cannot be prevented but by putting less vigorous lambs to suck these tender ewes. The bags, of the ewes should be examined from time to time, especially of such as appear to have them choked, that the disorder may be taken in hand at once, before it has made any progress.

If there be a collection of matter, the parts where a looseness is felt must be opened; the animals should be left during several days upon fresh straw, and the sore dressed with a mixture of equal parts of yolks of eggs and turpentine. If gangrene ensues, the part must be scarified and a plaster of ointment of storax applied.

The Anthrax or Carbuncle.

Several kinds of animals are subject to this disease; viz. horses, horned cattle, hogs and sheep.

It is a gangrenous disorder, commonly fatal. Its progress is very rapid; the animals attacked by it sometimes die before it is known that they are ill. It is attributed to unwholesome drink, to too hard labour, &c. The anthrax is accompanied with external tumours remarkable for their hardness and the distance to which they spread in a short time; very soon, if not speedily attended to, they grow black and have a fetid smell, and the animal soon dies.

The anthrax may be communicated by one individual to another, and even from a beast to a man. The whole skin, the wool, hair, blood, saliva, dung, utensils, are all mediums by which contagion may be communicated. Men have died in consequence of having bled, opened or skinned animals that had this disorder. Hardly any thing but rowels applied soon, can preserve animals which are in the neighbourhood of an epidemic of this nature; they may however be

made to drink a mixture of water, salt and vinegar ; one dose containing a handful of salt, a glass of vinegar, and six pints of water ; their fodder should be sprinkled with it at the same time. Their ordinary drink should be mixed with fine bran or barley meal, with a little salt and half a glass of vinegar to each pail. When the anthrax decidedly appears, the tumours should be cauterized either with a hot iron or with caustic, so as to stop the gangrene ; afterwards, in order to make the eschar fall off, suppurative ointment should be applied.

The Rot.

In Europe many names are given to this disease.

I have observed that a lamb, only six weeks old, whose mother had the rot, contained the seeds of the disorder. I hence conclude that it is transmitted from the mother to her young. In general, it is not communicated from one sheep to another. The same cause acting upon all the sheep in a flock, might give the disorder to the whole of them ; but there are always some which, having a strong constitution, escape it entirely or at least longer than the rest. The seasons in which this malady is most destructive, are the autumn and winter.—When *Gilbert* went to Spain to choose merinos for the French government, he made seven hundred of them winter in Estremadura, the greater part of which took the rot and died. It attacks the greater part of a flock, and the flocks of a whole country, and sometimes every year. It is therefore an endemical disease ; it not only injures proprietors by the loss of capital, but it also affects the quality of the wool, causing it to lose its strength.

The progress of this disease is slow ; by great attention it may be perceived or suspected at its very commencement.—The symptoms are, a languor in the animal's appearance ; all its movements are weak ; it eats less than the others, and does not ruminate as well. At this period of the disease, it should be attended to ; if neglected, these first symptoms grow more violent. Still surer evidences of the disorder may be seen, by examining the eyes and mouth, which are discoloured and pale ; by laying one's hand upon the rump, which sinks ; or by taking hold of the animal by its hind foot, which it suffers to be held without making any resistance : if its wool be pulled, it comes out easily ; for the most part, and especially when the disorder is very far advanced, the animal has, in the evening, a watery swelling under its nether jaw, which disappears in the morning, because during the night its head is not, as in the day,

hanging down towards the earth. This is one of the most striking symptoms, and it almost always announces approaching death. Yet I have known a ram come from Perpignan, where it already had such a swelling, to the neighbourhood of Paris, and live some time. Little by little, the animal falls into a decline, and perishes.

If the body be opened, the flesh generally is found to be livid, the intestines pale, the membranes infiltrated, water collected in the lower belly, in the chest and in the head, hydatides in these cavities and on the surface of the lungs and the liver, in the omentum and the mesentery; in the biliary ducts are found liver-flukes (*fasciola hepatica*)*; the liver is pale and in a state of decomposition. This disease is therefore a true cachexy.

This disease may be attributed to the physical constitution of the sheep, as well as to circumstances in which it is placed. Its constitution is not firm, its fibres are lax and not compact, and consequently much disposed to infiltrations. The slowness of the disorder, the symptoms which appear in the course of it, and what is discovered upon opening the bodies after death, all announce that the malady proceeds from a superabundance of aqueous fluid. So that if these animals are made to pasture at all times in meadows naturally wet, or made so by the dew, if they are turned out during fogs, if they are folded on a clayey soil, and if their houses are not situated upon a dry soil, the rot may be expected: they are particularly liable to it if they have been ill fed; for nothing is more conducive to cachexy than want of nourishment, or the use of bad or unsubstantial food. The English have been mistaken with regard to the cause of this disease: their most celebrated agriculturalist, *Baker*, thinks that it is occasioned by inundations after the middle of the month of May; that those which happen in winter and in the spring do not give it; that it is never occasioned by spring water, unless it overflows and becomes stagnant. Others of the same nation attribute it to feeding in calcareous grounds, or such as are manured with lime; others, to springs in the meadows. It is not true that certain plants, for example the *marsh ranunculus*, occasion this disease: it should first be proved that sheep feed on it, which I do not believe. The truth is, that these plants growing in marshy situations, an injurious quality is attributed to them which is due only to the moisture. It is neither calcareous earths, nor lime, nor water

* Hardly any sheep, unless they are very young, are without flukes in the liver: but much greater numbers are found in those which have the rot.

overflowing between the month of May and the Autumn, which produces the rot; but water, whether that of places where the marsh ranunculus grows, or that of moist and compact ground, in which is mixed chalk and lime, or that of springs, rivers, or pools, or that of dew, or that which surrounds sheep-houses injudiciously placed. Even in dry countries, the rot has been known to attack some sheep; but these instances are to be attributed to a peculiarity of constitution, or regarded as the consequence of some other disease.

We may therefore conclude that the rot cannot be cured when it is very far advanced. I mean at the stage when a marasmus has taken place or is about to commence, because disorganised viscera cannot be restored, and because it is not possible to reunite with the mass of blood so great a quantity of serosity as escapes and is dispersed and even amassed in certain places; but the mischief may be prevented and its progress stopped, if attended to at its commencement.

The means of preservation consist chiefly in the general care and attention bestowed upon the sheep. Above all things, when one wishes to form a flock, or to augment that which one already possesses, it is necessary to guard against the dishonesty of those venders who, to prevent a latent rot from being discovered by the paleness of the eyes, put vitriol or powdered sugar-candy into them, in order to give them a colour. What has been said upon the nature of pastures, upon the times at which the animals should be turned out, upon the circumstances which render it proper to house them again, upon the manner of feeding them, and upon folding and housing them, all these things should be attended to. And by observing the directions given, without omitting a single article, flocks may be preserved from this disease. There are however situations and kinds of soil where, in spite of all possible care, it would be difficult to guard them against it. In this case, the keeping of sheep should be given up for the raising of other cattle, or one should keep the same set of sheep no longer than one year, selling them annually to the butchers, and replacing them by others.

Upon the first symptoms of a rot, iron should be infused into the drink given to the sheep, or they should be made to drink aromatic decoctions, such as decoctions of sage-leaves, of lavender, of hyssop, of thyme, of juniper-berries, or of an infusion of the ashes of broom, &c. or what is still better, white wine, and if that cannot be procured, red wine, three or four spoonfuls of which should be given at a time. These remedies, continued some time; strengthen the fibres, cause the water to

run off, and restore the animals. It is thought that common salt, given in any way, would answer. I cannot vouch for it; but I think it probable, from the instance of some sheep which feeding habitually near the sea, in the midst of the dashing of salt water, do not get the rot. I think advantage might be derived from the employment of bitters, such as ellicampane, gentian, the lesser centaury and wild succory root in decoction. Besides these remedies, two others have been proposed, which from their ingredients promise to be useful. The first is a dose for each animal composed of 3 decagrammes of pounded juniper berries, 12 decagrammes of oats and as much bran, 4 grammes of sulphate of iron (green copperas.) The juniper berries and the bran are first to be well mixed; the oats are added by degrees, and well stirred in; afterwards the sulphate of iron: the whole is put into the tubs which contain the drink for the sheep; sometimes this mixture is sprinkled upon the fodder.—The bran and oats in this receipt serve as a bait to induce the sheep to take the juniper berries and the sulphate of iron.

For the second remedy, 15 grammes of quinquena,* 3 decagrammes of powdered charcoal passed through a fine sieve, together with a sufficient quantity of honey, should be made up into 30 boluses. The dose is two a day for each animal, making it swallow also a glass of the following decoction; take a handful of bark of the horse-chestnut tree; boil it in red wine a quarter of an hour; add a spoonful of common salt and a little brandy. Mr. *Lullin de Châteaueux* has made this remedy known, and borne testimony to its efficacy.

During the above modes of treatment, the animals are to have only dry food, such as hay, pounded pease, beans and the like, middlings, fine bran, oats, &c.

Diarrhœa or Looseness.

In places where vegetation recommences after an intermission, sheep are apt to feed greedily upon the new grass, and, in consequence, to get a looseness which, far from being injurious to them, is a salutary purgation. It is perceived by means of the excrements, which are liquid, stick to the wool, and grow hard around the anus; the shepherd should be careful to clear them away. This is not a disease, but an evacuation, which for the most part ceases of itself, as soon as the grass has acquired more strength, and the stomachs of the sheep get accustomed to it.

* Instead of quinquena, which is expensive, I think the bark of some indigenous tree may be employed.

This looseness however may sometimes be considerable enough to injure sheep, and even to kill those which are weak & aged. This sometimes happens when the animals are suffered to feed suddenly upon green pasture, after having been kept upon dry fodder.

Some diarrhœas are real disorders, or consequences of disorders, sometimes dangerous. I was consulted with Mr. *Vicq-d'Azir* on occasion of one; it had carried off in a short time ten sheep of a flock in the neighbourhood of Etampes: it was not a dysentery, for the animals voided no blood with their excrements; they died in the space of three or four days; on opening their bodies, only a great dilatation of the paunch was perceived, caused by the aliments remaining there, which the animals could not digest, and by the air disengaged from the substances in fermentation. We thought it sufficient, in order to stop the mischief, to direct the shepherd to lead his flock to the elevated parts of the farm, instead of leading it, as he did, to the lower parts. This was done, and the diarrhœa ceased without the aid of any other remedy.

Sheep sometimes have a diarrhœa after the *clavau*, and die of it: through want of attention, that is to say if they be led to the fields in wet and cold weather, they are apt to get a diarrhœa, which may be prevented by keeping them housed until the weather is fine, by giving them food of easy digestion, by putting iron into their water, and by making them swallow, for some time, half a glass of red wine every day.

The Genestade or Broom-disorder.

This name is given, in the southern part of the Cévennes called the *Ruffes*, to a disorder attributed to the Spanish broom: it is not contagious and attacks only some individuals of a flock.—Every year it makes its appearance in districts where this plant abounds, it prevails most in December, January and February: during those months, the sheep feed among the broom*. This disorder sometimes carries off the fifth part of a flock. It has been observed that the husks of this plant are more injurious than the leaves.

Its chief characteristic is a difficulty to make water, caused by an inflammation of the reins and bladder; it often terminates in mortification. Broom is a warm diuretic, calculated to produce good effects in aqueous cachexies; consequently, its effects

* See the Memoirs of the ancient Agricultural Society of Paris, tome 1787.

must be injurious to strong and vigorous animals, if they eat a great deal of it.

This disorder is cured by means of diluting drinks, such as water with a little meal mixed in it, or a decoction of flaxseed or mallows and other emollient herbs, if there be few animals sick, and if these plants be in abundance: two grammes of nitre per pint should be added. Some drops of spirit of turpentine, mixed with water and injected, have sometimes restored the urinary functions.

The animals are preserved from the disorder by never leaving them long among the broom, or by never putting them there till after they have eaten.

The wood-disease (maladie de bois)

If sheep are carried into the woods at the season when the buds swell, they eat so many as to make themselves sick. It is not a sudden affection, as after having eaten wet grass whence a gas disengages itself capable of killing them suddenly; but this disease acts in a different manner, and affords time to employ means of cure; most of those animals which fall victims to it resist until the eighteenth or twentieth day.*

The first symptoms are a general dryness; the urine is crude and copious, and the excrements hard; the skin is hot; the animals are feverish, they cease to ruminate. According to these symptoms, this disease should be ranked among the inflammatory; this is still more evident if its progress be watched, if its termination be attended to, and if the state of the bodies of the animals which die of it be examined.

The buds which sheep swallow in large quantities while feeding in the woods, fill their stomachs, which cannot get rid of them, because the powers of digestion are overcome; these substances, being of an irritating nature, cause an inflammation which extends itself to the neighbouring parts; the more tender the buds are, the more relishing they are, and the greater is the quantity which the sheep eat.

There is but one preservative, easy to be found and to be employed; it is, not to carry sheep into the woods when the

* If any person wishes to know all that relates to this disease, he should read a memoir by Mr. *Chabert*, director of the veterinary school at Alfort; it forms part of the *Instructions vétérinaires*, of which he is one of the authors.

buds begin to shoot, especially where many oaks are found, all the parts of which are very astringent ; or not to suffer them to remain there long. It has been maintained that sheep which feed in the woods ought sometimes to be bled, to prevent the effects of the leaves and buds which they there eat. I think it is much better to keep them away from the woods.

When the disorder appears, those which are affected with it must be dieted, and it will be sufficient to make them take abundant draughts of clean water, until they are evidently relieved. I would also propose decoctions of emollient herbs ; but these can be employed, as I said in treating of the *Genes zade*, only when few animals are sick, and where these herbs are very common ; flax-seed, which is neither scarce nor dear, ought to be preferred. When the animals begin to chew the cud again, and no longer appear to suffer, they should be restored, little by little, to their usual food.

Mr. *Chabert* thinks they ought to be bled in the jugular vein, the second or third day. Bleeding, it is true, produces a relaxation, suffers the stomach to extend itself, and diminishes the stricture caused by the buds of trees ; on this principle, bleeding may be useful ; but the fulness of the stomach, which is already weakened, does it not require the exertion of all the strength, and consequently does it not forbid bleeding, which diminishes the strength ? I do not offer this as an objection, but merely as an observation. Mr. *Chabert* is perhaps right ; he prudently advises not to bleed the first two days, nor when the disease is far advanced.

It appears rational to suppose that sheep may be disordered by eating too large a quantity of buds or sprouts of trees. They undoubtedly should be prevented from going into the woods, when the trees begin to shoot out. This is proper on another account ; viz. the preservation of the trees, whose growth they injure. One would suppose acorns likely to produce the same effect ; yet I have seen sheep eat them in great quantities, without any injury to their health ; I have even known a person feed two horses with them for four months, without the least ill consequence : indeed, acorns being ripe fruits and eaten late in the season, they cannot be compared to oak buds browsed at a time when vegetation is in full vigour.

The Blood, Blood-disease (Maladie du Sang.)

This disease suddenly attacks sheep, without giving any known symptoms of its approach. The animal suddenly stops

short, appears giddy, staggers and stumbles; it opens its mouth, foams, and voids blood through the fundament and the urinary canal; it soon falls on its back, pants, rattles in the throat, and dies, sometimes within the space of half an hour, a quarter of an hour, and even of a few minutes. Thick black blood then comes out of its mouth and nostrils; its body soon swells and putrefies. If it be opened, all the vessels of the skin will be found full of blood, and the flesh purple; the spleen is swollen and full, which has occasioned this disease to be called *stroke of the blood* (*coup de sang*), *apoplexy*, *spleen blood* (*sang de rate*). Some farmers have lost by this disease a tenth, and even a fourth of their sheep.

In some flocks, the sheep are liable to this disorder at all times of the year; but it is generally most prevalent in the summer season: for this reason, it is also called, *the heat*. It exerts its greatest violence during the months of July and August; in September it abates. It is common in dry years, it kills the greatest number during very hot days, especially days on which storms happen; the mortality appears to lessen in cool weather and after rain. It attacks sheep of all ages and descriptions; and especially those which have the strongest constitution. In sheep-houses which are kept too warm, sheep sometimes die of this disease during the night.

The causes, besides the constitution of the individual, are, 1. the food which the animals eat, particularly during the time when the disease is most frequent; 2. the dryness and heat of the season when it is most apt to prevail; 3. violent running, in the middle of the day, in summer. I have seen it prevail in a country where sheep are fed five months of the year on fodder and dry grain, and long shut up in places rendered hot by their contracted size and by a quantity of dung heaped up. In that country, they are folded on the open plains, during the months of July and August, without any shelter from the heat of the sun. After harvest, at which time the disease prevails most, they go into fields that have been reaped, to eat what is left by the gleaners.

These causes combined, give to their fibres a stiffness not known to those animals which live a great part of their time upon grass and in green pastures. By increasing the action of the vessels, the blood is dilated; its fluidity is destroyed; or it is made to discharge itself through different organs; or internal collections or extravasations are occasioned.

When a sheep falls with this disease, all remedies are useless ; it has received its death blow, and nothing can save it : but the examination of the body, and the warning given by a first accident, tend to the preservation of the rest. Not a moment is to be lost ; it is proper to bleed without delay all those which by their strength or by the vermilion colour of their eyes, lips and mouth, indicate a sanguine habit. The sheep of this description, being the most vigorous, always go in the front of the flock ; those of a contrary habit should not be bled ; great attention must be paid to this distinction. The practice of the Spaniards and of *Daubenton* is to open the vein under the eye, at the lower part of the cheek, by the root of the fourth jaw-tooth ; because this vein is very apparent. Blood may be taken from the jugular veins, from the tail, or other parts of the body. At the end of some days, if it can be done conveniently, the sheep which have been bled should be bathed several times, but not those whose eyes are dull and whose lips are pale ; drinks made of decoctions of sorrel, sharpened with nitre and common salt, would be proper. If the number of sheep be great, vinegar and water must be substituted, because sufficient sorrel could not be found.

In order to prevent the evil, while yet at a distance, care should be taken to shelter the sheep from the violent heats of summer ; to let them drink frequently during that season, if they are pastured in dry situations ; to give them, in winter, barley in preference to every other grain, and to mix with it watery leaves or roots, such as cabbage, carrots, turnips, jerusalem-artichokes, potatoes, beets ; to sprinkle the dry fodder with a little water ; not to keep the sheep too warm while housed ; to let them have green pasture as soon as possible in the spring, and not to turn them into corn stubble, immediately after harvest, without taking care to hinder them from eating much. These directions, which I have sometimes had occasion to give, have not been without success.

Falere.

The flocks in Roussillon are every year attacked by a disease which kills a great number of sheep*. It is called *falere*, a Catalonian word signifying *quickness, activity*, on account of the rapidity with which it carries off the animals that are attacked by it. I was directed by Government, some years ago, to go and examine it, and to point out the means which ap.

* This disease, which is an endemic of Roussillon, may possibly exist in other places ; the description of its symptoms and effects will make it known.

peared to me most proper to prevent it; the substance of my observations is as follows.

No symptoms announce the approach of this disease, at least none have as yet been remarked: the inhabitants of the country where it prevails are the proper persons to prosecute this inquiry. Hitherto no symptoms are known, except those which almost immediately precede death.

The animal at first appears in a state of stupefaction; its head hangs down; it staggers and stumbles; sometimes it attempts to make water; its legs are so weak as scarcely to support it; it falls upon its knees; it then rises and reels about still more: if, at this time, the hand be held before its eyes, they do not move; if by a last effort it gets again upon its feet, it throws itself against whatever is near it, even into the midst of dogs, by whose barking it is not terrified; a proof that the senses of seeing and hearing are extinguished; it at length falls, not to rise again: the whole head is violently convulsed, and particularly the eyes, ears and jaws, as well as the legs; the difficulty of breathing becomes extreme; it is accompanied with a ganshing of the teeth, which is heard at some distance; from its mouth issues a great quantity of foam of a red tinge, and from the anus, green excrements, oily and almost liquid. During this agony, the belly swells; and, immediately after death, the swelling increases sensibly; much air is discharged from the mouth and the anus.

I have not been able to obtain much light with regard to the cause of this disorder by opening the bodies of the sheep which died of it; I have found no appearance of disease in the skull, the mouth, the oesophagus, the stomachs, the intestines or the trachea; only I have observed some parts of the lungs a little tinged with purple, which effect might have been produced during the last pangs of the animal. Those animals which were young, had the glands of the mesentery voluminous, as they always are in subjects of that age; the liver contained a pretty large number of liver-flukes (*fasciola hepatica*); I have counted ten in an ewe of seven years; the gall-bladder also contained some: hydatides also (or the *taenia visceralis*) appeared in several parts of the chest and of the lower belly, and the ringed *taenia* in the jejunum. These animals had no symptom of the rot: the paunch was very large; the substances which it contained were of a middling consistency; and those in the intestines, liquid. In order to discover the nature of the gas which distended the paunch, I tied the posterior extremity of the œsophagus and the anterior extremity of the duodenum; I then pierced the

paunch, presenting to the opening a lighted candle; the gas took fire and burnt with a crackling flame which was bluish, like that of burning brandy. This appearance was most remarkable in an ewe lamb of a year old, and in a thaive, one examined three hours and the other eight hours after its death, and both kept in a cool place. The sheep which died of the *falerre* exhaled no uncommon smell. Having in like manner examined animals which died of other diseases, or which were killed in a state of perfect health, for the markets, the air which came from their paunch was not inflammable like that from the paunch of animals which died of the *falerre*.

I could not learn, from the proprietors of flocks in the country where this disease prevails, the exact amount of the mischief which it docs; I found, however, that it was considerable.

The *falerre* attacks sheep at almost every season of the year, but particularly in the spring and autumn; it is much more common in autumn than in the spring.

Both sexes, of all ages, are equally subject to it.

The part of Roussillon where it most prevails, is Salanque, situated in the vicinity of the sea; there are, however, tracts which are always exempt from it.

The animals purchased in Salanque, when once taken away, are no longer subject to the *falerre*, which appears to result from some sudden cause, inherent in the country, and acting only in particular circumstances.

The *falerre* is not contagious, which is not astonishing, since it is neither of the eruptive nor of the pestilential class of diseases.

The opening of the bodies of animals often leads to useful information concerning the causes of their death, especially when they die suddenly; but it sometimes happens that this mode of investigation is not sufficient, and that it even occasions uncertainty. What perplexes the observer is, when an animal dies of one disease, to find within it the beginning of another.—From what has been said relative to the *falerre*, it appears more easy to say what it is not than what it is. In the first place, it is not an eruptive disorder; this needs no proof: its symptoms do not indicate the *blood*; it is not a phrensy, since there is no injury in the skull, nor in the stomach, nor in the

diaphragm, and since the convulsions in which the animals die are attendant upon several kinds of disease. One would be tempted to think that it is rather the rot, on account of the hyatides in the chest and lower belly, and the liver-flukes: but the rot is slow in its progress; its symptoms precede it a long time; the sheep attacked by it have in the evening a swelling beneath the under jaw, &c. Liver-flukes are not found in all sheep which die of the *falerre*; these worms are found in many creatures which are killed in supposed health. It is probable that those in which I found hydatides and liver-flukes, if they had not died of the *falerre*, would some day have been carried off by the rot, if turned into wet pastures. I can hardly persuade myself that the *ringed tænia*s cause the *falerre*, as they are small, and as they do not kill with the suddenness of an apoplexy the animals which are subject to them. I think it cannot be doubted that the inflammable gas (*carbureted hydrogen*) contained in the paunch is the chief if not the only cause of the *falerre*.

The *falerre* appears in parts of the country which are neither constantly wet nor very dry, but which are occasionally moistened; also, when flocks are inconsiderately led to meadow-lands after rains or heavy dews, before the sun has had time to dry them. It has already been remarked that this disorder prevails more in the spring and autumn, which are the rainy seasons, than during the rest of the year; I may add that it has been observed to prevail most when the sea-breeze blows and scatters moisture through the air and on the plants. This disease therefore seems to bear some relation to that which is called *swelling of the paunch*, although it differs from it in some respects. It is probably owing to the nature of the herbs, which in that country, I suppose, possess qualities which render them liable to spoil, to be decomposed, and in certain circumstances to form carbureted hydrogen gas*.

Until I went to Perpignan, no remedy had been used for the *falerre*; none was known, and indeed none was sought for: because the animals which died of it were sold to the butchers, who bought them at the same price as if they were sold alive: the sheep were of the race of the country. The director of the imperial establishment has tried bleeding, without success: the same ill success attended the making an opening with a knife, either because it was not skilfully done, or because it was done too late, or because it is not proper in this case. It is to be regretted that this operation was not performed with a *tro-*

* The details relative to this disease are to be found in the *Annales de l'Agriculture Française*: Vol. xiv. p. 105.

car ; it would perhaps not always have been unsuccessful.— It has been found necessary to be content with preventives.— The only ones which I have advised have been, not to lead the flocks out immediately after rain or in the dew, but only when the grass is quite dry, and to give them something to eat in the sheep-houses, that they may not be so hungry as to devour too large a quantity of new or succulent grass when they go into the fields. I have been informed that these precautions have diminished the number of victims to the *falterre*. I have been assured that this disease prevents the increase of sheep in the country where it prevails, as it destroys as many animals as are born.

Sologne disease or Red disease.

The tract of country formerly called Sologne, loses every year, from time immemorial, a great part of its flocks, by a disease there called the *red disease*. I was directed by government, in 1780, to go and examine it upon the spot, that I might give an account of it. I shall here give a short summary of what I observed.

The *red disease* always makes its appearance in the month of May ; it is at its height in the month of June ; it gradually declines towards the end of July and the commencement of August.

The first symptoms are loathing, heaviness, a slow pace.— These symptoms, however, are common to many diseases. The eye waters, is dull and almost shut ; the gums, the lips, the tongue, are whitish or livid ; the nostrils are stopped by a thick matter ; the urine does not flow freely ; the head and fore-legs appear swoln ; the weakness is extreme. The diseased animals seek the shade, as if to protect themselves from the flies, which attack them in swarms, without any effort on their part to drive them away. They either refuse to go with the rest to the fields, or they lose themselves there, and are destroyed by dogs. In the last stages of the disease, a foamy slobber comes from their mouth ; some void with their excrements, or through the nose or nostrils, a light coloured blood, in small quantities. They commonly are very thirsty, and drink copiously ; they utter notes of complaint : and, when near dying, they have an unusual flow of urine.

The continuance of the disease, is six, eight or ten days, sometimes more, and seldom less. None of those recover which have foamed, voided blood, or drunk copiously.