

THE
DISEASES OF DOGS,
AND THEIR
HOMŒOPATHIC TREATMENT.

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P R E F A C E.

I HAVE been induced to publish this Treatise, firstly, because no work exists in any language specially treating of the subject to which it is devoted; secondly, because it is desirable that the Homœopathic System of Medicine should be represented in relation to canine practice; and, thirdly, because the ordinary medical treatment of the diseases of dogs is seldom satisfactory in its results, but, on the contrary, too often assists the disease to destroy the patient.

I may be permitted to state that this work is the fruit of many years' experience, and to express my belief that the superiority of the treatment here laid down, will, if carried out with ordinary judgment, be established by its success in curing or relieving the numerous and fatal diseases incidental to the canine race.

11 UPPER BERKELEY STREET,
PORTMAN SQUARE,
Nov. 1, 1863.

BYRON'S EPITAPH ON HIS NEWFOUNDLAND DOG.

**“ The poor dog ! in life the firmest friend,
The first to welcome, foremost to defend ;
Whose honest heart is still his master's own ;
Who labours, fights, lives, breathes for him alone.”**

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INTRODUCTORY REMARKS.

IN using this work as a guide to the homœopathic treatment of canine diseases, the reader is particularly requested to “mark, learn, and inwardly digest” the following observations.

The rules respecting—

How to select the remedy ;

What dose to give ;

How often to give the dose ;

must be *specially* studied, and referred to after having settled what the disease is, and what remedy is indicated.

A few cases in illustration of the treatment will be found in the Appendix.

I.—EXAMINATION OF THE PATIENT.

This is the first thing to do when a dog is ill. The symptoms which it presents must be minutely inquired into, for two purposes: firstly, to deter-

A

mine the seat and nature of the disease; and, secondly, to obtain indications for the selection of the right remedy. Attention to the following points will be of service:—

1. *The Organs of Circulation.*

(1.) The heart should be examined by the hand, ear, or stethoscope being placed on the left side, behind the elbow-joint, to ascertain the force and rhythm of its action, and the character of its sounds, whether normal or abnormal.

(2.) Important information is gained by learning the state of the pulse,—whether regular or irregular, soft or hard, frequent or slow, etc. The pulse is felt by placing the fingers on the artery at the inside of the fore-leg, just above the knee. It must not be forgotten that the standard healthy pulse varies in frequency from 80 to 100 pulsations per minute; and, further, that its frequency and character vary with the age, size, sex, temperament, and breed of the patient.

2. *The Respiratory System.*

(1.) Ascertain if the nose be hot or cold; dry or moist, covered or not with hardened mucus; if there be sneezing, or offensive smell, or indications of polypoid growths or foreign bodies in the nostrils.

(2.) The character of the breathing,—frequent, difficult, painful, laboured, etc.

(3.) If the expectoration, when there is any, be scanty or abundant; mucus or pus, or both; if expelled easily, or with the aid of vomiting.

(4.) If the cough be rare or frequent, painful, hoarse, croupy, barking, dry or moist, recent or chronic.

(5.) If both sides of the chest expand equally during breathing, or if one side expands more than the other.

(6.) If the sound be clear or dull when the lungs are percussed; if dull, noting the position.

(7.) If, on listening to the chest, the sounds attendant on respiration be natural or morbid; if the latter, ascertaining their character and marking their site.

3. *The Digestive System.*

(1.) If the teeth are all, or only in part cut; rotten, broken, worn down, loose, black, incrustated with tartar.

(2.) If the tongue is bitten, swollen, inflamed, cut, or paralyzed on one side; if furred; moist or dry; or altered in colour.

(3.) If the mouth is hot and dry, or cool and moist; if the breath is offensive, or not; if the mucous membrane is inflamed on the gums, in company with the peculiar odour of mercurial poisoning and salivation.

(4.) If swallowing be difficult or painful, or attended with choking; examining the throat

internally for bones, etc., and externally for enlarged glands, such as bronchocele.

(5.) If the stomach is disordered, as indicated by the appetite, thirst, vomiting, etc.; the vomit being specially observed as to appearance and smell; and, if necessary, analyzed in cases of suspected poisoning.

(6.) The size of the belly, whether hard, or soft, or painful; dull or clear when percussed, or fluctuating when tapped; containing tumours or foreign bodies; if there be diarrhoea, dysentery, constipation, piles; the character of the expelled excretions, as to colour, consistence, quantity; the existence of pregnancy.

(7.) The size, position, and feel of the liver; if there are indications of enlargement, or of jaundice.

4. *Genito-Urinary System.*

(1.) The functions of the uterus; discharges from, or tumours connected with it.

(2.) The state of the vagina; if the seat of polypus, cancer, ulceration, displacement, discharge, or injury.

(3.) If the milk-glands or teats are tender, swollen, hard, cancerous, inflamed, etc.

(4.) If the penis or prepuce be inflamed or ulcerated; or the seat of fungous growths, etc.

(5.) Note the way in which urine is voided, and whether there is, or is not, a discharge of blood.

5. *The Integumentary System.*

(1.) The skin, whether blotched, or mangy, or otherwise diseased; if the disease is partial or universal; the seat of morbid growth, dropsy, etc.; if hot or cold.

(2.) The state of the feet, the nails and pads especially.

(3.) If the dog is fat or lean.

6. *The Nervous System.*

(1.) The shape and size of the head; whether the scalp is injured, or the skull fractured.

(2.) Insensibility, or profound coma.

(3.) If the special senses of sight, hearing, etc., are diminished or lost; noting at the same time the condition and colour of the eye, and the state of the ears.

(4.) If there are fits, convulsions, trembling, rigidity, palsy, or any peculiarity of movement when walking, such as avoiding, or rolling over obstacles in the way, or turning round and round.

(5.) The dog's manner should be watched; the way in which he sits or lies down, or bites or scratches himself, or avoids movement and observation, etc.

It would be easy to enlarge the objective symptoms of canine disease, but the above are sufficient

as finger-posts in aid of practical observation and accurate diagnosis.

The above details of examination may also prove of service to purchasers of dogs. A dog may be pronounced sound, in which none of the foregoing symptoms can be discovered.

II.—HOW TO SELECT THE REMEDIES.

The symptoms having been ascertained, the next step is to select the proper remedy for the disease. Under the "treatment" of each malady, a few remedies are given, with certain symptoms attached to each. That medicine, or those medicines, are to be given, whose symptoms correspond the most exactly with those of the disease. For instance, if the disease should be laryngitis, Aconite is to be given when the symptoms recorded in connexion with it, are present in the patient; and Spongia, when the symptoms recorded after it, are present. Should the symptoms of both these medicines be present together in the same case, then both medicines should be given, not mixed, but separately and in alternation. These instructions are applicable to every other disease. I may here remark that *all* the appropriate remedies are not mentioned, but only those that are generally useful in ordinary cases.

III.—THE REMEDIES.

The medicines prescribed in this work, and used in my practice, are *internal* and *external*.

The internal are in three forms :—

1. *Pilules*, which are non-medicinal vehicles, saturated with a certain dilution of any given medicine. They are specially suitable for small dogs, when it is necessary to *give* medicine either from the dog refusing, or being unable, to take it.

2. *Tinctures*, or alcoholic solutions of the remedy, varying in the dilution, and given mixed with a little milk or water, which most dogs will readily take.

3. *Triturations*, in which the crude drug is minutely subdivided, by being rubbed up with a non-medicinal substance in certain fixed proportions. These are not much used.

A table giving the scientific and common names of the remedies, and the dilution of each most useful in the ordinary run of cases, will be found in the Appendix.

A list of the *external* remedies will also be furnished in the same place, giving directions how they are prepared, and in what diseases they are useful or indispensable.

IV.—WHAT DOSE TO GIVE.

The following directions on this point apply to all the medicines mentioned in this work, and should be followed out, except when the dose is specially stated under the "treatment." The plan here adopted is preferred to that of giving each dose after each medicine, to save space for practical matter.

The dose varies with the size and age of the patient. The average quantity required in most diseases is as follows:—

Pilules, One pilule for small dogs.

Tinctures, . . . From one to three drops.

Triturations, . From half a grain to one grain.

When tinctures are given, it is best to mix say six drops in six teaspoonfuls of pure cold water, and give a teaspoonful of this mixture for a dose; or, in the case of a larger dog, eighteen drops in the same quantity of water. Each teaspoonful of the mixtures will, of course, contain one drop and three drops of the tinctures respectively.

All vessels used to hold the medicines should be scrupulously clean.

No two medicines must be mixed together; each one must be given by itself to do its own special work.

V.—HOW OFTEN TO GIVE THE DOSE.

In acute cases, such as inflammation of the lungs, or in such as are attended with pain, or are evidently attended with great danger unless speedily checked, the medicine, or medicines, should be given frequently,—every hour, or every two hours, according to the violence of the symptoms. When the disease is within the remedial power of medicine, and when the remedy is adapted to the disease, improvement will set in, in many cases, even after the first dose. Then it follows that the medicine, or medicines, must be given less frequently than before. When two medicines are required to meet all the symptoms, each dose of them is to be given alternately; for instance, if Aconite and Bryonia be both indicated, and if the severity of the disease necessitate their administration every hour, A. is to be given, say at the even hours, 2, 4, 6, and B. at the odd hours, 3, 5, 7, etc. And so with all the others.

In old standing cases, or in chronic diseases, the medicine may be given two, three, or four times a-day, according to circumstances.

VI.—HOW TO GIVE THE MEDICINES.

As the internal remedies are devoid of taste or smell, and are of little bulk, there is much less diffi-

culty in getting dogs to take them than is the case in the old practice. It is not necessary to force them down the throat of an unwilling and nauseated animal; nor, after they have got into the stomach, "to put the couples on, and fasten them up to a hook at such a height that the dog cannot lower his head, maintaining this position for two or three hours,"* for the purpose of preventing their return journey by vomiting. The stomach is intolerant of nasty or of bulky physic, and often expels what would prove injurious if retained.

Pilules, if not taken voluntarily, may be administered by gently separating the jaws, and getting another person to let them fall into the back part of the mouth, whilst the head is slightly raised. In some cases a single person can give a pilule without the slightest fuss.

Tinctures, each dose mixed with about a table-spoonful of water, are readily taken in most cases; but should the dog refuse, or be unable to take this mixture, it must be administered by gently raising the head, and pouring the fluid with a teaspoon between the cheek and the teeth; it will then make its way gradually into the throat and be swallowed, without resorting to the least force.

Triturations may be given in two ways; either by mixing up the powder with a little milk, or other food that the dog is fond of, or by placing it dry on the back part of the surface of the tongue.

* Stonhenge on the Dog, page 320.

GENERAL MANAGEMENT.

I.—FOOD.

(1.) *The Kind of Food.*

Flesh meat is the dog's natural food, although he can digest and assimilate vegetable food also. An exclusive diet of flesh tends to grossness of body, and, as a consequence, to diseases of an inflammatory character, and also to cutaneous disorders. Horse flesh is largely used as dog's meat, and it is a highly nutritive aliment, fitter for dogs that are much exercised than for those that have little or no exercise; in the latter case it is likely to induce foulness of the system and mange. No dog should be allowed to eat the flesh of a diseased horse. Mutton is a good, but expensive food, and may be given even to house-dogs, occasionally and in small quantities. Paunch and tripe are proper foods, and their continued use is not likely to be followed by evil consequences. Lean meat is at all times more wholesome than fat. Liver is another good article as an occasional meal; it has a laxative property, and may for that reason be sometimes given to dogs troubled with constipation from torpidity of the liver. But the liver and entrails of sheep and oxen are objectionable for this reason,—they are frequently the seats of the

bladder-form of the tape-worm, which becomes fully developed into the mature *Tenia* in the dog's intestines. Boiling would destroy the vitality of these parasites; but it also removes the laxative property of the secretion of the liver, and renders the liver itself an indigestible aliment. Soft bones, which are easily chewed, and therefore do not injure the teeth, are nutritive, and need not be withheld; but hard bones, unless when large and covered with scraps of meat, should not be given, as they are injurious to the teeth when the dog attempts to crunch them. Fish and poultry bones are apt to break up into splinters, which may stick in the throat and cause choking,—hence they are bad. Picking a large bone now and then has this other advantage—the action of a tooth-brush. For domestic dogs, meat of whatever kind is better boiled than raw.

Dogs do best on a mixed bill of fare,—dogs that are not much worked. Oatmeal and Indian meal—the latter subjected to prolonged boiling—are excellent food; bones slightly covered with flesh may be boiled up with either meal. This is an economical and nourishing dish, which most dogs relish highly. “Greaves”* may be used in lieu of meat, and should be well boiled before adding the oatmeal. Sweet milk or butter-milk may be allowed to the oatmeal porridge; a small

* This is objected to by some, on the ground that it sets up a tendency to jaundice.

portion of fatty matter or gravy is also a savoury and beneficial addition. Kitchen refuse, such as bones and meat, well boiled into a soup, and then thickened with potatoes or meal, is another mode of providing a suitable meal. The liquor in which salt-meat has been boiled is objectionable. House dogs of diminutive size may be fed on biscuits, previously softened by having boiling milk or gravy poured over them. Vegetables should be boiled once or twice a-week with the broth; in fact, the rule for all other dogs, save sporting dogs, is to give a mixed diet, neither exclusively animal nor exclusively vegetable. The diet should also be varied, as the dog tires of one particular article of food. Butter, cakes, sugar, and other things that are sometimes given to favourite dogs are decidedly hurtful.

A special dietary is necessary for sick dogs. An exclusive vegetable diet is often necessary, when, from over-feeding, the dog is troubled with skin-diseases, or is loaded with fat, or is in too plethoric a condition. In all inflammatory diseases, supposing the desire of eating be retained, the food should be reduced in quantity and richness of quality. On the other hand, diseases that have induced debility and exhaustion, from their severity or long continuance, should be met dietetically, by giving the patient some kind of nutritious food. An occasional meal of vegetables, or of liver, is of great service in constipation, and far better than purga-

tives. Kitchen physic for dogs should be fresh, untainted, without any kind of unpleasant smell, irreproachably clean, and nicely cooked; otherwise the patient may turn up his nose at it. Sometimes he may fancy a bit of flesh, or bacon, or pork; and one or other may be preferred raw.* To avoid the alternative of compelling the dog to swallow what he will not voluntarily take, it is sometimes advisable to give way to these partialities. In disease, the appetite sometimes requires to be coaxed by unusual foods. When the dog is exhausted from disease, and when he cannot or will not take food, then concentrated fluid nutriment must be put into the stomach through a tube passed down the throat; or carefully administered by spoon; or even thrown up the rectum, if necessary. Beef-tea, either alone or mixed with powdered biscuit or ground rice, is indispensable in these cases. Arrowroot and gruel are good as a change.

(2.) *The Quantity of Food.*

No rule can be laid down on this point, as age, breed, work, and such-like circumstances, must necessarily regulate the amount of food which a healthy dog ought to be allowed to consume. There is a rule founded on size,—Give a dog one ounce of

* "Measly" pork should not be given *raw*, because it contains embryonic tape-worms, which become mature parasites in the intestines of the eater, whether canine or human.

food daily for every pound of his weight; but this rule is open to many exceptions. Dogs that are idle, confined, and out of exercise or work, should of course have less food than those that are placed the other way, unless we wish to induce obesity and a host of attendant evils. In proportion to the waste of tissue consequent on exertion should be the amount of food. Much also depends on quality; because it is clear that there is more actual nutriment in a small quantity of flesh meat than in a large quantity of vegetable food. As dogs, if permitted, invariably eat more than is sufficient for the requirements of healthy action, it is important not to allow them to continue eating until appetite is fully satisfied, but to take away the remains of the meal as soon as they begin to be less eager than at first. Almost all house-dogs gorge themselves with food; it will therefore be safe and salutary to reduce the usual amount. No titbits should be given between regular meal times.

The quantity for sick dogs depends so much on the nature and stage of their disease, that no specific rule can be given. Great care is necessary during convalescence to prevent cramming.

(3.) *The Frequency of Meals.*

It may be stated as a physiological fact, that the dog's stomach in health cannot digest a full meal of flesh under twenty-four hours. Sporting

dogs are found to flourish on one daily meal. Dogs can bear many hours' abstinence without injury, but such abstinence, if frequently repeated, is followed by stomachic disorder. One meal in the twenty-four hours is quite sufficient for strong healthy dogs ; but a supplementary evening repast may be added in the case of delicate or weakly animals. Nothing is worse for dogs than giving them scraps of food during the day.

In the case of sick dogs, it may be necessary to offer, or to administer nourishment, in small quantities, three or four times a-day.

II.—EXERCISE.

After proper feeding, comes exercise as the next most important element in preserving health. Exercise, and plenty of it, is the lot of the dog in his natural state. The wonder is how he manages to live so long when shut up for hours together in a warm close room, and not permitted to use his limbs or breathe fresh air, except, perhaps, under considerable restraint. A host of diseases can be traced to want of exercise, aided by improper dieting. To prevent these and to keep the dog in a sound state, daily exercise is essential. Puppies will exercise themselves if taught to play with a ball. Larger dogs are more disposed to exert themselves in company than when alone,—playing

and frolicking with a companion. In older age there is less disposition to playfulness, and it may be necessary to take the animal out to enjoy a formal walk ; but there is no circumstance of health prohibitory of exercise in some form or other.

House-dogs should be allowed to leave the house several times a-day, for the performance of certain natural acts, and to preserve cleanliness. If this be neglected, well-bred dogs will restrain their natural desires, and may thereby do themselves serious injury.

III.—HOUSING.

Watch-dogs and others kept out of doors should be protected from winds and rain by being kept in a box-kennel. Any comfortable corner in a house is fit for house-dogs, provided the ground be perfectly dry and covered with a piece of thick carpeting. The bed should be neither too warm nor too soft. Clean soft straw makes the best bedding for kennels ; shavings are more suitable when the dog is infested with vermin.* Little pet-dogs may be kept in wicker baskets, and, if necessary, protected during cold weather by a coverlet. The sleeping place should be kept thoroughly clean, and the

* Burying clothes infested with the human louse in hay for several weeks is a common, and, according to Küchenmeister, a successful practice. Hence, hay would be a proper bedding for dogs troubled with these parasites.

bedding should be changed as often as may be necessary. Ventilation is an important matter, as repeatedly breathing an atmosphere rendered impure by the exhalation of animal matter from the skin, the lungs, and the excretions, is highly destructive to health, and productive of numerous serious diseases.

IV.—WASHING.

Dogs should be rubbed down every day with a brush or a rough cloth. The hair and skin are thus kept clean and sweet, the creature's comfort greatly promoted, vermin kept off, and washing rendered less frequently needful. Washing, however, cannot be altogether dispensed with; but soap should not be used, in consequence of its irritating action on the dog's skin. The best mode of washing is to rub into the hair and skin the yolks of three or four eggs, one by one, so as to make a lather with the aid of water; then, the dog being in a tub or similar vessel, pour over him sufficient lukewarm water to remove all the lather and dirt. The hair should then be thoroughly dried with a towel whilst the dog is near the fire. Little dogs may be carefully wrapped up in a blanket until they are perfectly dry. For the destruction of fleas, soap may be used in the same way instead of egg-yolks. The great objection to soap is that it combines with and

removes the natural oily secretion of the skin, and thereby destroys the gloss of the hair. The water should not be used of too high a temperature, else the dog will be debilitated, and be liable to catch cold afterwards.

In some cases of disease, such as chorea, a cold bath is of great service.

RULES FOR NURSING SICK DOGS.

1. They should be put in a warm, comfortable place, and be well protected from cold and damp. The place should not be hot or suffocating, but well ventilated, so as to insure breathing of pure air. Cleanliness is of the greatest importance, especially as regards the bed or litter.

2. They should be spoken to, and tended with the greatest kindness. Rough, harsh treatment is peculiarly hurtful in canine diseases, and especially in those that attack dogs of the nervous temperament. The artificial life which some dogs lead, being treated better than many human beings, alters their habits and mental condition so much as to render them extremely susceptible to harsh words or rough usage; and this peculiar impressionability is very evident when they are suffering from illness.

3. In some cases food of the proper kind should be simply placed in the way of patients, so that they

may be able to eat it voluntarily, according to the demands of appetite. In other cases food must be administered; for instance, when the dog is suffering from an exhausting disease, and requires nourishment to compensate for the excessive waste of tissue consequent thereon. Further remarks on sick diet are made at pages 13 and 15.

“ Near to the gates, conferring as they drew,
Argus the dog his ancient master knew,
And, not unconscious of the voice and tread,
Lifts to the sound his ears, and rears his head.
He knew his Lord, he knew, and strove to meet;
In vain he strove to crawl and kiss his feet:
Yet, all he could, his tail, his ears, his eyes,
Salute his master, and confess his joys.”

POPE'S *Odyssey*.

DISEASES OF DOGS.

CHAPTER I.

DISEASES OF THE ORGANS OF RESPIRATION.

I.—COUGH.

IN the majority of cases, cough is a symptom of numerous pathological conditions; sometimes it may be regarded as a disease of itself, because it is the most prominent and unpleasant symptom.

1. In laryngitis, the cough is harsh, rough, and painful; in chronic laryngitis, it is hoarse and paroxysmal.

2. In catarrh, it is slight, occasional, and humid.

3. In bronchitis, it is hard, frequent, and dry in the first stage; soft and moist in the second.

4. In pneumonia, it is short, frequent, and humid.

5. In pleurisy, it is short, dry, and suppressed.

6. In asthma, it is frequent and wheezy, induced by the least exertion, and ending in vomiting.

7. In distemper, there is a peculiar husky cough, apt to end in vomiting, and ushering in bronchitis.

8. The dog may cough from the lodgement of a bit of bone in the throat. This part should always be examined when a patient is suffering from a frequent hacking cough which seems to be induced by some irritation in the throat, as in pharyngitis.

9. Cough of variable character may accompany diseases of the stomach and of the liver, worms, etc.

A cough is frequently the initial symptom of some approaching serious disease of one or other of the respiratory organs; the warning should not be unheeded.

A slight cough induced by exposure to cold may end in a short time by slight mucous discharge, or it may subsequently become associated with other graver catarrhal symptoms.

It is obvious that the treatment must be regulated by two considerations,—the cause of the cough, and the pathological state with which it is allied. The primary disease must first be made out, and then treated as directed in different parts of this work; for it would be in vain to attempt to cure a cough depending on the irritation of worms, for example, without first of all getting rid of the parasites.

II.—SNORTING.

The act of snorting is performed thus :—The dog stands still, holds up his head with nose pointed forwards and upwards, draws in air through the nostrils, and instantly expels it in a succession of loud, spasmodic snorts, which are not pleasant to hear, and which are sometimes continued till the dog staggers and falls down. These snorts sometimes alternate with fits of sneezing. They seem to have for their object the expulsion of some foreign body lodged in the nose, such as a worm,* blade of grass, etc. This snorting sound may likewise accompany cold in the head, and then is expulsive of accumulated mucus, and is occasionally symptomatic of nasal polypus.

The snorting will, of course, cease on the removal of its cause.

III.—POLYPUS.

This growth is sometimes met with in the nostril. It may or may not protrude externally, and when small, or situated high up, may be out

* The *Pentastomum tenioides* inhabiting the ethmoid cells, etc., may, by the irritation of its presence and movements, induce snorting and other symptoms referable to the nostrils. For further information, consult the chapter on "Parasitic Diseases."

of sight altogether. The nose is obstructed, and the ingress and egress of air more or less impeded.

The polypus must be removed by ligature or other surgical means.

IV.—OZÆNA.

Ozæna signifies a discharge from the nose, purulent or sanious, and disgustingly fetid. It is rather a symptom of one or more diseased states than a special disease of itself. The morbid condition on which the symptom depends should, therefore, have the chief attention of the practitioner. The essential character of ozæna is extreme fœtor of the expired air and of the nasal discharge. The discharge is constant and more or less profuse; it is always mattery in character, and sometimes mixed with blood.

It is most commonly met with in pug dogs, especially if old; and its frequent occurrence in them is stated by some authorities to depend on the peculiar shape of the nose, which may doubtless be reckoned as a strong predisposing cause. It is also sometimes found in old dogs of other varieties.

There are usually indications of pain and oppressed stertorous breathing, in consequence of the free ingress and egress of air being obstructed by the accumulation of matter. The animal makes

constant efforts to dislodge the obstruction by sneezing; should these efforts be successful, relief is obtained for a short time, but the uneasiness returns with the stoppage.

Ozæna may depend:—

1. On a relaxed state of the nasal mucous membrane, following an attack of neglected or badly-treated catarrh, and accompanied by secretion of vitiated mucus, especially if the constitutional powers be impaired by chronic disease or by old age.

2. On the natural mucus of the nose collecting and putrefying in the nostrils.

3. On the irritation and consequent excessive secretion induced by the presence of a foreign body in the nostrils, or by a morbid growth, such as a polypus.

4. On inflammation and consecutive ulceration of the mucous membrane, occurring either spontaneously or as the result of catarrh or of injuries.

5. On caries of the nasal bones.

TREATMENT.—*Arsenicum*.—Two to five drops of the first dilution twice a-day, followed, if necessary, in a fortnight by

Mercurius iod., one grain of the second trituration every night; or by

Aurum muriaticum, if the dog has been already saturated with mercury. Give one drop of the first dilution night and morning.

The nostrils should be thoroughly syringed with lukewarm water night and morning.

V.—CATARRH—COLD.

Catarrh consists of inflammation of the mucous membrane of the air-passages. When the disease affects the nasal mucous membrane, it is called *coryza*; and when the bronchial mucous membrane is affected, the disease is known as *bronchitis*, of which more anon.

In pups, *coryza* first and then *bronchitis* often usher in an attack of distemper.

Catarrh may be either common or epidemic.

1. *Common Catarrh*, it is almost needless to say, is a very common disease, and is excited by exposure to damp and cold, or to sudden changes of temperature.

The symptoms consist of chilliness, shivering and languor, followed by hot skin, thirst, loss of appetite, hot and dry nose, dull eyes, scanty and high-coloured urine, confined bowels, quick breathing, and accelerated pulse. Sometimes the conjunctiva is red, and there is a free secretion of tears, which run over the face. Then the mucous membrane begins to secrete a thin fluid, which gradually becomes thicker and more abundant, and which ceases as the disease declines. There is also frequent sneezing, and sometimes cough. In a few hours all these symptoms begin to abate, and the dog may get well without any treatment; but sometimes the inflammation gradually extends

down into the air-passages of the lungs, and the animal has then bronchitis. Catarrh may also terminate in pneumonia.

2. *Epidemic Catarrh*, or Influenza, presents somewhat analogous symptoms, but is supposed to be caused by some peculiar state of the atmosphere, and is characterized by great nervous and muscular prostration.

Chronic cough sometimes remains after influenza. Bronchitis or pneumonia is to be feared when the pulse and breathing are quick, and the cough frequent. An examination of the chest will disclose any affection of the air-passages or of the lungs. Pharyngitis, or inflammation of the throat, is an occasional accompaniment of catarrh. There is evidently soreness of the throat and difficulty of swallowing, in addition to the foregoing symptoms.

TREATMENT.—*Aconitum*. *—Chilliness, shivering, and general uneasiness, followed by feverishness, etc.

Belladonna.—Throat sore, swollen and inflamed; pain and difficulty of swallowing; tickling cough, worse at night; redness of the eyes.

Mercurius.—Discharge from the nose and eyes, sneezing and chilliness, soreness of the nostrils; inflamed and painful throat; swelling of the glands of the throat; bilious diarrhoea; inflamed and weeping eyes.

* For directions as to the dose, etc., of these medicines, refer to the "Introductory Remarks."

Nux vomica.—Hoarse hollow cough, with vomiting; loss of appetite, thirst, and constipation; dryness and obstruction of the nose, in the early stage.

Arsenicum.—Heaviness and dulness; thin acrid discharge from nose; violent sneezing; eyes inflamed and sensitive to light; great prostration of strength, etc.

The dog should be kept warm, and have plenty of water to drink. Gruel is the best food.

VI.—LARYNGITIS.

This is the name given to inflammation of the larynx; the larynx being the upper part of the windpipe and the organ of the voice, or of what corresponds to the voice in the canine species.

This disease is met with especially amongst such pet dogs as are brought up with care, and are protected from inclement and variable weather. The chief exciting causes are exposure to cold or damp, drinking cold water, etc. In some instances laryngitis comes on at the termination of an attack of distemper, in which case there is a dry, slight, and convulsive cough.

SYMPTOMS.—The premonitory symptoms are dulness and loss of appetite and of sportiveness. The dog has likewise a slight cough, which comes on frequently, and which makes the respiration panting and accelerated. The cough continues to

increase in intensity, and assumes a convulsive character. During the convulsive fits of coughing the dog makes violent efforts, as if he wished to disengage some foreign body fixed in the larynx or pharynx; biliary and glairy matters are expelled from the stomach by the spasmodic contraction of the abdominal muscles, whose action concurs in the production of the cough; the nasal orifices are surrounded by a sticky discharge, which provokes frequent sneezings; and there is a discharge of saliva. The pulse is hard and quick; the breathing difficult, sonorous, and suffocative; the act of swallowing is performed with more or less difficulty. If the disease be not checked, the respiration becomes more and more difficult until the dog dies from suffocation.

Laryngitis may terminate in health, or in chronic laryngitis; which latter form, besides being a sequel of the acute form, may likewise arise in the first instance as a primary disease induced by repeated exposures to cold or to change of temperature.

In the foregoing, or *acute* form, the danger arises from diminution of the aperture of the glottis, through which the air passes into and out of the lungs. The mucous membrane lining this part becomes swollen under the inflammatory action, or the subjacent areolar tissue becomes infiltrated with serum, and the animal is as effectually suffocated as if his nose were held under water. As

the danger depends more on the situation of the disease than on its severity or extent, it might be worth while to make an opening in the trachea (as is done in man) below the part affected, through which the breathing could be carried on until the disease subsides.

Chronic Laryngitis is characterized by hoarse cough, occurring in paroxysms, and attended with a mattery, tenacious discharge. The dog's bark is likewise altered in sound, being peculiarly rough, cracked, and stridulous. This form may supervene on the acute variety; or it may arise slowly under the influence of repeated exposures to cold, or to changes of temperature.

Some cases of "chronic cough" depend on structural disease of the larynx, or, more frequently, on chronic inflammation of its mucous membrane. When a cough has continued for a long time, without proving amenable to any treatment, however judiciously and perseveringly applied; when it has the peculiar character above described; and when it is provoked by excitement, or cold, or violent exercise, the probability is, that the seat of the irritation is the larynx.

TREATMENT.—Acute laryngitis requires prompt treatment to avert a fatal issue.

*Aconitum** is indicated at the commencement of the disease when symptoms of febrile action are

* For directions as to the dose, etc., of these medicines, refer to the "Introductory Remarks."

present; when the cough is spasmodic or hoarse, and either dry or accompanied with scanty discharge of frothy mucus; and when the breathing is quickened, oppressed, and impeded. In many cases aconitum is alone sufficient to effect a cure.

Spongia is a valuable remedy when the cough is hoarse and spasmodic, and without any expectoration; when the expiration is noisy, rough, and wheezing, and the region of the larynx tender to the touch; and when there is marked difficulty in drawing in the breath.

Hepar sulphuris should follow the last medicine when the difficulty of breathing seems to arise from accumulation of tenacious mucus, and when there is rattling of mucus.

Belladonna is useful for spasmodic cough occurring in paroxysms, and difficulty of swallowing.

The treatment of chronic laryngitis depends on the nature and extent of the local lesion.

Kali bichromicum is suitable for cough, excited by pressure, and attended with purulent discharge, and when one particular spot of the larynx is tender to the touch, and probably the seat of ulceration in one of the cartilages.

Acidum nitricum, *Calcarea carbonica*, *Bromine*, are also efficacious in special cases.

VII.—ACUTE BRONCHITIS.

Acute bronchitis, which may be either primary, or consecutive of distemper, is a very common affection in animals of the canine species, and is induced by variations of temperature, chills, damp kennels, etc.

SYMPTOMS.—In slight cases of bronchitis there is a slight dry cough, which occurs in fits and starts, and which is increased in frequency by exposure to cold. The general health does not appear to be much altered; the appetite and animal spirits are not impaired. In a few days the cough becomes moist, and muco-purulent matter is discharged; it then disappears in about five or six days, the period at which recovery is usually completed.

In such cases as these the larger divisions of the bronchial tubes are the seats of the disease; but when the smaller branches of the air-passages are affected, serious and alarming symptoms ensue. To a troublesome, hacking, and constant cough, are added loss of appetite, shiverings, depression of spirits, dulness, and vomiting of glairy matter, and of food; the animals keep out of the way; they are insensible to the caresses of their master; the movements of the flanks are much increased in frequency; the respiration is panting; the beats of the heart and of the arteries are so quick that they cannot be counted. On listening to the sides of

the chest we hear mucus rattling, which masks the respiratory murmur. The air-passages and orifice of the nostrils are obstructed by a discharge, which is at first clear and consists of mucus, and which subsequently becomes thick and purulent; this obstruction excites sneezing and frequent attacks of cough. At a more advanced period, the respiration becomes more and more difficult, and during that act the flanks and sides heave; an abundant viscid discharge stops up the nasal orifice; breathing in and out is effected through the mouth, and in so rapid a manner that the cheeks are agitated by a constant to-and-fro movement, resembling that of the valve of a bellows. The fits of coughing become very painful, and almost continual; the oppressed animal squats on his haunches, with his mouth wide open, and nose poked forward, to obtain more air; the eyes are dull and sunken; occasionally the prostration is such that the animal cannot stand upright, but remains lying on his breast-bone, with the head stretched out on his fore-paws. At this stage of the disease the breathing is calmer, the cough ceases, and is superseded by contractions of the expiratory muscles, by which the whole body is shaken, and the feebleness of the animal is extreme. Death soon takes place, either from asphyxia, or from the intensity of the inflammation, or from suppurative pneumonia.

Bronchitis rapidly goes through its different stages. It reaches its height in from six to eight

days, and then either ends in restoration to health, or assumes the capillary form, or becomes complicated with pneumonia, intestinal inflammation, or dysentery, the animal dying in periods varying from the tenth to the fifteenth day from the onset. These complications come on more frequently during the symptomatic bronchitis of distemper than during the continuance of primitive bronchitis.

Under some circumstances there remains, as a sequel of acute bronchitis, a dry frequent cough occurring in fits, but unattended with mucous discharge. On listening to the sides of the chest, a certain sound is heard, indicating an emphysematous state of the lungs. Dogs thus affected preserve their appetite and liveliness; but they are short-winded, and incapable of active or of sustained exertion. In short, they are asthmatical.

Chronic bronchitis is another sequel of the acute form. It is known by habitual cough, copious expectoration, and shortness of breath,—symptoms which are aggravated by exposure to damp and cold.

TREATMENT.—*Aconitum*.*—Pulse strong, hard, and accelerated; skin hot; short, dry, and frequent cough; wheezing, or sonorous noise in the chest; restlessness and thirst.

Bryonia, in a large number of cases of bronchitis, is of great service at the commencement of the

* For directions as to the dose, etc., of these medicines, refer to the "Introductory Remarks."

attack, and may be given either alone, or alternately with Aconite if the subjoined indications are present,—rapid, laborious, and anxious breathing; dry, hard cough, or cough night and day, with wheezing and excessive thirst; and especially when pleurisy threatens to set in.

Spongia is of great service after Aconite and Bryonia, when there still remains a considerable degree of inflammation in the air-tubes, with wheezing or rattling of mucus in the chest; also at a more advanced stage of the disease, when there is hollow, dry cough, night and day, but worse in the evening.

Belladonna is often exceedingly efficacious, especially when there is loud wheezing and rattling of mucus in the air-tubes; short, anxious, and rapid respiration; dry and fatiguing cough, especially at night.

Mercurius v. is useful in the second stage, and may be given after Belladonna, or alternately with it.

Phosphorus is frequently of great utility, especially after the inflammatory symptoms have been subdued; or when the disease has been neglected; or when we have reason to fear extension of the inflammation to the substance of the lungs.

Sulphur may be given night and morning for a few days to complete the cure.

Food, etc.—At first, when the inflammatory symptoms are present, the diet should be sparing;

subsequently, when these have given way and weakness remains, strong broth or beef-tea should be administered from time to time. In some cases a teaspoonful of wine, or of brandy, may be necessary.

During convalescence the diet should be plain, and great care should be taken in protecting the animal from draughts and damp. Throughout the disease, the dog should be where it can breathe cool, pure air.

VIII.—PNEUMONIA.

Pneumonia, or inflammation of the substance of the lungs, is of frequent occurrence in dogs.

The exciting *causes*, acting with greatest certainty and violence, on a weak, a plethoric, or an exhausted constitution, resolve themselves into exposure to cold, or to sudden, or extreme variations of temperature. The attack often comes on after clipping dogs during cold or inclement weather; throwing them into, or causing them to swim in water; and afterwards neglecting to rub the hair and skin dry, etc. In some cases, the disease seizes dogs apparently healthy, and in the absence of any obvious cause. Severe exertion, by overtaxing the respiratory organs, is a fruitful exciting cause. House and other dogs, accus-

tomed habitually to breathe a warm atmosphere, if turned out during cold weather, or at night, are thereby rendered liable to an attack. The disease sometimes prevails as an epidemic, severe in type and fatal in result.

SYMPTOMS.—The symptoms are well-marked and characteristic. After general shivering, succeeded by partial sweats, the breathing becomes quick and heaving, the expired air being hot, and the pulse strong, full, and increased in frequency. The head is extended, the tongue protruded, and the dog remains obstinately in one fixed position, sitting on his hocks, or if reluctantly moved, again assuming that posture,—all indicating oppressed lungs, and urgent need of free respiration. There may be some restlessness, the dog wandering about and perhaps lying down for a minute or so, but as a rule, the position is on the hocks,—a circumstance which is alone almost diagnostic. There is a short quick cough, generally, but not invariably, accompanied by slight discharge of reddish coloured mucus. Unless the symptoms are relieved, the dog gradually gets worse and worse, the breathing more and more difficult and embarrassed, the dog poking his nose through any crevice to get plenty of fresh air, to relieve the feeling of suffocation which it doubtless suffers; the pulse becomes weaker and quicker; the body thinner and weaker. Yet the dog sits hour after hour, with drooping head, closed eyes, and half-

unconscious manner, until, at length, worn out and exhausted, he dies.

The *physical signs* leave no doubt as to the nature, severity, extent, and complications of the disease; and give valuable information as to the probability of recovery. One or both lungs may be involved; few dogs recover when both are badly inflamed. In the diseased parts of the lungs, a sound is heard resembling that which is produced when one's hair is rubbed between the finger and thumb, close to the ear. This sound is learnedly called "crepitation;" it denotes the first stage of pneumonia, when the lungs are engorged with blood or bloody serum. In the same parts the natural healthy sound is obscured, and, as the disease advances, displaced by the morbid one. As compared with the healthy lung, the diseased part gives out a dull sound when tapped with the finger, as is done when the human chest is "sounded." In the second stage, the lung loses its spongy structure, and becomes dense and solid. Neither crepitation nor the natural sound can now be heard, but, instead, a blowing sound proceeding from the larger bronchial tubes which are surrounded by the solid lung. At a still more advanced stage, the sounds are rattling, from the passage to and fro, of air through the effused fluids or products of inflammation. These either cease, and are gradually replaced by the gentle breezy murmur of health, or continue, and then

indicate suppuration of the lung and forebode early death.

Pneumonia, without bronchitis, is rarely if ever met with. The latter complication is indicated more particularly by mucous discharge from the nose, rattling in the chest during the early stage, and the absence of dulness when the sides are percussed. Pleurisy may or may not co-exist.

TREATMENT.—*Ammonium causticum** is a remedy of great value in the congestive stage, when the breathing is panting and much quickened, and when the surface of the body is cold.

Aconitum is indicated when the inflammatory symptoms are fully developed, the pulse full and frequent, the skin and nose hot and dry, and the breathing quickened.

Bryonia is necessary when pneumonia is complicated with pleurisy; there being pain on pressure of the chest, short suppressed cough, etc. It is also indicated when there is some amount of bronchitis, with wheezing respiration, rattling in the chest, etc.

Phosphorus is an invaluable remedy, especially during the second stage of the disease when the lung is hepatized; it is indicated by great difficulty of breathing; frequent irritating cough, and reddish tough expectoration.

Tartarus emeticus is indicated by somewhat similar symptoms.

* For the dose, etc., see "Introductory Remarks."

Sulphur may be given to complete the cure after all the urgent symptoms have been subdued.

Food, etc.—The dog's distress must not be increased by keeping it in a warm, close room; it should be comfortably protected from cold, but should be allowed to breathe cool fresh air. After recovery it should be gently exercised, provided the weather be dry. When the appetite returns, the food should be plain.

IX.—PLEURISY.

This is inflammation of the serous membrane which invests the lungs and lines the walls of the thoracic cavity. It is a very frequent concomitant of pneumonia.

SYMPTOMS.—The symptoms begin with shivering, followed by febrile excitement; quiet breathing, inspiration being short and suppressed, expiration full; short dry cough; pulse small and hard; the sides are tender when pinched or tapped; the dog sits up; the secretions are scanty and the appetite impaired. In the early stage, rubbing friction sounds can be heard on listening at the affected side.

The disease terminates either in return to health, or in dropsy of the chest. In the former case, the pleura may or may not become adherent to the inner surface of the ribs; in the latter, fluid accumulates in the sac of the pleura, compressing the

yielding lung, interfering with its function, and displacing adjacent viscera. Diminution of pain, respiration becoming less frequent and less constrained, and the pulse getting lower, indicate return to health; whereas, when death is at hand, the breathing becomes more and more difficult and suffocative, the pulse weaker and quicker, and a watery swelling, which pits on pressure, appears on the lower part of the chest, belly, scrotum, and legs.

An examination of the chest leaves no doubt as to the nature of the case, when the disease has reached the stage of effusion. The natural murmur of health is absent in the lower part of the affected side up to the level of the fluid, and increased in intensity in the upper part, and on the opposite healthy side. Over the effusion there is distinct dulness on percussion. When the dog is placed on his side or back, the dulness follows the fluid to the most dependent parts, and permits the respiratory murmur to be heard where no sound was previously audible. The affected side expands less during breathing than the other, and the space between the ribs is bulged out.

TREATMENT.—*Aconitum** is indispensable in the early stage, when there are the usual symptoms of febrile excitement.

Bryonia is a valuable remedy for the following symptoms:—Pain on applying pressure between

* For the dose, etc., refer to the "Introductory Remarks."

the intercostal spaces ; this pressure causes the animal to whine or groan ; frequent, short, suppressed cough ; pulse frequent, hard, small, or irregular ; thirst ; tongue dry and brown ; vomiting of mucus or biliary matter ; constipation. Bryonia and Aconitum should be given alternately in severe cases when the symptoms point out their conjoint use.

Sulphur should be given after the acute symptoms have subsided, in order to expedite convalescence.

For the treatment of the dropsy, that so frequently follows pleuritic affections, consult the article on "Dropsy."

Food, etc.—See remarks under "Bronchitis" and "Pneumonia."

Note.—Of the three foregoing inflammations of the lungs, bronchitis has its seat in the mucous membrane of the air-passages ; pneumonia in the proper substance, or parenchyma of the lung ; and pleurisy in the serous membrane, which invests the lungs and lines the inner surface of the thorax. In practice, it is rare to find these diseases so well marked individually as the foregoing descriptions of their symptoms would imply. Bronchitis is frequently associated with pneumonia, and then we have *broncho-pneumonia* ; and pleurisy with pneumonia, and then the disease is known as *pleuro-pneumonia*. It is from a consideration of the general symptoms, the physical signs, and the

progress of each of these diseases, that the practitioner is able to determine what particular structure of the pulmonary apparatus is affected in any given case.

X.—CONSUMPTION.

Consumption of the lungs is not generally recognised as a frequent disease in dogs. There can be no doubt, however, of its being a frequent and fatal complaint. In many cases of what appears to be simply disordered respiration, etc., a post-mortem examination would disclose a tubercular condition of the lungs.

SYMPTOMS.—The symptoms are at first obscure. The dog is troubled with an occasional cough, which the owner ascribes to a temporary cold. After a time the appetite falls off, and the flesh too, so that the animal becomes thin and weak, and the expectoration, at first scanty, becomes profuse and purulent, or bloody. In this stage the experienced practitioner can detect unmistakable evidence of hectic fever. An obstinate diarrhoea supervenes and resists all treatment, and at length the dog dies from exhaustion.

This disease is, of course, incurable.

XI.—ASTHMA.

This disease is said to depend on spasm of the small muscular fibres which line the interior of the bronchial tubes, and is generally associated with a certain degree of chronic inflammation of the bronchial mucous membrane.

The predisposing *causes* are over-feeding, close confinement, want of exercise, etc. It occurs almost exclusively in fat, and petted dogs, from the fourth to the seventh year, sooner or later according to circumstances. In such animals, luxurious feeding and inactivity lead to accumulation of fat; the heart and its large vessels are surrounded by morbid deposits of this substance, and thus the proper circulation of blood through the lungs is obstructed by a mechanical impediment, difficulty of breathing ensuing as a consequence. Hence the foundation of the disease is gradually laid, although the difficulty of breathing may come on unexpectedly and suddenly.

SYMPTOMS.—The digestive functions in particular are deranged. The appetite is little, if at all, impaired; and it may be even morbidly increased, dainties being in greatest favour with the canine epicure. The breath is disagreeable, the teeth covered with tartar, the coat rough and tattered, the skin probably mangy. There is no febrile excitement. The dog may have constipation and

piles. He is dull, disinclined to move, and short-winded when he does stir.

The true spasmodic asthma is characterized by fits of difficulty of breathing coming on at intervals, varying in severity, and rarely of themselves ending fatally. In the majority of cases there is also a frequent, dry, harsh cough, which is provoked by changes of temperature, by food, and by moving, and which may be attended with retching, or vomiting, or expulsion of frothy mucus, especially when chronic bronchitis co-exists. When a dog in tolerable health is suddenly seized with urgent difficulty of breathing, and when there are no indications of inflammatory action, it is safe to conclude that he is suffering from an asthmatic attack.

Difficulty of breathing, not occurring in paroxysms, is frequently symptomatic of pulmonary disease, such as inflammation of the lungs, etc. Habitual dyspnoea is sometimes found to depend on emphysema of the lungs.

TREATMENT.—The curability of this disease depends for the most part on the early adoption of judicious treatment. Cure is out of the question in the advanced stages, when organic disease has become established. But even in those cases which do not admit of absolute cure, the distress and urgent symptoms may be notably relieved.

The most suitable medicines are the following:—

1. *Arsenicum*,* which is indicated either in old

* For the dose, etc., of these medicines, consult the "Introductory Remarks."

or recent attacks, when the breathing is short and quick on exertion, or on going up an ascent, or after meals; when paroxysms of asthma come on, especially at night, are attended by panting, wheezing, and gasping for breath, and abate when a viscid mucus is coughed up; and when the breathing is worse on exposure to a cold or variable atmosphere.

2. *Ammonium causticum*, which is a useful remedy when the respiration is quick, laborious, and suffocating, and attended with rattling of mucus, and a short, dry cough.

3. *Ipecacuanha* is indicated when paroxysms of suffocative difficulty of breathing take place during the night, and when the want of breath is urgent and distressing. Rattling of mucus in the chest, and tendency to vomit, are additional indications for this medicine.

4. *Nux vomica* is particularly suitable for those cases of asthma, which are caused by, or occur in association with, derangement of the digestive organs, as evidenced by foul tongue and breath, impaired or depraved appetite, constipation, and piles; and is further indicated when the respiration is wheezing, and the abdominal muscles in full play.

Food, etc.—Regular exercise in the open air, except when the weather is unfavourable, and the reduction of the food, when it has been superabundant, are important elements in the treatment.

CHAPTER II.

DISEASES OF THE MOUTH, ETC.

I.—THE TEETH.

The adult dog has forty-two teeth, twenty in the superior, and twenty-two in the inferior jaw. They are divided into *incisors*, *canine*, and *molars*.

There are six incisors in each jaw at the front part. Of these teeth, the central are the smallest and weakest, and the corner ones the longest and strongest. The cutting edge of the incisor teeth presents three lobes. The middle one is large and prominent, and forms the top of the tooth; whilst the lateral lobes are cut out from the side, and the three taken together have a *fleur-de-lis* shape, which becomes obliterated from wearing.

The canine teeth or tusks are four in number, two in each jaw. The upper tusks are stronger than the lower, and are separated from the corner incisors by a space which receives the lower tusks when the jaws are approximated. The tusks are

pointed and adapted for holding and tearing purposes.

There are twelve molars in the upper jaw, six on each side. The first three are small and pointed, and are called the *false molars*; the next tooth has two cutting lobes, and the two others, or *true molars*, are flat on the crown for crushing.

There are fourteen molars in the lower jaw, seven on each side. The first four are called false, the fifth is flat posteriorly, and the last two are the true molars, with tuberculated crowns.

(1.) *Cutting the Teeth.*

The first set, or *milk teeth*, appear through the gums shortly after birth, and are all cut within periods varying from three to eight weeks. Some pups cut their teeth much sooner than others. At about the fourth to the sixth month the first set is superseded by the *permanent teeth*, which, when drawn or worn down, are never replaced. In some exceptional cases, a dog may not have cut his permanent set at the ninth or tenth month. In fact, the process of dentition varies much according to the breed, temperament, and general health of the animal, and the kind of food on which he lives. Every thing being equal, the early appearance of the teeth may be accepted as evidence of the dog being endowed with good powers of growth and development.

Some dogs cut their teeth without any trouble;

others, especially delicate or highly bred dogs, suffer more or less from the irritation caused by the passage of the tooth through the gum. This irritation, unless attended to, may lead to more serious disease in some other organ. The dog is feverish, and altogether out of sorts; refuses to eat, and evidently suffers from pain somewhere, and may have one or more fits. If, on examination, the gum at a certain part be found red, swollen, and tender, it will be necessary to cut down crosswise over the tooth for the purpose of facilitating the appearance of the tooth, and thus relieving the irritated gum.

A dose of *Belladonna* may also be given every three hours; and if there be, from some constitutional defect, a tardiness in shedding the teeth, a dose of *Calcarea* three times a-day will generally promote the process of dentition.

At a later period, the temporary teeth loosen, preparatory to their places being occupied by the permanent set. Such loose teeth should be drawn—a painless operation when properly performed—because, if allowed to remain, they either set up considerable irritation and pain, until they fall out of themselves, or they re-attach themselves to the gum close to the permanent tooth. In the latter case, there is not only irregularity of the teeth, but food lodges between the two teeth, and the result is, irritation followed by inflammation of the gum, and so much pain that the animal refuses to eat.

The tusks are particularly liable to become again attached to the gum, and, indeed, to the bone, and the difficulty of overcoming the irritation by extracting the offending tooth is obviously greatly increased. A little attention to these matters at first may obviate much future suffering. Still, it is not impossible, with proper tools and with proper management, to draw a temporary tooth fixed to the bony jaw; and the operation should always be performed whilst the animal is under the influence of chloroform.

(2.) *Tartar on the Teeth.*

Deposits of tartar are often found on dogs' teeth. When a dog is not allowed to have exercise, and when he is fed on stimulating food, unnatural to canine tastes and requirements, the stomach gets out of order, and the teeth become more or less incrustated with tartar. Some diseases, and even mere age, induce the same condition of the teeth; although some dogs, even at an advanced age, have their teeth sound, white, and free from much deposit. About the second year of the dog's age, a yellowish-coloured deposit begins to appear on that part of the canine teeth which is close to the gum,—the deposit being thicker at the root, and thinner towards the apex of the teeth. This deposit on the enamel consists of phosphate and carbonate of lime, organic matter, and oxide of iron, which latter is the cause of the discoloration. On

the removal of this deposit by means of a brush, the enamel is seen to be deprived of its characteristic smoothness and polish; it is slightly irregular on its surface, and one's finger-nail grates on it. The gum in contact with the incrustated teeth is unusually red, swollen, spongy, and easily bleeds when slightly touched. As the dog becomes older, the deposit gradually forms on all the teeth, the incisors first, the molars afterwards.

In some cases, in old dogs, the tartar forms a very thick crust, greenish in colour, the seat of microscopic growths, and giving rise to a most disgusting foetor. The gums in contact with this decomposing and putrid sediment become irritated and ulcerated, and shrink from the teeth; the sides of the cheek, constantly fretted with the tartar, take on inflammation, followed by ulceration; saliva, secreted in great abundance, dribbles from the mouth; the dog refuses, and is even afraid to eat, and accordingly loses flesh; the breath stinks horribly; the teeth become loose and fall out, from inflammation and suppuration of the alveolar membrane. The dog evidently suffers much pain. The only way of treating such a case as this is, to remove the tartar, which is always most thickly deposited at the roots of the teeth, by means of scaling instruments similar to those used in human dentistry, or to brush the teeth with water acidulated with hydrochloric acid. To prevent re-deposition, the teeth should be daily cleaned with

a soft brush, using soap and water as the best dentifrice. If this be not done, the tartar is sure to be deposited again, and the same scaling process will have to be resorted to. At the same time, the dog should have proper food and daily exercise; luxuries must be avoided. Any defect in the general health, such as disorder of the stomach, may be corrected by giving the suitable remedies.

(3.) *Decayed Teeth.*

This is another common trouble amongst dogs, causing them much pain and annoyance, and making them a domestic nuisance from the breath being intolerably offensive. The same dog that has tartar on his teeth has generally one or more rotten, and perhaps broken down to the gum, and the same causes beget the two conditions.

The dog may suffer from paroxysms of tooth-ache, as indicated by his demeanour; he eats little or nothing for several days together, and consequently gets thin and weak; he may attempt to chew food, but the morsel is speedily dropped out, and on examining the mouth the teeth are found decayed. When the tooth has broken down to a mere stump, that stump acts as a foreign body and sets up irritation in the gums; inflammation of the gum and then of the bone follows, and the upshot is, that "canker" of the mouth is established. The stumps are best detected by feeling for them with a probe.

Of course, the only treatment is extraction of the stumps, and of all teeth that are decaying or decayed.

(4.) *Management of the Teeth.*

As a rule, the teeth retain their whiteness and polish up to about the second year; they then become slightly crusted with tartar, even when they have been properly looked after, and when the dog has had good health. At the same time, the front teeth lose their "fleur-de-lis" shape and become rounded off. The degree of wear and tear greatly depends on the kind of food which the dog is accustomed to eat; if fed on bones or other hard meat, the teeth sooner exhibit marks of wear, whereas, when fed on soft meat, the teeth preserve for a longer period their serrated sharp edge. The appearance of the teeth at different periods of life is a fallacious test of the dog's age, or, at least, subject to so many exceptions as to be of little practical utility, and of no scientific value.

Nothing wears down the teeth so much as grasping hard or heavy substances with the teeth, or permitting the dog to grind bones. For the sake of the teeth, dogs should not be taught to run after and carry back stones, sticks, etc. Such tricks may be amusing, but the dog is sooner or later the sufferer. Bones may be allowed to dogs—not to crunch and swallow—but to pick and polish.

Another cause of bad teeth is disorder of the stomach induced by improper food. This is a

matter that can be put right. The simpler the food, the better for the dog. Of course, teeth become worn and decayed as a result of the general decay which attends old age, although healthy dogs properly cared for have often sound teeth at a very advanced age. Petted dogs are the earliest and the greatest sufferers from diseases of the teeth.

The abuse of mercury, pushed to salivation, is alone more destructive to the dog's teeth than all other causes put together; and it unfortunately happens that this animal is peculiarly susceptible to the action of that poison.

II.—SALIVATION.

Salivation is one of the most marked indications of mercurial poisoning, and is the earliest symptom of the constitution being under the influence of that powerful metal. Hundreds of dogs have been killed by the different preparations of mercury, either applied to the skin for the cure of eruptions, or given internally in various visceral diseases. The black, blue, red, and white ointments of the chemist, who impudently presumes to prescribe for diseases which he knows nothing about, are all so many preparations of the different mercurial compounds. Calomel is often given, even by professional men, in excessive doses, from 5 to 10 grains.

SYMPTOMS.—The effects produced by mercury vary in severity with the quantity administered; and the effects are precisely the same whether the drug is swallowed or absorbed into the system by the skin. The gums are tender, swollen, spongy, and red; the teeth are discoloured and loose; the breath is peculiarly foetid,—this is a characteristic sign; saliva dribbles freely from the mouth; the glands at the jaw are enlarged, hard, and painful; there is no desire to eat, but great thirst; the mucous membrane of the mouth may be more or less ulcerated, especially under the influence of large doses. When the lining coat of the stomach and bowels is inflamed, there are frequent retchings, the rejected mucus being tinged with blood, and the stools are fluid and bloody. The hair falls off and is seldom re-produced; irritative fever, debility, tremors, convulsions, and paralysis, appear in quick succession and destroy life. Even in the most favourable cases, recovery is slow, and ever after both the teeth and breath give evidence of the havoc which the mercury has committed, and of the difficulty encountered in ridding the system of the mercurial poison. The hair, too, seldom, if ever, grows as long as formerly.

TREATMENT.—The most rational treatment consists in giving a remedy which is endowed with the property of eliminating the poison from the blood, and this remedy is *Kali hydriod*. One grain, dissolved in a tablespoonful of water, should be given

night and morning, so long as improvement goes on. At the same time, the dog should have nourishing food, and be kept warm, dry, and free from draughts of cold air. Loose teeth should, of course, be drawn, for as they seldom or never become firm in the jaw again, they are apt to act as foreign bodies, and set up local irritation. When the mouth is ulcerated, *Calendula lotion** will prove grateful and beneficial.

A case illustrating the treatment with another remedy will be found in the Appendix.

III.—CANKER OF THE MOUTH.

This affection of the gums and teeth arises from the irritation of the stumps of rotten or worn-down teeth, and eventually leads to extensive inflammation of the adjacent parts.

SYMPTOMS.—The gum is at first red, swollen, tender, and prone to bleed; a somewhat painful swelling forms on the jaw; the enlargement suppurates and discharges matter, either pure or mixed with blood. At this stage the smell is intolerably offensive. Subsequently, fungoid granulations, which easily bleed, sprout up and profuse hæmorrhage ensues. The dog, suffering great pain, and unable from the state of the mouth to masticate solid food, and barely able to lap up fluid nutri-

* See Appendix.

ment, gradually becomes thinner and weaker ; the local disease increases in severity, and, finally, the animal dies worn out from exhaustion, or succumbs under an attack of acute intercurrent disease.

TREATMENT.—The treatment should comprise the extraction of stumps and loose teeth, and, in some cases, of even the healthy teeth in the diseased jaw ; the removal of necrosed bone ; the excision of the tumour, provided the constitution be not already implicated ; and the administration of nourishing food. The best internal remedies are *Kali chloricum* and *Arsenicum*—the former in 10-drop doses of the first decimal dilution three times a-day for two or three weeks ; and the latter, subsequently, in from 2 to 5 drop doses, night and morning.

IV.—BLAIN.

This is the unscientific appellation for a disease of the tongue, in which that organ is enlarged, and subsequently covered on its sides and under surface with large vesicles, of a red or livid colour, which may end in irregular, and even gangrenous ulcers. The attack often begins without any apparent cause or previous illness. The disease is most common in spring and summer, and sometimes prevails as an epidemic. In addition to the above symptoms the breath is highly offensive, the

saliva profuse, purulent, and perhaps bloody, and the appetite impaired.

TREATMENT.—In the treatment of blain two medicines are generally sufficient to effect a cure, viz.: *Mercurius** and *Arsenicum*. The former is to be given first, in from 2 to 5 drop doses, thrice daily, when the tongue is inflamed, enlarged, and ulcerated; and the latter in the same way, when the ulcers assume a livid tint, and when symptoms of low fever and debility supervene. For the last symptoms *Kali chloricum*, given as directed on the last page, is also a remedy of great value. It may be advisable in some cases to open the vesicles freely, and then to apply the *Calendula lotion*† to heal up the open ulcers which remain. The weak condition of the dog, and its inability to swallow, in consequence of the swollen and painful state of the tongue, may necessitate the administration of beef-tea, or wine, with a spoon. Fluid food should be within its reach, so that it may sip up some when inclined.

V.—WORMING THE TONGUE.

The cruel operation, expressed by the above name, used to be performed according to the copious

* This medicine is of course not to be given, if the dog is already suffering from mercurial salivation. The article on salivation should then be referred to.

† See Appendix.

directions of those who ought to have known better than to sanction with their authority a practice so disgustingly barbarous and unnecessary. It is now universally condemned by all respectable veterinary surgeons. There are still some educated people who request its performance, but for the credit of the profession such a monstrous request should be indignantly declined.

“Worming” cannot cure a mischievous young dog of the bad habit of tearing to shreds such articles as gloves, dresses, bonnets, etc. The dog seems to take a malicious pleasure in such acts of destruction, but the cure does not consist in worming. The pain which follows the operation no doubt causes the dog to desist, but in a few days, when the pain vanishes, the old tricks are resumed.

The assertion that worming is a preventive of rabies is so exquisitely absurd as to be its own refutation.

VI.—INJURIES TO THE TONGUE.

The tongue is sometimes injured by getting between the teeth during a paroxysm of epilepsy, or by biting some sharp substance. These injuries are rarely severe, and generally heal up when left alone. If necessary, *Calendula lotion** may be used as a dressing two or three times a-day.

* See Appendix.

VII.—PARALYSIS OF THE TONGUE.

Some dogs, particularly high-bred spaniels, are subject to palsy of one side of the tongue, resulting either from general debility, or from some other ill-understood cause.

SYMPTOMS.—The disease is known by the tongue lolling out of the mouth, with an inclination towards one side—the healthy side; the tongue is still able to lap up food, but the dog cannot thoroughly clean his nose with it; the nose, therefore, gets covered with mucus; the tongue, from exposure to the air and want of the mucous secretion of the mouth, becomes dry and hard. The disease depends on structural disease, or functional disorder of the brain or nerves, leading to loss of power over the muscles which move one side of the tongue. In some breeds, the tongue hangs out of the mouth, perhaps to one side, as if the tongue is rather too long, or the snout too short. This is to be regarded as a congenital peculiarity of the breed, and not as a disease. Palsy of the tongue as compared with this condition is rare.

TREATMENT.—*Nux vomica* is the most likely medicine to be of service in such a case as this; but to obtain its good effects it should be administered regularly for a considerable period.

VIII.—PHARYNGITIS.

Pharyngitis, or inflammation of the back part of the mouth, is a rare disease in the dog. It may be caused by exposure to variations of temperature, and by the local irritant action of some foreign body.

SYMPTOMS.—The cough is at first slight and dry, then moist and hoarse, and followed by a discharge from the nose; there is little or no appetite; swallowing is difficult; the floor of the mouth is red; the tonsils are sometimes swollen; the flow of saliva is profuse; the throat is tender to the touch; and when the part affected is touched the cough is excited, and glairy and purulent matter is ejected by the mouth and the nose. Simple pharyngitis may continue seven or eight days; its duration is longer when bronchitis co-exists. It terminates in restoration of the diseased parts to their former state of health, or more rarely, in the formation of an abscess.

TREATMENT.—*Belladonna** is required for difficulty of swallowing, swelling of the tonsils, tenderness of the throat, and febrile excitement.

Mercurius is indicated by swelling and redness of the tonsils, difficulty and pain in swallowing, discharge from the nose, etc.

Hepar sulph. may be required in those rare cases which end in the formation of an abscess.

* The dose, etc., of these medicines is stated in the "Introductory Remarks."

CHAPTER III.

DISEASES OF THE STOMACH.

I.—IMPACTION OF FOOD.

Although the act of vomiting is very readily excited in dogs, yet it sometimes happens that they gorge themselves with food, and the consequent over-distention of the stomach, paralyzes, so to speak, the contractile power of that viscus. The fluid portion of the food is speedily absorbed, and a solid mass remains, upon which the digestive juices have little or no solvent effect; for intermixture of the food with the secretions of the stomach is one of the essentials to quick and thorough chymification. Repletion of the stomach to so great an extent as to produce disturbance of the system is not a very frequent occurrence, and is almost always met with in pampered dogs with a vitiated appetite, or in dogs that have undergone involuntary starvation.

SYMPTOMS.—The symptoms in themselves do not suffice to point out the real state of the case;

but if a dog, after having been known to devour a large meal, should be attacked with colic, convulsions, retching and abortive vomiting, distention of the belly, obstructed and laborious breathing, and stupor, there can be little difficulty in arriving at a correct opinion as to what is amiss.

TREATMENT.—Of course the treatment of such a case consists in getting rid of the offending matter by the mechanical agency of an emetic. Although I have never tried *pepsine* in such a case, yet I would suggest its use for the obvious purpose of aiding the natural secretions to dissolve the solid aliment. This remedy, however, is not likely to be of much service when the stomach is crammed with undigested food.

II.—FOREIGN BODIES.

Dogs sometimes manage to get strange things into their stomachs. Gamgee opened a dog that died suddenly in violent pain, and found a marble lodged in the duodenum about two inches from the pylorus. The dog was the companion of some boys who were playing at marbles. The marble had passed through the stomach, but became fixed in the bowel, causing no doubt obstruction and inflammation.

Another dog accidentally swallowed a three-pronged fork, six and a-half inches long, whilst being fed with flesh. No particular symptoms of pain

or fever followed. The dog was fed on cow's liver to distend his stomach and open his bowels, and drank sulphuric acid weakened with water, with the intention of assisting the stomach to dissolve the iron. A few days afterwards the fork began to point through the skin, and was successfully removed by operation. The ivory handle was completely digested away, and the iron bore indications of having been roughly used. The dog did well, and deserved to live after so remarkable a feat.

There is on record another case equally extraordinary. A hound swallowed a bone, which stuck fast in the upper part of the gullet and could not be got out. In attempting to push it downwards into the stomach by means of a fork, handle foremost, the fork itself, slipping from the clumsy operator's grasp, was also swallowed. Two months afterwards the owner felt the fork lying in the abdomen in the axis of the dog's body; it afterwards made its way backwards until it arrived in the rectum, when he was able to grasp the handle and bring it out for about two inches, but no more. A month after this, the abdomen was opened into, and the fork, with its prongs in the bowel and its handle among the viscera, was extracted. In three weeks the dog was well. Such is a summary of the account given.

Various other foreign bodies have been swallowed and afterwards found in the stomach; including hair, straw, dog-grass, coins, lead, sponge, chalk,

stones, etc. The stomachs of dogs that die of the disease called "dumb madness" are filled with all kinds of rubbish and filth.

The *Spiroptera sanguinolenta* is sometimes found in the dog's stomach; but it causes no particular symptoms indicative of its presence.

III.—GASTRIC CATARRH.

The disorder of the stomach which bears this name is the result of aggravated indigestion.

SYMPTOMS.—The symptoms seem to depend on congestion of the mucous membrane of the stomach, with excessive secretion of the natural mucus. There are at first indications of febrile disturbance, as shown by quick pulse, hot nose, congested conjunctiva, loss of appetite, etc. The dog manifests the usual signs attendant on severe pain in the abdomen; and there is obstinate constipation. The efforts to vomit are frequent and strong; but unsuccessful. After a while, the severe retching brings up a large quantity of thick mucus, which may, or may not be tinged with bile, and even with blood. The pulse becomes weaker and more frequent, bloody fæces are voided with much straining, and death ensues.

There is a milder form of this disease, which is very prevalent in town-pampered dogs. I have had many such cases under treatment. This

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disease is known by the name of "husk" amongst dog-fanciers, and it is so called by some writers on dog diseases. To all appearance the dog is comparatively well; the appetite is little if at all impaired, and the animal is in good spirits. The chief symptom is a cough, hard, loud, occurring in violent paroxysms either during the day or night, each paroxysm ending in retching. The matter brought up often sticks in the throat from its tenacity, and is swallowed; or it is discharged from the mouth when less sticky, and is then seen to consist of frothy mucus varying in quantity, and sometimes mixed with a watery fluid. Similar paroxysms recur at longer or shorter intervals. The animal gradually wastes and gets weak.

The cough and mucus might be supposed to point to bronchitis as the disease, but I have repeatedly examined the chest, and have never found the physical signs or quickened pulse and respiration which betoken bronchial affections.

TREATMENT.—*Aconitum** should be given when the pulse is quick, the skin hot, the nose dry, and the other symptoms of febrile excitement present.

Nux vomica is indicated when the bowels are costive, the abdomen painful, and the mucus or bilious retchings frequent.

Mercurius is specially indicated when there are frequent vomitings of bile or mucus.

Arsenicum should be administered in the last

* For the dose, etc., see "Introductory Remarks."

stage when there is exhaustion, accompanied by purging, etc. This is also the sovereign remedy for the milder and more frequent form of gastric irritation and catarrh.

Food, etc.—Milk, arrow-root, and other bland foods should be given with the spoon, or thrown up the bowel. The chief point as to diet is to give food in small quantities.

IV.—GASTRITIS.

Gastritis, or inflammation of the stomach, may be caused by irritant poisons, and the inflammation in that case extends the whole length of the bowel also. Antimony, which has a special irritant action on the mucous membrane, may induce gastritis, when given in excessive doses either as an emetic or a depressant. This drug is largely used, or rather abused, in canine practice.

The most frequent cause of gastritis is the continued ingestion of stimulating food, or of food otherwise unsuited to the requirements and habits of the canine race. Favourite dogs are especially affected with gastritis, from the circumstance that improper food is either given to them or they are allowed to eat it.

SYMPTOMS.—The form of gastritis which is thus produced takes on the character of aggravated indigestion. The most marked symptom is incessant

vomiting,—whatever is swallowed is rejected,—and the effort of vomiting is evidently attended with more or less pain. The thirst is extremely urgent and lapping cold water or licking the cold ground seems to give relief. The appetite fails, the nose is dry, the breathing quick, the countenance is anxious, the legs are cold, etc. The dog lies stretched out with his belly in close contact with the cold ground,—a position which in itself is almost sufficient to distinguish gastritis from any other disease.

TREATMENT.—The most suitable medicines in gastritis are the following:—

*Aconitum** when the attack is attended with quick pulse, hot skin and nose, and the other indications of febrile action.

Arsenicum when the vomiting is incessant and painful, the thirst unquenchable, the pulse small, the legs cold, and the countenance expressive of anxiety.

Mercurius when the vomit consists of biliary matter, when the thirst is insatiable, the bowels costive, and the tongue foul.

Nux vomica when the attack is the result of long-continued indigestion, or has been directly induced by drinking cold water; when the bowels are confined, and the retching frequent and painful.

The treatment of acute gastritis caused by poi-

* Directions for the dose, etc., of these medicines are given in the "Introductory Remarks."

sons consists in expelling the poison from the stomach, and in giving the appropriate chemical antidotes.

Food, etc.—The diet should consist of bland food, given frequently in small quantities. Milk, flour, arrow-root, gruel, etc., are amongst the best. Should these be immediately rejected, it may be necessary to throw up nutritive enemata to prevent starvation. The quality, quantity, and kind of food should be very carefully attended to for some time after the acute symptoms have ceased. The dog should be allowed to lap up as much cold water as he likes.

V.—INDIGESTION.

Indigestion of course means that the food is not properly digested, and implies that there is some disordered condition of the digestive organs or digestive functions. Digestion is a complicated process, requiring a complex mechanism for its performance, each part of which has a special office and a distinctive influence on food. The stomach, the liver, the intestinal glands, etc., may all be deranged in their secretory functions, although the symptoms point almost exclusively to the stomach as being the chief part deranged.

SYMPTOMS.—Indigestion may be preceded, ac-

accompanied, or followed by multifarious symptoms. The appetite is vitiated and impaired: vitiated, because the dog has a keen relish for spiced, or sweetened, or stimulating food, or for paper, string, etc.: impaired, when the dog turns up his nose at wholesome food, or eats a little of it with feelings of ill-concealed disgust. There is considerable thirst and occasional attacks of sickness. In some cases, a quantity of fluid bobs up from the stomach into the mouth, and is slavered about. Occasional attacks of diarrhoea are not unfrequent, alternating generally with constipation; or constipation alone may exist. Flatulence is another frequent symptom of indigestion. Many skin-diseases follow in the wake of this disorder. Excessive fatness, accompanied by asthmatic breathing and cough, is induced by it. Excessive constipation, foulness of the breath, inflammation of the gums, etc., may be cited as some of the effects of long-continued indigestion. Indeed there are few chronic diseases in the production and continuance of which indigestion does not play an important or even an exclusive part.

The causes of indigestion are various; indigestible or improper food is the most frequent. The practice, long continued, of giving large quantities of food at long intervals, may lead to indigestion. Want of exercise is a predisposing, if not an exciting cause in deranging the stomach.

No dog should have indigestion, for that implies

some kind of neglect or ignorance in not keeping the dog away from the causes which produce the disorder. Dogs should not be over-fed, nor fed on dainties or lollipops; and should have regular meals and regular exercise. In fact, the canine stomach should be treated much as the human, both in health and disease. The fat dog should be permitted to live upon himself for some hours; in other words, he should be wholly or partially starved, until a more natural appetite returns, when plain food should be placed before him. In some cases this practice is either unsuitable or objectionable; if so, a smaller quantity than usual of food must be allowed at longer intervals of time. Daily exercise in the open air is absolutely necessary. A cold bath, followed by thorough drying and exercise, is beneficial in all cases.

TREATMENT.—The most suitable remedies for indigestion are:—

*Nux vomica** when the dog refuses to eat, or vomits what he does eat, when the bowels are confined, etc.

Carbo v. is a good remedy for flatulence, purgings, distention of the stomach and bowels, and some kinds of cough, attending indigestion; also, when fluid rises from the stomach into the mouth.

Mercurius is indicated when the liver is deranged as well as the stomach—when the skin and eyes have a yellow colour, etc.

* For directions as to dose, etc., consult the "Introductory Remarks."

Food, etc.—It is to be remarked that no medicines can avail in this disease unless the diet be strictly attended to, as regards both quality and quantity.

VI.—VOMITING.

Vomiting, or the act of ejecting the contents of the stomach, is frequently mentioned in this work as a symptom of different diseases, affecting different organs. The same remark applies to *retching*, which may be defined to be ineffectual, or painful contractile efforts to expel the contents of the stomach, either when the stomach is full, or when it is empty.

Vomiting is a prominent symptom in all the disorders of the stomach, and in those of the alimentary canal and its appendages.

The vomited matter may consist of mucus, or of bile, or of blood, or of food. Indigestible food, or any substance calculated to injure the stomach, is expelled by vomiting; or at least attempts are made for that purpose.

Vomiting is effected by the anti-peristaltic action of the stomach itself, aided by the contraction of the abdominal muscles, and it is favoured by a moderately-distended state of the stomach.

The induction of vomiting may be necessary where injurious substances, indigestible food, or poisons, have gained access into the stomach; and

when the stomach is over-loaded with food. Dogs instinctively eat the "dog-grass" when they have gorged themselves.

The medicinal agents which have the property of inducing vomiting, are termed emetics. For the cases just mentioned a small tumblerful of lukewarm water is the best—harmless in itself, and sufficient to wash out the stomach thoroughly. The addition of a teaspoonful of salt, or of an egg-spoonful of mustard, gives greater emetic power. Tartar emetic is a dangerous drug to dogs; but lest this should be thought a prejudiced opinion, let us hear what Professor Gamgee says:—"As dogs are easily acted on by emetics, they are frequently dosed with them, and I have seen many cases of death from exhaustion, diarrhoea, or dysentery, especially in cases of distemper, from abuse in the employment of drugs given with a view to unload the stomach."

Vomiting as a symptom of disease will subside when the disease on which it depends is cured.

VII.—INVERSION OF THE STOMACH.

The particulars of this interesting case are taken from the "Abstract of the Proceedings of the Veterinary Medical Association, for 1838-9."

"Mr Ainslie laid before the Association a singular specimen of inversion of the stomach in a dog.

The patient was three or four years old. He had for several months been subject to occasional vomiting, but this had of late become more frequent. He (Mr A.) attributed it to the treatment of the animal when under distemper. The disease had assumed its severest form, and large doses of calomel had been administered. From that time he had had fits of vomiting—sometimes without any evident cause—and generally after a hearty meal—and always if he took exercise after a meal. There was also, to the great annoyance of the owner, a continual discharge of viscid saliva from the corners of the mouth, and more or less blood accompanied every act of vomiting. The owner did not seem to suspect the real origin of this nuisance.

“On the first of the month he appeared to be as well as usual. In the evening he cleanly picked a bone for his supper, and after that came a fit of vomiting. He lay quiet during the night, and in the morning began to vomit mucus mixed with blood. This continued during the day; the dog rapidly lost strength, and died in the evening. The blood retained its fluid state, mixed with mucus and saliva. When, on the following morning, he opened the dog, and began to feel for the stomach, no viscus of that kind was to be found in the abdomen. He then opened the thorax, and there he perceived a considerable enlargement of the cesophagus. At first sight, it seemed to be a

tumour attached to the parietes of that tube ; but on closer examination, the œsophagus was evidently dilated by some large soft body within it. He cut into it, and he drew from it the stomach, inverted, and its mucous coat in the highest possible state of inflammation. The whole of the villous tunic was charged with congested blood. The dilatation of the œsophagus commenced even from the pharynx, and had, probably, existed for a considerable time. The food, or some portion of it, probably remained in this dilated portion of the œsophagus, and slowly passed into the stomach, and that might account for the frequent vomitings an hour or two after feeding, especially if the dog had taken any exercise.”

Can there be any doubt but that the calomel was the cause of all this ?

VIII.—CALCULI IN THE STOMACH.

The gastric calculi of the dog are rare. They have a white appearance with a yellowish tint, and are smooth, shining, and polished ; they are of an irregular triangular form, and as several are found together, they polish one another by friction. Under chemical analysis they are found to be composed of phosphate of ammonia and magnesia, carbonate of lime, and organic matter.

CHAPTER IV.

DISEASES OF THE BOWELS.

I.—CONSTIPATION.

The dog's bowels naturally tend towards costiveness; the evacuation in health, being of a solid form and voided with more or less straining. Whatever causes deficiency of the intestinal secretions, or impairment of the peristaltic action of the intestine, will lead to a hard or dry state of the fæces, and a difficulty, if not an impossibility, in expelling the refuse matter by the natural act. This natural costiveness, which the dog possesses in common with other carnivorous animals, is further increased by eating bones and other food of a dry kind; or by feeding the dog on the same kind of food for a long period; or by chaining him up in a room or kennel, and thus denying him the opportunity of having proper exercise; or by the acquired restraint on the bowels, which follows the cultivation of habits of cleanliness, especially

amongst home and pet dogs. The want of the "dog-grass" may also be set down as one cause of this disorder, or unnatural costiveness.

SYMPTOMS.—Although costiveness is very frequently a mere symptom of many diseases, yet, in the dog, it often becomes a distinct disorder, and sometimes a troublesome and dangerous one. Thus, "mange," and other disorders, which may probably, in some instances, be due to the absorption of retained excretion in the bowels, may supervene on constipation. Indigestion, and a foul state of the mouth, teeth, and breath, are sure to come on. But the worst is, that the retained fæces accumulate, and get fixed in the intestine, stretching the muscular fibres and destroying their power of efficient contraction. At the same time, masses of hard fæces become more and more indurated and impacted. Colicky symptoms then come on. The dog is suddenly seized with excruciating pain, and he runs about from one place to another, stumbling against obstacles in his way, perhaps biting his owner, yelling loudly, and attempting to climb up the wall of the room, as if he were mad. There may be a short interval of comparative quietude, but the same actions are repeated, the poor brute is bereft of all consciousness, and presently he dies exhausted by torture and spent out by the violence of his demeanour. Intense inflammation of the bowels has been excited by the impaction of fæces.

The following case, taken from the *Edinburgh Veterinary Review*, vol. ii. page 412, is a good illustration of the effects produced on the rectum, short of inflammation, by torpor of the bowels:—

“The appearance consisted in the dog attempting to void fæces, and straining violently, but without effect. The anus was observed to be protruded and forming a round, hard swelling; and on examining the rectum with the oiled finger, a portion of solid excrement was found in it, which, in one dog, was found in a dilatation above, and, in the other, below the anus. From the existence of these pouches, fæces accumulated and grew hard, tenesmus was induced, and the passage of other feculent matter was totally prevented. The treatment consisted in allowing only soft food, no bones, giving oil occasionally, and removing the solid excrement by glysters.”

Professor Gamgee adds, “As the abnormal dilatation favours the accumulation of excrement, I would suggest the use of astringents locally to diminish or overcome the deformity.” Now, as it is quite clear that the dilatation was produced by the accumulation, and not the accumulation by the dilatation, it follows that astringents, or anything else productive of constipation, would do no good whatever, but harm.

TREATMENT.—Something must be done at once to relieve the bowels when it is known that no action has taken place for three or four days; some-

times it is necessary to interfere earlier, but the time of resorting to medicinal or mechanical means depends on the exigencies of each individual case. The belly should be examined with the points of the fingers, and the flanks should be specially fingered. If a hard and knotted substance be felt in the belly of a constipated dog, at the flank near the spine—if the belly be tender and tense and distended—and if the oiled finger insinuated up the rectum feels hard fæces—then it may be assumed that the bowel at its lower part is unduly loaded, that it cannot contract upon, and so expel its contents, and that a mechanical obstruction exists, which should be removed as soon as possible.

The cause of these severe and ominous symptoms, and the danger to life, are alike dependent on the obstruction—the mechanical obstacle. When that is removed, the disease is cured. The means of cure are in great measure also mechanical, and comprise injections, removal of fæces from the rectum with the finger or a scoop, kneading of the belly, etc. Many persons begin at the wrong end. A strong purgative of Epsom salts, or of aloes, or of buckthorn, etc., is given as a matter of course. The result is, not that the obstruction is forced out, but that the contents of the bowel are crammed into a smaller space, and the obstruction made still more difficult to overcome. The best plan is, first of all, to empty the rectum, which is bunged up with hard dry fæces, by means of the finger or a

scoop; and then to throw up a copious injection* of warm water containing two tablespoonfuls of ox-gall, either fresh or stale. The fluid should be injected through a long, narrow, flexible tube, which should be passed as far as possible, without using the slightest force, lest the bowel be lacerated or ruptured. Everything must be done in the gentlest possible manner. The fluid will soften down the impacted mass, and stimulate the contractible powers of the muscular coat of the bowel. The expulsion of the enema, etc., will be aided by gentle friction, or kneading of the belly with the hand. That part of the intestine which is beyond reach of the finger and the enema, may then be evacuated from before backwards, by a tablespoonful or two of olive oil. In the majority of cases the difficulty will be overcome by these simple means. But if the symptoms about to be spoken of when treating of enteritis be present, the remedies prescribed for that disease must be given.

The best remedies for constipation are:—

Mercurius† when the evacuations are unusually hard, dry, and lumpy, or pale coloured, and when the tongue is furred, and the breath offensive.

Nux vomica when the constipation results from insufficient exercise, and stimulating or luxurious

* See "Glystering," in Appendix.

† For directions as to dose, etc., refer to "Introductory Remarks."

food ; and when disorder of the stomach and piles co-exist.

Sulphur when the last remedy gives only partial relief.

Plumbum acetikum is often efficacious in obstinate cases, especially when characterized by retraction of the belly, and hard fæces in the form of a compact mass.

Hydrastis Canad. is a valuable remedy in some cases.

A fair trial should be given to these remedies before resorting to the mechanical expedients already mentioned.

Food, etc.—The recurrence of constipation may be prevented by changing the diet, and by giving the dog a due allowance of exercise every day. Well boiled oatmeal porridge, an occasional taste of liver, vegetables, etc., form a good dietary for the constipated dog. Purgatives never cure, but in the long run invariably cause, obstinate constipation.

II.—INTESTINAL OBSTRUCTION.

The passage of the fæces along the intestinal canal from the stomach to the anus may be obstructed by various impediments.

1. As has been already stated, *constipation* is one

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of the most frequent causes of obstruction. Deficient secretion from the intestinal mucous membrane, and want of peristaltic action in the muscular coat, lead to accumulation of fæces, and then to impaction of the hardened excrement. The lodgement is generally found situated in the rectum, and can be easily made out by digital examination.

2. The dog is peculiarly exposed to obstruction from swallowing *non-digestible substances*. Blaine mentions a case of obstruction in the jejunum caused by a cork which had been forced down the dog's throat by some wretched brute who ought to have had his own gut tightly corked up. Professor Simond narrates a case, in which, after obstinate constipation, feverishness, loss of appetite, occasional vomiting, and pain and distention of the belly, a common pebble was found in the bowel. It had passed through the stomach and some distance along the intestine, producing intense inflammation, until it had reached a certain point, where it became fast. The dog had been used to fetch such stones out of the water. Mr Goodwin found in the bowels of a dog three balls of hair, of different sizes, the largest being about the size and shape of a hen's egg. These bodies were covered or intermixed with earthy matter. The bowel had accommodated itself to these unusual contents, as the largest ball was found in a kind of sac. As the ball grew the canal widened and thickened.

There was not absolute stoppage of the bowels, for watery evacuations made their way past the lodgements. In another case, the splinter of a chicken-bone was found blocking up the canal, and causing irremovable obstruction. I was recently called in to an old, and almost toothless, dog, belonging to Sir John M'Neill. The dog strained violently without result. I found a hard substance in the rectum, on making a digital examination of that part; it proved to be the cervical vertebræ of a fowl. Pins and needles have also been known to occasion the same results. In short, any body that resists the solvent action of the digestive juices may, if large enough, give rise to mechanical obstruction.

The recital of these different causes of a disorder which always exposes the dog to intense suffering, and which often destroys life, will be sufficient to show how strict one should be in preventing the use of bones, especially chicken bones, as an ordinary article of diet. The trick of teaching dogs to run after sticks and stones, not only inflicts certain damage on the teeth, and consequently renders mastication of food imperfect, but also exposes them to the risk of swallowing these bodies. And although recovery may take place, after the discharge of even comparatively large bodies, yet the animal's life is placed in extreme danger.

Any foreign body that has been swallowed must

be ejected as soon as possible before it has got out of the stomach, by the mechanical act of vomiting. This will have to be induced by an emetic.* A considerable supply of thick gruel should be forced down to afford bulk upon which the stomach, aided by the diaphragm and abdominal muscles, can efficiently contract. Should these means, even though promptly resorted to, fail in producing the desired effect, the symptoms of irritation, spasm, and inflammation, that are almost sure to mask the passage of the substance along the bowel, must be treated according to the circumstances of the case.†

3. Another occasional cause of obstruction is *intussusception*—a condition in which part of the bowel narrowed by spasm slips into another part, having the natural diameter, and becomes invaginated therein. The consequence is that the fæces are unable to pass by the mechanical impediment thus formed; they accumulate, and colic and enteritis follow. During life it is anything but easy to distinguish with certainty intussusception from enteritis; or to deduce from the symptoms trustworthy data as to the real nature of the existing lesion. This untoward accident is usually preceded by colic, and it is to the irregular action of the muscular coat that the invagination is then attributable. The symptoms of enteritis shortly come on. Indications of severe and persistent pain,

* See page 72.

† See "Colic" and "Enteritis."

tenderness of the belly, vomiting and reversed peristaltic action, insuperable obstruction, and the rejection of enemata, usually point out intussusception.

4. Obstruction is a *symptom* of peritonitis and enteritis, the inflammation acting as the primary cause. It may also follow peritonitis or enteritis as a secondary effect of the inflammatory action, the contractility of the muscular coat being diminished thereby. The dog's rectum is peculiarly liable to become inflamed. But although obstruction may be both the secondary result of inflammation, yet it may also be in other cases the direct cause of inflammation, as has been already pointed out.

5. Obstruction in dogs has been occasionally known to result from *twists* or *displacement* of the intestine, which have been produced by violent exertion; or by the irregular action and spasm of the bowel present in colic; or by the strong contraction of a coil of intestine against impacted fæces, tending to cause rolling over of the bowel. There are of course symptoms of obstruction, followed by those of enteritis, and ending in death from gangrene.

6. Obstruction is occasionally met with in the result of *strangulated hernia*.

III.—COLIC.

This is a disease of great frequency in dogs. It is caused in many ways—by eating improper food, by changing the kind of food, by exposure to cold. A peculiar form of colic is produced by the action of lead on the bowels, when the dog is accustomed to drink water which is conveyed in leaden pipes, or kept in leaden cisterns. The attack in some instances comes on without any apparent cause. Impaction of fæces in the bowels, stoppage, in fact, may be mentioned as another occasional cause. Worms and incarceration of wind also induce colic.

Puppies are peculiarly liable to this disorder, especially from the first to the third month. Colic sometimes complicates distemper. Unless speedily relieved, it passes on to inflammation, which is generally fatal.

SYMPTOMS.—The symptoms of colic come on suddenly in a dog previously eating well and in perfectly good health. In a moment, spasm seizes the muscular coat of the bowel, and the dog feels pain. The pain is slight at first, and the dog moans when he feels it. There is then an interval of freedom from pain, but presently the pain returns, this time with greater severity, and causing the animal to cry and shift his position. As the disease goes on the pains become still more violent, and the paroxysms

of them more frequent and of longer duration. The dog goes about from one place to another, curling himself up, and in vain attempting to get relief by change of posture. During the fit of pain the attitude is characteristic,—the back being arched, the legs drawn together under the belly, and the tail drawn in between the hind legs. In simple colic attended by the foregoing symptoms there is no acceleration of pulse or breathing—no heat or dryness of the mouth or nose—no redness of the eyes. When, however, colic has passed into inflammation, these symptoms are changed,—the pulse, by its increased frequency and wiriness of character, denoting the advent of a more serious disease.

TREATMENT.—*Belladonna** is indicated when the abdomen is distended with wind.

Aconitum is a most valuable remedy when there are great restlessness and the other indications of pain, with frequent ineffectual urging to pass fæces and water, tenderness of the abdomen, etc.

Nux vomica is efficacious when the bowels are obstinately confined, the fæces hard and dry, the pain severe and causing the animal to bend his back, etc.

Colocynthis when the pains are very severe, so much so as to cause excessive restlessness and agitation, and also when there is bilious vomiting and diarrhœa.

* For the dose, etc., of these medicines, refer to the "Introductory Remarks."

Arsenicum is especially suitable when the pains come on after eating or drinking, and are of a very excruciating character, and when there is watery or bilious diarrhoea and vomiting.

Ammonium causticum I have found of great service in those cases of colic which are caused by accumulation of flatus.

The warm bath or warm fomentations are sometimes of service. If worms be present, the treatment laid down under the proper head must be resorted to.

When the colic is caused by constipation, injections* are necessary.

IV.—PERITONITIS.

Peritonitis is inflammation of the serous membrane which lines the cavity of the abdomen and covers the contained organs. The inflammation may begin at a certain spot, and rapidly spread throughout the whole extent of the membrane, being confined exclusively to the peritoneum from first to last. Those portions of the peritoneum which cover the liver, the stomach, the intestines, etc., are more liable to take on inflammatory action than that portion of it which lines the walls of the abdomen. The peritonitis is then partial, and is

* See "Glystering," in Appendix.

limited to the particular organ which the serous membrane invests; and it is the secondary result of inflammation beginning in the proper tissue of that particular organ.

Peritonitis, when caused by mechanical violence, such as the kick of a horse or any other animal, or by a penetrating wound, is called *traumatic*. Penetrating wounds do not always set up inflammation of the peritoneum. Thus, Dr Richardson, in his most interesting experiments, injected a strong solution of lactic acid into the peritoneal cavities of two dogs. On examination after death, the peritoneum was found uninjured.

Amongst the causes of peritonitis may be enumerated, exposure to cold and damp, parturition, errors of diet, strangulation, and obstruction of the bowel, etc. As a secondary disease, peritonitis may be excited by such local inflammation as hepatitis, gastritis, enteritis, etc.

There are two forms of peritonitis, the acute and the chronic, and both forms may be either general or partial.

The *acute* form is sometimes, but not always, ushered in by shivering and feverishness. The pulse soon becomes hard, frequent, and small, and either strong or feeble; the breathing is catching and panting; the nose and mouth are dry; there is no appetite, but great thirst. The dog frequently cries out or otherwise shows that he is suffering great pain; he is either restless, and

constantly walks from one place to another, or lies on his side stretched out at full length. The abdomen is extremely tender to the touch, and tense and tympanitic at first; later it becomes gradually enlarged from effusion of serum. The enlargement due to tympanitic distention gives a clear sound when the part is percussed; that due to serous effusion a dull sound. The bowels are generally confined and the urine scanty. Death is preceded by cessation of pain, increase of enlargement, increased frequency and feebleness of pulse, clammy sweats, and exhaustion.

The disease may terminate in return to health, or in dropsy of the belly, or in the chronic form.

The *chronic* form may succeed the acute. In dogs, chronic peritonitis is a rather frequent and a primary disease.

The symptoms of this form are, loss of appetite and spirits; variable appetite, sometimes good, sometimes bad; progressive emaciation; tucked up belly, which on examination is found hard and contracted, and marked by two tense longitudinal ridges; occasional whining and disposition to escape from notice; gradual exhaustion and death in some cases; or recovery in a fair proportion. Towards the last ascites comes on.

TREATMENT.—*Aconitum** is particularly indicated at the beginning of the disease, and especially when the abdomen is tender to the touch, and the

* For the dose, consult the "Introductory Remarks."

animal is evidently suffering much pain. In many cases this medicine is alone sufficient to check the disease.

Belladonna is useful when the abdomen is tender, tense, and distended. These two medicines may be given alternately.

Arsenicum is indicated when sudden cessation of pain is followed by quick, feeble pulse, cold legs, and collapse. These are highly unfavourable symptoms.

The treatment of the effusion that sometimes follows peritonitis is given under "Ascites."

Food, etc.—After recovery it is indispensable not to give indigestible or seasoned foods, and even plain food must be allowed only in small quantities. When symptoms of exhaustion come on, give beef-tea, brandy, etc.

V.—ENTERITIS.

Enteritis is inflammation of all the tissues of a portion of the intestine; the serous, muscular, and mucous coats are more or less affected. The symptoms are compounded of those of colic and of peritonitis.

Enteritis is excited by various causes. The peculiar irritability of the dog's bowels, and their proneness to take on inflammatory action, render

them open to the action of causes of disease that would be otherwise trivial and inoperative. Exposure to cold and damp, or to sudden change of temperature, has been known to excite an attack of enteritis, especially in petted dogs that are kept in warm, close rooms, and are thus made extremely sensitive to changes of the weather. Over-exertion, unwholesome food, the repression of a skin disease either spontaneous or forced by improper treatment, are also among the exciting causes. Colic and obstruction of the bowels are apt to end in enteritis. Obstruction from hardened fæces, foreign bodies, etc., is a very frequent cause of this disease.

SYMPTOMS.—The symptoms of enteritis are shivering, followed by general febrile excitement, thirst, loss of appetite, panting, dryness of nose, coldness of the legs, scanty urine, redness of the eyes, etc. The countenance expresses great anxiety, the back is arched, the legs drawn under the belly, and the tail firmly drawn over the anus and between the legs. The dog's cries are frequent, short, and sharp; he crawls to, and remains in, a corner in the dark and out of the way; he frequently looks round to his flanks, and before turning back his head gives a groan rather than a howl; he stretches himself out, and seems to be relieved by lying on his stomach on a cold surface. The pain recurs in paroxysms. The heat of the belly, like that of the skin generally, is increased; the belly is tense and distended, and tender to the touch. In simple

colic pressure relieves pain; and when the stomach is involved in the inflammation, as is often the case, there is almost incessant vomiting, and the vomit is frequently mixed with bile. In true enteritis there is obstinate constipation from the first; but, as the mucous coat is likewise sometimes inflamed, the evacuations may be liquid, blackish, and offensive, but not fæcal, in character. The pulse is hard and small and frequent. As the disease gets worse, the hind legs become palsied, the mouth and ears cold, the pulse more frequent and almost imperceptible, the breathing laborious and irregular, the legs covered with sweat, and death speedily ensues.

When enteritis supervenes upon mechanical obstruction in the bowels, the premonitory symptoms are characteristic, and differ from those already detailed. Obstruction from some cause or another—and the various causes which beget obstruction have been already mentioned—is undoubtedly the most frequent cause of intestinal inflammation, which is then strictly limited to that part of the bowel where the obstruction is. The most marked indication of obstruction is, of course, constipation—obstinate and all but insuperable in the majority of cases. There may be a discharge of those fæces that happen to be below the seat of obstruction, which is usually low down in the canal; and there may even be a forced evacuation of scanty mucus, but there is no proper relief of the bowels. The

dog is uneasy, and makes frequent efforts to expel the contents of the bowels, but these efforts are ineffectual. On examination with the finger, the upper part of the rectum may be found crammed with hardened fæces; or an elastic tube passed up the bowel may meet with an obstacle to its further progress; or an injection of water returns as it was forced up; or, by carefully exploring the abdomen externally, a place is found fuller and more tender than other parts. In a few days after the appearance of these symptoms, the belly becomes very tender, the efforts to stool more frequent, more urgent, more painful, than before, and as unsuccessful; vomiting, thirst, and the other symptoms of enteritis speedily follow.

Dogs are sometimes affected with an inflammation which expends its greatest force on the mucous surface of the bowels, and which in some respects resembles the *muco-enteritis* of the human subject.

Bile, unhealthy both in character and amount, passes into the bowels, and by its acrid nature produces the disease in question. There is frequent vomiting of a yellowish or blackish offensive fluid; the evacuations are frequent, and resemble the vomit in appearance. The inflammation is generally limited to the anterior part of the intestinal canal. Certain mineral poisons excite analogous phenomena. There are incessant vomitings of frothy fluid streaked with blood; the evacuations consist chiefly of mucus, more or less mixed with

blood. There is also urgent thirst, and a swollen, offensive state of the mouth.

TREATMENT.—*Aconitum** is indicated by quickness of pulse and the other symptoms of febrile disturbance; by tenderness of the abdomen; expressions of severe pain, which comes on in paroxysms; distention of the abdomen; bilious vomiting, etc. It is likewise indicated when the evacuations are loose, frequent, and accompanied by tenesmus.

Arsenicum is of great value in those severe cases where the motions are liquid and offensive; the pulse almost imperceptible; and the vital powers exhausted.

Belladonna is indicated when the abdomen is tender and distended with flatus, and the paroxysms of pain violent.

The articles on colic, constipation, and peritonitis should be consulted.

A warm bath, or warm fomentations, or injections† of warm water, may be beneficial.

Food, etc.—As in peritonitis.

VI.—DIARRHŒA.

By diarrhœa is meant frequent discharges of loose or fluid evacuations, depending on derange-

* For the dose, refer to the "Introductory Remarks."

† See "Glystering," in the Appendix.

ment of the intestinal mucous membrane, including the secretory glands connected therewith.

Diarrhoea may attack dogs at any age, as dogs of all ages are alike exposed to the operation of the various causes which excite the disorder; but, everything being equal, it is most frequent in pups, and in old, fat, and idle dogs. It sometimes prevails as an epidemic, begotten of obscure and unknown causes.

Diarrhoea may occur as a specific independent morbid state, or as an occasional or constant symptom of several different disorders.

Diarrhoea presents two typical states—the acute and the chronic; and the general symptoms vary accordingly.

The *acute* state may be preceded or accompanied by colicky sufferings; acrid, offensive matter is thrown up from the stomach; the vomiting, which is an early symptom, is often persistent and difficult to subdue; the vomit is not relished as a meal, as is the dog's custom; the pulse is somewhat accelerated; the thirst constant and urgent; and the belly slightly tender to the touch. The discharges are voided without much or any effort, and for a brief time relieve the dog's uneasiness. The evacuations are at first feculent, but soon become looser, more watery, more scanty, and more mucous,—the strength decreasing in proportion as the discharges are more frequent and more profuse. Their frequency varies according to va-

rious circumstances, which need not be dwelt upon. Their character, as regards colour, consistence, smell, etc., vary according to the primary cause, the duration of the disorder, etc.; and it is not unusual to observe bile, mucus, and fæces in the same evacuation. When the disease is about to terminate in death, blood in some cases issues from one end, or from both ends of the intestinal canal; but in the majority of cases exhaustion, preceded by cold mouth and unconsciousness, terminates life.

The *chronic* state differs from the acute rather in its march than in its symptoms. The disease makes slower progress, and its duration is longer. Weakness from the excessive and long-continued discharge is a prominent feature. The anus is protruded and red, and shows hæmorrhoidal distention. Death is ushered in by utter prostration of the system, and by paralysis of the hind legs.

The foregoing general characters of diarrhœa are variously modified, according to particular causes. Diarrhœa may be set up by eating too much food—in which case the stomach is unable to digest the excess and the crude matter passes into and irritates the bowels; by eating food of an improper or indigestible nature; by the presence in the bowels of worms, or of any foreign body, such as a ball of hair, or any other substance that resists digestive action. By these different agents, irritation is set up in the mucous membrane, and mucus, in quantities more or less considerable, is poured

forth. This process may be regarded as a natural effort to expel the offending material, whatever that may be, and so to prevent the serious consequences that would otherwise ensue. The quantity and frequency of the discharge depend on the intensity of the irritation. There are sickness, foul breath, and liquid, frothy or watery evacuations; but little or no feverishness. The diarrhoea ceases spontaneously on the removal of its cause; although some looseness will probably continue for a short time afterwards.

Diarrhoea may also be caused by accumulations of hardened fæces, setting up irritation and excessive mucous secretion. Small quantities of mucus, either pure or intermixed with feculent matter, are discharged frequently and with some straining. If, as is not unfrequent, astringents be given for such a case as this, in ignorance of the true cause of the purging, the result is that the constipation is increased, and intestinal obstruction rendered imminent.

Acrid bile, or even an unusual quantity of healthy bile, often excites diarrhoea in dogs, by increasing both the secretory and contractile functions of the intestinal canal. There is co-etaneous disorder of the liver giving rise to unhealthy or excessive secretion of bile, which, when in the bowels, causes irritation, and even inflammation of the mucous surface. Sudden vomiting comes on, followed by purging. The sickness is generally of a severe and

obstinate character; the evacuations are voided with pain, and, like the vomit, are black or yellow, and very offensive. The stools, which are at first feculent, subsequently consist of glairy mucus, either alone or mixed with bile. Unless relief be given, great exhaustion and prostration of strength ensue, under which the dog sinks.

Diarrhœa may exist as a symptom of inflammation of the mucous membrane of the bowel caused by irritant poisons, which have not been vomited back. The dejections are frequent and bloody, and the thirst extreme. The abuse of calomel or some other mercurial preparation—that is, giving mercury in wrong cases, or in wrong doses—is a very frequent cause of excessive purging. Large doses are almost always vomited—thanks to the irritability of the dog's stomach—but a smaller quantity will pass into the bowels and act as a powerful drastic purge. Meyrick states that the congestion of the mucous membrane, which is the cause of his "chronic diarrhœa," can best be removed "by giving very small doses of mercurial preparation," viz., two grains of grey powder, every two hours for two days—twenty-four grains in all. Surely these are not "very small doses!" He very properly, and of necessity, goes on to remark—"Great caution must be used in giving the grey powder; *if it is observed to irritate the bowels, as evidenced by an aggravation of the diarrhœa, it should be immediately stopped for a time.*" Mercury pro-

duces diarrhoea and cures diarrhoea, which is equal to saying, *similia similibus curantur*; but mercury will *not* cure diarrhoea unless it be given in doses too small to set up a diarrhoea of its own. Mercury is an invaluable remedy in proper doses for certain diseases with diarrhoeaic symptoms; but it is a rank poison in improper doses, and in improper cases. More dogs die of mercury, than of the diseases against which it is administered.

Diarrhoea is a frequent and unfavourable complication of distemper. Further remarks on this point will be found when referring to the major disease.

TREATMENT.—Some cases of diarrhoea are best left alone; they cure themselves, especially when they depend on the presence of irritants, upon the natural expulsion of which the purging ceases. This rule should be observed more particularly when the evacuations deviate from the natural character only in being unusually loose, and when the disorder can be traced to improper food in quantity or quality.

Demulcents and diluents—suet boiled in milk, barley-water, rice-water, arrow-root, etc.—have a good effect in facilitating the discharge of acrid food, foreign bodies, or hardened fæces; they also soothe the irritated mucous membrane, and so far relieve pain.

Injections* of warm water alone or mixed with starch, act as in internal fomentation and assuage pain.

* See "Glystering," in the Appendix.

The diet should be strictly regulated from the beginning to the end of the case, and even for some time after recovery. Light bland food, such as arrow-root, Indian-corn flour, rice, thickened with milk or gravy, or beef-tea, should be placed before the animal, or if necessary given to it, frequently and in small quantities.

The following are the most efficacious remedies in this disease:—

*Aconitum** when the diarrhœa is symptomatic of congestion of the mucous membrane of the intestines, and caused by exposure to cold and damp; and when there are feverishness, vomiting, watery or slimy discharges, thirst, and pains in the bowels.

Mercurius when the evacuations are slimy or bilious, or bloody; when the anus is red and excoriated; the pains severe and colicky.

Arsenicum is indicated when the motions are watery and frequent, and followed by sunken countenance, cold legs, weak pulse, and exhaustion.

China is suitable for chronic diarrhœa, attended with the passage of undigested food, failure of strength, slimy tongue, and brownish motions.

Chamomilla, *Phosphorus*, *Sulphur*, and *Nitric Acid* are adapted to particular cases, but in the majority of cases the above four remedies will be found of most service.

* For the dose of these medicines, see "Introductory Remarks."

Food, etc.—During the attack, the best diet is beef-tea thickened with ground rice. Solid food must be given with great caution during convalescence. Cold food is better than hot during the diarrhœa. It is important to keep the external parts thoroughly clean by washing with lukewarm water and soap two or three times a-day.

VII.—DYSENTERY.

Dysentery is an inflammation of the mucous membrane of the bowels, chiefly of the large bowels, with subsequent ulceration and hæmorrhage. It is often preceded by diarrhœa, the most severe form of which is apt to take on the true dysenteric character. This remark applies with special force to the so-called “bilious diarrhœa,” in which the bowels become irritated and subsequently inflamed from the acrid quality or preternatural quantity of the biliary secretion. Disease of the liver may co-exist with dysentery, or even precede it, and then be the exciting cause of the latter disease, owing to the irritant action of vitiated bile.

SYMPTOMS.—Some febrile excitement, blackish offensive evacuations, followed by discharge of acrid mucus mixed with blood, pains in the bowels and straining, rapid failure of strength and of flesh, are the most prominent symptoms. Ulceration is denoted by discharge of blood, or of mucus mixed

with blood, or of feculent matter mixed with discoloured blood.

TREATMENT.—*Aconitum** is indicated when the pulse is increased in frequency, the skin hot, the abdomen painful, and the motions voided with straining.

Mercurius corrosivus when there is severe straining, with protrusion of the mucous membrane of the rectum, and evacuation of pure blood, or of blood mixed with excrement.

Colocynthis is valuable when there are colicky symptoms, with discharge of bloody mucus, and pain in the abdomen. This medicine and the last may be given alternately with good effect.

Arsenicum may be administered against great prostration and failure of strength, weak, small pulse, cold legs, offensive putrid breath, and offensive evacuations.

Food, etc.—The food should consist of the most nutritious kind, and should be given frequently in small quantities. Injections of starch are sometimes beneficial.

VIII.—CHOLERA.

A case with the above doubtful heading is recorded in "The Veterinarian" of December 1849.

* For the dose of these medicines, consult the "Introductory Remarks."

“On Friday, September 14, a black and tan terrier dog was taken suddenly ill with purging and vomiting. In a very few hours the alvine evacuation as well as the vomit assumed the rice-water character of cholera discharges. All the visible mucous membranes were of a leaden colour. The dog died next day, violently cramped, after twenty-four hours' illness.”

Curious to relate, the owner and nurse of the dog was seized next day with similar symptoms, and died in less than two days. Was the disease cholera, and, if so, was it transmitted from the dog to the woman? The recorder of the case says, Yes.

The great remedy for such a case as this is *Arsenicum*.* *Veratrum* is also indicated by the symptoms.

IX.—PILES, Etc.

The disease called piles depends on an enlarged and varicose condition of the hæmorrhoidal veins, which are distributed to the submucous tissue at the lower part of the rectum. The mucous membrane is lax and hypertrophied at the same time.

Piles are either internal or external: the former, when seated within the external sphincter of the anus; the latter, when found outside that muscle. Both may co-exist in the same animal.

* For the dose, see “Introductory Remarks.”

Want of exercise, the use of purgatives, constipation, stimulating food, straining in the act of fæcation, diseases of the liver interrupting the circulation of the blood and producing distention in the hæmorrhoidal veins, are the most frequent causes of piles. The dog's rectum is peculiarly exposed to disease; first, because from his natural constipated habit of body he strains forcibly in the act of voiding fæces; and, secondly, because he swallows many things that are of an indigestible nature, and that for that reason pass into the rectum, and set up local irritation or inflict local injury.

SYMPTOMS.—The rectal opening, instead of being firm, small, and contracted, is enlarged, swollen, loose, and protruding mucous membrane, whose vascularity is greatly increased. There is a discharge of foetid mucus, and more or less pain to the touch, or during the performance of the natural act. The piles protrude, especially under the last-named circumstance, and blood may follow, although this last symptom is a somewhat rare occurrence in consequence of the horizontal position of the dog's rectum.

A tumour, arising from the same cause as piles, and sometimes accompanying them, is sometimes found on one side of, and either above or below, the orifice of the rectum. The tumour is very painful; at first red, afterwards purple; and attains to a considerable size. Left alone, it bursts, discharges a large quantity of thick offensive bloody

matter, leaving a large, deep, ragged ulcer, which is prevented from healing by the movements of the part, and by the dog rubbing the surface on the ground. This swelling, however, should not be left to itself, as in proportion to its dimensions will be the size of the remaining ulceration. When it is soft and fluctuating, it should be freely opened and afterwards well fomented, for the double purpose of relieving pain and insuring cleanliness. Under certain unfavourable circumstances, this disease is apt to return, until at length the ulcer takes on an unhealthy or cancerous character, and kills the dog.

TREATMENT.—*Aconitum** should be given when the piles are inflamed, tender to the touch, and the parts increased in vascularity.

Mercurius when there is a mattery discharge, hardened fæces, and disordered liver.

Nux vomica is a valuable remedy for piles with constipation.

Sulphur is suitable for the same cases, and may be resorted to in the event of the last remedy not proving successful.

Hepar sulphuris should be given for the purpose of assisting to bring the rectal abscess to a head.

Calendula lotion† should be applied several times a-day after evacuation of the abscess to promote healing.

* For the dose of these medicines, refer to the "Introductory Remarks."

† See Appendix.

X.—POLYPUS.

The dog is subject to *rectal polypus*,—rounded, bleeding bodies, attached to the mucous membrane. They should be removed by the canula ligature in a few seconds, and without much pain or any bleeding.

XI.—FISTULA IN ANO.*

A fistulous tract along the side of the rectum is met with as a concomitant, or as a consequence of piles, or of rectal ulcers, or as the result of the inflammation and subsequent ulceration induced by the pressure of hardened excrement or sharp bodies in the rectum.

The application, or injection of the *Hydrastis lotion*† is likely to be of service.

XII.—PROTRUSION OF THE RECTUM.

The disease which bears this name is not *protrusion of the rectum*, but *eversion of the mucous*

* A case illustrating the treatment of fistula will be found in the Appendix.

† See Appendix.

membrane of the rectum. During the act of defæcation it is natural for this membrane to be a little exposed, and when the act is over to be again removed from sight. The same thing occurs to a thickened mucous membrane, perhaps also the seat of piles; with this difference, however, that the eversion is greater and is not temporary. Under the irritation of hæmorrhoidal growths, worms, drastic purges, attacks of diarrhoea, or of dysentery, etc., the peristaltic action of the bowel is increased and there is violent straining. The coats of the bowel and the muscular sphincter become lax, and folds of mucous membrane appear externally. But in true prolapsus, there is protrusion, not of one coat only, but of all the coats of the intestine—a comparatively rare accident.

The symptoms are obvious enough.

In treating a case of this kind the particular cause must be discovered and removed; for until that be done, the eversion or protrusion will return shortly after the part has been put into its right place. The part should be thoroughly cleansed with douches of cold water for the purpose of removing dirt, and, by astringing its vessels and reducing its size, enabling the operator to return it with greater facility. After having dried the surface, the part should be returned as gently as possible. The difficulty is, not to get it in, but to keep it in. Cold injections are beneficial. The remedies for piles, or for worms, or for diarrhoea—

whatever be the cause of the disorder—must be given. In obstinate cases, which do not yield to these measures because of great laxity of tissue, an operation is necessary.

CHAPTER V.

DISEASES OF THE LIVER AND SPLEEN.

I.—HEPATITIS.

Inflammation of the liver occurs in two forms—the acute, and the chronic.

The *acute*, which is the less frequent form, may arise from exposure to cold and damp, from over-feeding, bruises and other injuries, intense heat, the action of powerful emetics which are so frequently given to dogs, in whom vomiting is a very easy action. Over-feeding and want of exercise acting together are the most frequent predisposing causes of liver diseases in dogs, and hence the prevalence of such complaints amongst petted and fat dogs, especially when they are subjected to unusual exertion.

SYMPTOMS.—The symptoms of the acute variety of hepatitis are—restlessness, dulness, loss of appetite and of spirits; acceleration of the pulse, thirst,

tongue coated and protruded from the mouth, craving for water, shivering before accession of fever, and subsequently alternations of heat and cold. After a few hours, or in the course of two or three days, the gums, lips, whites of the eyes, and skin generally, become tinged with a yellow colour, and the urine presents the same hue. The right side is enlarged, and, when touched, flinching and groanings are produced. Vomitings of slimy, bilious matter come on; the appetite gets worse, whilst the thirst continues; the breath becomes offensive; emaciation and debility gradually progress; the bowels are either confined or relaxed; the excrement clay-coloured, from absence of bile; the fever assumes a typhoid character, and the dog at last, unless promptly relieved at an early stage, sinks from exhaustion.

The *chronic* variety may be the sequel of the acute, or it may arise during the course of distemper, in which, however, it partakes more of the sub-acute character; it occurs in cases of chronic and inveterate mange, and other skin diseases. Improper food is the most frequent exciting cause. The dog is dull, sleepy, and disinclined to move himself; the mouth is cold and the tongue furred; for some time past he has been gradually wasting, despite a fair appetite, without apparent cause, until he is now reduced to a skeleton. The coat stares and the hair is detached in patches. The skin, eyes, and urine are coloured with bile; the

fæces clayey. The belly is enlarged, especially on the right side. When this region is examined, a hard, solid, and almost painless swelling is detected; this is the enlarged liver.

The yellow colour of the eyes and skin, the deep-coloured urine, and the absence of colour in the excrement, denote the condition called *jaundice*, or commonly the "yellows."

TREATMENT.—*Aconitum** should be given when the fever is high, the skin hot, the tongue furred; and when there are thirst, restlessness, and pain on pressure in the region of the liver.

Mercurius is indicated when the whites of the eyes, and the skin generally, present a yellow colour; when the tongue has a yellowish fur, and the evacuations are knotty, and clay-coloured.

Nux vomica is suitable against great tenderness on pressure in the hepatic region, vomiting, thirst, high-coloured urine, costiveness.

Arsenicum is especially indicated after the disease has made some progress, and when typhoid symptoms are appearing, such as vomiting; offensive, blackish diarrhoea; cold legs; great prostration; weak, small, irregular pulse. It is also suitable in the chronic form of hepatitis, when the liver is enlarged, the urine scanty, and dropsy of the belly present; or when the disease occurs in connexion with mange.

* For directions as to the dose of these medicines, refer to the "Introductory Remarks."

Digitalis is an important remedy against intermittent, and frequent pulse; evacuations dry, and ash-coloured; urine thick and brown; pain in the side, etc.

Podophylin should take the place of mercurius for the same symptoms, when that drug either fails to do good, or has already been given in too large doses.

II.—JAUNDICE.

Icterus or jaundice is a disease of frequent occurrence in dogs.

The causes, either predisposing or exciting, are not accurately known; but the fatigue of such exertion as sporting dogs have to endure, immersion in cold water, and living in damp places, are amongst the most frequent. Reynal states that he has met with cases of jaundice caused by the grief which the dogs felt on the death of their female companions.

SYMPTOMS.—The disease begins with symptoms of nervous irritability, such as timidity, convulsive movements, trembling; these are followed by extreme dulness and dejection. The dog is profoundly apathetic, and takes no notice of the caresses of his master; he is constantly lying down, and gets up only when forced to do so. There is great muscular

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weakness, and little or no appetite; fluid foods are preferred to solid when the appetite remains to some extent. The pulse is small and very quick, and the respiration quickened and moaning. During sleep, the patient is agitated with starts and slight moans, indicating pain. The skin, especially the internal surface of the ears, the thighs, the fore-arms, and of the belly, presents a deep saffron-yellow hue; the right hypochondrium is tender to the touch; the urine is of a notably greenish-yellow colour; the fæces are hard and yellowish; and, after constipation, there is often diarrhoea, the discharges being yellowish, and partially made up of mucus.

Jaundice is frequently met with in conjunction with obstruction of the bowels, from invagination of the intestinal canal.

Sometimes, during the decline of the symptoms of jaundice, there appear a cough, a vesicular eruption, and a discharge from the nose—symptoms which have been observed more especially in young dogs that have not had distemper, or that have had it in a mild form.

TREATMENT.—*Aconitum** should be given at the outset of the disease, when feverish symptoms, as denoted by quick pulse, hot nose, etc., are present.

Mercurius is indicated by yellow skin and eyes,

* For directions as to the dose of these medicines, refer to the "Introductory Remarks."

tenderness of the right side, high-coloured urine, hardened fæces, etc.

Arsenicum must be resorted to when the symptoms assume a typhoid character, with small frequent pulse, blackish diarrhoea, constant vomiting, cold legs and skin, etc.

Chelidonium majus is good for coated tongue, flatulent distention, dark urine, costive bowels, yellow eyes, pain in region of liver, evacuations whitish, etc.

III.—BILIARY CALCULI.

Biliary calculi are sometimes met with in dogs.

SYMPTOMS.—The symptoms make their appearance suddenly. There are the usual phenomena of colic, added to vomitings and jaundice. Towards the end of three or four days the fæcal matters are found to be white. The bowels are sluggish, or even constipated. This state, which usually continues for some days, ceases when the biliary concretion arrives in the intestine, or when the biliary ducts become so dilated as to permit the free course of the bile along its natural channel. Then the foregoing symptoms give way, and the jaundice disappears a little later.

TREATMENT.—The medicine most likely to relieve the pain caused by the passage of these calculi

is *Aconitum*.* But if no relief should follow after a few doses have been administered, *Belladonna* should be substituted. A warm bath is generally beneficial.

IV.—SPLENITIS.

Splenitis, or inflammation of the spleen, has been known to occur in dogs, but it is a disease that discovers itself rather after death by structural lesions, than during life by appreciable or distinctive symptoms. Splenitis generally co-exists with other diseases of the abdominal organs, and its symptoms are, for that reason, blended with, and obscured by, the symptoms which are respectively manifested by the morbid states with which it may be associated.

In speaking of the symptoms of splenitis, Youatt says:—"In the cases that I have seen, the earliest indications were frequent vomiting, and the discharge of a yellow frothy mucus. The animal appeared uneasy, there is shivering, the ears are cold, the eyes unnaturally protuberant, the nostrils dilated, the flanks agitated, the respiration accelerated, and the mucous membranes pale."

Blaine merely says:—"We may expect heat;

* For the dose, refer to the "Introductory Remarks."

fulness, and tenderness in the region of the spleen, and pain on pressure.”

Chronic disease of the spleen, with enlargement of its substance, occasionally brings on ascites.

TREATMENT.—*Aconitum** is required when there is feverishness, pain, vomiting, etc.

China is indicated when the mucous membrane of the mouth is pallid, the appetite impaired, and the strength reduced.

Ferrum is also suitable for the same symptoms.

* The dose of these remedies is stated in the “Introductory Remarks.”

CHAPTER VI.

DISEASES OF THE URINARY, ETC., ORGANS.

I.—NEPHRITIS.

Nephritis, or inflammation of the kidney, is an occasional, and at all times a most dangerous disease in dogs. It may be caused by the presence of a stone; by various injuries, such as blows, sprains, etc., on the lumbar region; it may follow chronic disease of the bladder, and the administration, in improper doses, of cantharides and turpentine. Blisters consisting of cantharides are still largely used in canine practice; they are really unnecessary in the cure of any disease, and are undoubtedly painful to the dog. They are also dangerous; for, unless the blistered part be bandaged up or otherwise protected, the dog is sure to use his tongue and swallow some of the blister, and nephritis may be the consequence. If turpentine be preferred to other drugs which are equally efficient in the destruction and expulsion of worms, it should be

administered in doses proportionate to the dog's size, because, in excessive doses, it sets up great irritation of the mucous membrane of the urinary organs, as well as of the intestinal canal.

SYMPTOMS.—Nephritis gives rise to more or less severe pain in the back, as indicated by the peculiar movements of the dog, and by the pain being increased by exercise and pressure. There is febrile disturbance, varying in degree with the extent, and violence, and cause of the local inflammation. The urine is scanty, and passed frequently in small quantities, and it may be more or less mixed with blood.

As the probable result of previous acute or chronic inflammation, the kidneys, one or both of them, have been found, after death, larger or smaller than usual. Complete atrophy of one kidney is not very unusual.

TREATMENT.—The best remedies are the following:—

*Aconitum** should be given when the dog is in a febrile condition, and when the urine is scanty or bloody, and discharged frequently.

Cantharis is indicated more especially when the discharge of blood is somewhat considerable, and accompanied by pain in the back, and difficulty in urinating. In some cases it may be necessary to give these two medicines in alternation.

* For the dose, etc., of these medicines, see the "Introductory Remarks."

Arnica is a valuable remedy when the disease has been caused by blows or sprains of the back.

There are other medicines which are efficacious in this disease, but these three are sufficient in the great majority of cases.

Food, etc.—Rice and barley-water are beneficial, especially if the disease be due to the irritant action of turpentine or cantharides.

II.—RENAL CALCULUS.

Stones are sometimes found in the kidney. They are composed chiefly of uric acid in combination with ammonia, and of phosphate of lime. Calculi composed of oxalic acid and of cystine are more rare.

A nucleus having once formed, the stone gradually increases in size by further additions to its substance. The irritation produced in the kidney aids in its enlargement, by changing the character of the natural secretion. The stone varies in shape according to the particular part of the kidney in which it is lodged. Inflammation and suppuration may be the consequences of the stone acquiring considerable size and remaining in the kidney.

SYMPTOMS.—The symptoms are somewhat obscure. Vomiting or retching, occasional admixture

of blood in the urine, especially after exercise ; frequent passage of urine and colicky attacks are the most marked. Eventually the animal becomes emaciated, and dies exhausted from the severe pain and discharge of blood and mucus. He is frequently, however, carried off by nephritis.

In many cases, the stone when small descends from the kidney into the bladder along the ureter ; this passage may be effected without exciting any symptoms, especially if the stone be smooth and of little size. But, in other cases, considerable pain is caused, and the dog suffers from all the symptoms of colic, added to those which betoken disturbance of the bladder.

M. Lautour records a typical case, which will serve to illustrate these remarks. A dog that had previously had occasional attacks of pain, attended with difficulty in voiding the urine, was suddenly seized, on August 20, 1827, with violent pain. " He barked and rolled himself on the ground almost every minute ; he made frequent attempts to void his urine, which came from him drop by drop. When compelled to walk, his hind and fore legs seemed to mingle together, and his loins were bent with a perfect curve ; his flanks were drawn in ; he could scarcely be induced to eat ; and he evidently suffered much in voiding his fæces. Mild and demulcent liquids were his only food. Warm baths and injections were applied almost unceasingly, and in eight days he seemed to have

perfectly gained his health. In March of the following year the symptoms returned with greater intensity. His hind-legs were drawn after him, he rapidly lost flesh, and his howlings were fearful and continuous. The same mode of treatment was adopted without any good effect." A calculus, weighing 126 grains, and composed of urate of ammonia and phosphate and oxalate of lime, was found in the pelvis of the kidney. The kidney itself was increased in size fourfold, the mucous membrane covered with ecchymoses, and the walls of the bladder thickened.

TREATMENT.—The symptoms produced by the presence of a stone in the bladder or in the ureter can be best combated by *Belladonna*, *Cannabis*, and *Cantharis*.

*Belladonna** is indicated for great pain, the existence of which may be inferred from the dog's behaviour.

Cannabis may be substituted for the last medicine when it appears to relieve the pain only partially.

Cantharis is efficacious when the urine is bloody and discharged with difficulty drop by drop.

Food, etc.—Demulcents and plenty of water forced upon the dog soothe the parts which are irritated by the stone, and assist in dislodging it.

* For the dose, etc., see "Introductory Remarks."

III.—STONE IN THE BLADDER.

Stone in the bladder is more frequent than stone in the kidney.

SYMPTOMS.—The early symptoms are imperfectly known, as advice is rarely sought until the stone or stones have acquired sufficient size to interfere with the functions of the bladder. When this is the case, stone gives rise to irritability of the bladder, with frequent scanty discharges; severe pain, worse after urine has passed, and whilst moving; discharge of a few drops of blood; unsheathing of the glans penis; straining efforts, etc. The stone or stones may possibly be felt through the walls of the belly, or by the finger in the rectum. The only sure way of positively affirming the presence of stone in the human bladder, viz., the use of the “sound,” has not, as far as I am aware, been resorted to in dogs.

Stone in the bladder follows the presence of any foreign body, even of the smallest size. A minute renal calculus that has made its way into the bladder may form a nucleus round which the constituents of a bladder-stone are slowly deposited. Boerhaave introduced a small pebble into a dog's bladder; a few months afterwards the dog was killed, and a large calculus found with the pebble in its centre. As many as fifty calculi, of different sizes, have been found in the dog's bladder.

There are four varieties of vesical calculi :*—

1. Form, rounded and elongated ; surface, yellowish white, and roughened by isolated crystals of the ammonio-magnesian phosphate ; the calculi may acquire a considerable size and weight ; the nucleus and strata have the same composition. Ammonio-magnesian phosphate, phosphate and carbonate of lime, uric acid (which is sometimes absent), and organic matter are the ingredients of this variety.

2. Much smaller than the last, rarely reaching the bulk of a small walnut ; angular and usually triangular in form ; their smooth surface is of an unspotted white colour ; sawn through, they present layers surrounding a hard nucleus or kernel ; they are found collected in large numbers,—the bladder of an old dog contained upwards of one thousand and ten ; they vary in size from a grain of sand up to a hazel-nut. They have the same chemical composition (though not in the same proportion) as the preceding variety, except that they contain no uric acid.

3. Small round bodies, from the size of mustard-seed to that of a small pea, and having a yellowish, smooth, shining, greasy surface. This variety is the most unfrequent. A section of it has the appearance of wax, with an indistinct crystalline structure towards the centre. They are composed of cystine.

* Nouveau Dictionnaire Pratique de Médecine Vétér., etc. Art. Calcul.

4. As rare as the last variety ; the 'surface is yellowish, rough and chalky, and crumbles when touched ; the nucleus is formed of cystine, and the calculus is made up of alternating layers of cystine and carbonate of lime. The other constituents, in addition to cystine, are carbonate of lime, a trace of ammonio-phosphate of magnesia, and organic matter.

In speaking of the *palliative* treatment of stone—for the *radical cure* of such a case by mere medicines has yet to be discovered,—Mayhew makes the following sensible remarks:—"Very minute doses of cantharides have seemed to be attended with benefit. Here, however, I speak with doubt, for the agents have by me been employed only in homœopathic quantities, and I have not the means of saying they had very decided action. They appeared to do good, since under their use the animals improved ; and that is all I can state in their behalf." It seems very probable to me, that the quantities incorrectly called "homœopathic"—since homœopathic is *not* synonymous with minute or infinitesimal—not only "appeared to do good," and "seemed to be attended with benefit," but *were* good and beneficial, and the proof is that "under their use the animals improved."

Besides *Cantharis*, much relief may be given by *Aconitum*,* *Belladonna*, *Nux vomica*, and *Cannabis*.

* For the dose, etc., of these remedies, consult "Introductory Remarks."

The indications for each of these remedies have been already given under the descriptions of the diseases of this chapter.

The removal of the stone by operation has been proposed, but never practised, as far as I am aware.

IV.—CYSTITIS.

Cystitis, or inflammation of the bladder, is sometimes met with in dogs.

Amongst the causes of cystitis may be enumerated exposure to damp and cold, injuries, extension of inflammation from the kidneys, the irritation produced by a stone, by cantharides, etc.

SYMPTOMS.—The symptoms are, frequent pulse, restlessness, panting, and general constitutional disturbance. There is trembling of the hind legs, attended with frequent efforts to void urine, which is either not discharged at all, or passes away drop by drop. After the evacuation of the urine, the pain subsides for a time. When the dog, during the pain, looks round to his flank, etc., an inexperienced person may think that the case is one of simple colic; but the evident and unmistakable urinary difficulty will make the nature of the case plain. That portion of the belly in which the bladder is situated, is hot, full, and tender when examined with the fingers. The dog feels much pain when the bladder

is examined through the rectum. The urine varies in its appearance, being either clear, or mixed with either mucus, sediment, or blood. If the disease go on, other symptoms make their appearance. The bladder, previously so irritable that it contracted with the greatest force on even a few drops of water, now loses its power, and the urine gradually accumulates within it. The muscular wall is in fact paralyzed. When the walls of the bladder are so much stretched that further dilatation is impossible, the neck of the bladder yields and the urine dribbles away involuntarily.

TREATMENT.—1. When there are quick pulse; frequent desire to urinate, discharge of scanty, bloody, turbid, urine; pain on pressure in the region of the bladder, give *Aconitum*.*

2. When the urine is discharged drop by drop with great force; the pain increased during the act of passing it; the region of the bladder painful and distended, give *Cantharis*.

3. *Nux vomica* is another good remedy for the last-mentioned symptoms, and may be used in the rare event of *Cantharis* failing.

Food, etc.—Demulcents should be freely administered.

Of course, nothing can be done when the bladder bursts.

* For the dose, etc., refer to the "Introductory Remarks."

V.—HÆMATURIA.

This term is applied when there is blood in the urine. The blood may come from the kidney, the bladder, or the urethra; in fact, from any part of the urinary passage. It is a frequent symptom of nephritis and stone; and it may follow injuries. Urine, containing blood, coagulates under the action of heat and nitric acid, is dark in colour, and gives a sediment when allowed to stand in a vessel. The blood cells can be detected by microscopic examination; thus settling the question as to what the sediment is, and to what the dark colour is due. In the dog, there are no reliable symptoms by which the exact seat of the hæmorrhage can be satisfactorily made out. This can be done in man. Thus, Dr Prout says, that when the "blood is derived from the kidney, it is in general equally diffused throughout the whole urine; on the contrary, when derived from the bladder, the blood, for the most part, comes away in greater or less quantity at the termination of the discharge, the urine having previously flowed off nearly pure." According to Dr Watson, hæmorrhage from the kidney, or beginning of the ureter, is indicated by the passage of slender, cylindrical, fibrinous casts, which have been evidently moulded in the ureter. Again, the bladder is probably the seat of hæmorrhage when the blood passes out

after the evacuation of urine ; and the urethra is probably the source of the bleeding when the blood escapes, without admixture of urine, before the urine makes its appearance. These remarks, borrowed from human pathology, may be of use in canine practice.

Blood is frequently discharged from the vascular growths which are met with on the prepuce, as the result of neglected balanitis. It is possible that this hæmorrhage might be confounded with true hæmaturia, but an examination of the part will easily dissipate any doubt that there may be as to the source of the blood.

On the *treatment* of this disease Mayhew makes the following satisfactory remarks :—“ I (having been unfortunate in these cases where I employed acetate of lead) adopted small doses of cantharides, and with these, to my surprise, succeeded ; for which reason, I have persevered in my homœopathic treatment. The quantity of tincture of cantharides I employ is three minims to two ounces of water, and, to my wonder, this appears to answer every purpose ; the only fault, indeed, that a general practitioner might find with it being, that it did its work too quickly.” What a fault !

This treatment is strictly homœopathic, and, therefore, I can recommend its employment.

VI.—RETENTION OF URINE.

Here there is urine that requires to be discharged; but either the expulsive power is wanting, or the natural channel is obstructed.

The causes of retention are,—

1. *Paralysis of the Bladder.*—This may occur in various ways. For instance, a dog was shut up in a room for two days, and, being a cleanly animal, would not urinate until he was liberated. The muscular coat of the bladder was, of course, over-distended, and when the animal attempted to make water, he had lost the power to do so—the bladder could not contract upon, and expel its contents. Because there was dribbling of urine—an event which always follows chronic retention—Youatt incorrectly gives this case as an example of “incontinence of urine,” which, in this instance, was merely a symptom of retention due to paralysis. Again, this paralysis may be the consequence of disease and injuries of the head, or of the spine; accompanies constitutional debility from any cause, such as distemper; co-exists with paralysis of the hind legs; and may follow the distention of the bladder, which disease of the prostate gland has been known to cause.

2. Another cause of retention of urine is, *a Stone in the Urethra.* The stone is arrested in its passage outwards, and becomes impacted in the canal.

Here it may fill up the passage and prevent the discharge of urine. The urine is retained in the bladder. There are frequent and strong efforts to pass the fluid, but none comes. There is pain and distress, and the bladder becomes distended. A case of this kind occurred in Blaine's experience. A Newfoundland dog had from forty to fifty stones in the bladder; one of them had passed into the urethra, and became fixed there; the flow of urine was consequently prevented, and mortification ensued.

The calculi of the urethra are cylindrical, with tapering ends; pale yellow in colour, and smooth on some parts of the surface, rough on others; the strata are irregularly arranged around a sedimentary nucleus. Silicic acid, carbonate of lime, and animal matter are the chief constituents.

The urgent symptoms may be relieved by pushing the stone backwards into the bladder, by means of the catheter.

3. *Chronic Enlargement of the Prostate Gland* gives rise to retention. At first, when the swelling is small, there is no other symptom, except some difficulty in urinating; but, afterwards, as the enlargement increases, the posterior part of the urethra is pressed upon externally, and its calibre diminished. In proportion to the obstruction is the difficulty of passing water, and the pain and distress attending the act. At length, there is complete retention; the bladder is distended; the urine dribbles away

—incontinence as a symptom of retention. Rupture of the bladder may follow. Professor Simonds met with a case of this kind, in which rupture of the bladder, extravasation of urine into the peritoneal cavity, and fatal peritonitis, took place from the mechanical impediment to the flow of urine caused by prostatic hypertrophy, in a dog that had been affected with symptoms like the above for about two years.

Supposing this disease were correctly made out, *Mercurius corrosivus*, or *Iodium*, would be the most appropriate remedy.

4. *Worm in the Urethra*.—In the *Journ. Pratique* for February 1828, M. Seon, veterinary surgeon, states that he was requested to examine a dog which was straining in vain to urinate, uttering loud cries, and then licking the penis. After having tried in vain to abate the irritation, he was on the point of passing an elastic bougie, when he discovered a something protruding from the urethral orifice with each effort at urinating, and then returning into the urethra. This something was seized with the forceps and withdrawn; it turned out to be a worm. The dog passed its urine freely and soon recovered. The worm was a *strongylus*.

SYMPTOMS.—The symptoms are:—*First*, Distention of the bladder; a state of things which any experienced person can satisfy himself of, by making the proper examination either through the walls of the belly, or through the rectum; in a word, the

bladder is found full of urine. *Secondly*, There is pain on pressing over the bladder in the pubic region, and dulness when percussing it. *Thirdly*, The dog lies, and shifts about from one place to another; when made to walk, he does so unwillingly, with back arched and straggling gait. *Fourthly*, There are frequent, strong, straining, distressing efforts to urinate, but inability to do so; these efforts gradually abate as the bladder loses its sensibility. *Fifthly*, Not only is there inability to pass urine—retention of urine—but there is no power to hold it, and the fluid slowly dribbles away—incontinence of urine. This happens when the resistance to escape at the neck of the bladder is overcome by the pressure of the fluid behind; showing, as before stated, that incontinence is, in the majority of cases, a symptom of retention.

TREATMENT.—The most successful remedies are *Cantharis*,* *Nux vomica*, and cold-water douches. If necessary, catheterism should be practised to evacuate the bladder.

VII.—BALANITIS.

Balanitis is the technical name given to inflammation of, and discharge of matter from, the mucous membrane of the prepuce, etc.

* For the dose, etc., refer to "Introductory Remarks."

SYMPTOMS.—The discharge may be either thick and purulent, or thin and consisting of mucus. By accumulating and hardening, the discharge may, for a time, stop up the orifice of the urethra, and impede the flow of urine. There is considerable irritation of the part, as indicated by the dog's manner, by his licking the organ, and by frequent erections. At a later period, there is considerable pain and constitutional disturbance; the part is red and swollen; the membrane becomes abraded with numerous small superficial ulcers, which gradually coalesce into a large ulcerated surface, from which there is a profuse puriform secretion. The pain and tenderness, and the difficulty of retracting the prepuce are thus much increased. Lastly, fungoid growths or exuberant granulations sprout up, adding much to the animal's pain and distress. Sometimes these growths take on the appearance of vascular warts. Whatever the structure of the growth may be, the discharge is tinged with blood; or pure blood even may exude. At first, the disease does not of necessity damage the general health, but when neglected, it always does so.

The disease does not appear to be brought on, nor to be communicable by contagion. It generally arises from accumulation of acrid secretion,—or from sympathy with disorder of the digestive organs. It co-exists with mange, canker, etc., and with a gross and plethoric condition of the system. The use of stimulating food may convert a simple dis-

order into a serious and intractable disease, attended with unhealthy ulceration.

TREATMENT.—The part should be fomented twice a-day with warm water, and be kept perfectly clean.

The best topical application is *Calendula lotion*,* applied several times a-day. The infusion of *Hydrastis** is another excellent dressing, when the discharge is profuse.

One grain of the first centesimal trituration of *Mercurius solubilis* should be given night and morning, either dry on the tongue, or in a little food.

VIII.—PARAPHYMOSIS.

SYMPTOMS.—The dog is sometimes troubled with a condition of the penis resembling the paraphymosis of another animal. The foreskin is reflected behind the glans, and remains there; the organ is erect and protruded, and becomes distended and enlarged from the constriction which it undergoes.

TREATMENT.—The treatment is simple enough. With the fingers of one hand the glans should be compressed—so as to squeeze the blood out of it—and pushed backwards, whilst with the fingers of the other hand the foreskin should be pulled over.

* See Appendix.

IX.—CANCER OF THE SCROTUM.

SYMPTOMS.—The initiatory stage of this disease is peculiar in the dog. The skin of the scrotum, at first sore, swollen, and red, becomes covered with minute pimples, that soon break, and give exit to a thin serous fluid; this fluid concretes into thin scales which cover a moist surface underneath. When the scales are thrown off, this moist surface, fringed by a red border, is exposed to view. The part affected is tender to the touch, and the general health is more or less deranged. In unfavourable cases, after the disappearance of the skin-disease, other symptoms appear sooner or later. The skin becomes blunted of its sensibility, hard, dense, and thick; it inflames; a sore forms. This ulceration gradually extends, and in the same proportion the general system becomes affected. In some cases, the disease may not go beyond hypertrophy of the skin,—a condition that may remain stationary; but it generally progresses until the scrotum is involved in malignant ulceration, and the dog is worn out by pain. The ulceration appears to be readily induced by repeated local irritation, such as occurs when the dog drags his hind-parts along the ground.

This disease, as far as its symptoms are concerned, is not unlike that form of cancer which attacks the scrotum of chimney-sweeps especially.

The proper name for it is *Epithelioma*. The identity or non-identity of the two diseases can be determined only by a microscopical examination of their morbid products.

TREATMENT.—In the first stage, the most appropriate treatment consists in the administration of *Hydrastis Canad.* night and morning, and in the local application of the infusion* of the same drug twice or thrice a-day.

Mercurius iod. is another remedy that is often productive of good results. Both of these medicines should be given in grain-doses of the first trituration night and morning.

If the disease should become malignant, as it often does in spite of any kind of treatment, the owner of the dog should obtain the opinion of a competent veterinary surgeon respecting the propriety of removing the morbid product by surgical means.

X.—HYDROMETRA, OR DROPSY OF THE UTERUS.

In uterine dropsy there is an accumulation of fluid, consequent upon excessive secretion on the one hand, and its retention on the other; its natural channel of exit being from some cause or other obstructed.

* See Appendix.

SYMPTOMS.—For some time preceding any appearance of enlargement the animal is observed to be in delicate health, with disordered digestion, debility, tendency to fatten, constipation, loss of appetite, etc. The urine is usually scanty. The œstral function has been abolished for a considerable period, and probably this circumstance first attracts notice and gives rise to a suspicion of something being wrong.

The symptoms produced by the enlargement are usually few and unimportant, because the accumulation takes place slowly and the womb is thus enabled to get into its new situation without violently incommoding adjacent organs. After a while, a tumour makes its appearance in the pelvic region, small at first, but gradually increasing in size as the accumulation goes on; this tumour, when it has reached a certain size, advances into the abdominal cavity, where it can be easily made out. It is then found to be elastic, movable, soft, dull on percussion, and yielding a sense of fluctuation by the same test: symptoms which are all the more marked from the fact that the walls of the uterus become remarkably attenuated under the distending force of the accumulated fluid.

Hydrometra may be mistaken for other enlargements in the abdomen; but it may be distinguished from ascites by its limited circumscribed form and uterus-like contour, and by the fact that when the finger is passed into the vagina, the swelling of

the abdomen is found to be clearly that of the enlarged uterus. The peculiar sense of fluctuation and the difference in the general symptoms will serve to show that the swelling is not due to accumulation of fæces in the bowel. Examination of the rectum and the use of an injection will further aid in a correct diagnosis. The enlargement of pregnancy is harder, denser, duller, and more irregular than that of dropsy of the uterus. If the enlargement be a distended bladder, we shall then find the patient suffering from urinary difficulties, and the swelling will disappear when the bladder is emptied by passing the catheter.

This disease is rarely met with in practice, and is probably often confounded with something else when it does occur.

Kali brom.,* *Arsenicum*, and *Iodium*, are the most likely medicines to do good.

XI.—ULCERATION OF THE UTERUS.

In the "Veterinary Record," vol. iii. p. 68, the following particulars are given:—Three weeks before the time of parturition, a bitch fell from a height of four feet. Four or five days after, the animal became sleepy, and the belly pendulous and painful. At a later period, the animal appeared

* For the doses, etc., refer to the "Introductory Remarks."

very uneasy and made frequent shrill cries when the belly was pressed upon. At last, four puppies, one dead, were born. Severe fits came on, attended by protrusion of the eyeballs and unconscious wandering; and death supervened.

On examination after death, the peritoneum was found inflamed, and there was dark-coloured effusion. There were two large, unhealthy ulcers in one of the horns of the uterus, perforating all the coats of the uterus, and opening into the abdomen.

In this account there is nothing to prove that the so-called "ulcers" were not really *lacerations* of the uterine walls—a much more probable lesion, looking at the history and the results of the case.

XII.—INVERSION OF THE UTERUS.

In inversion, the uterus is turned inside out and protrudes, more or less, at the opening of the vagina. Its external covering is consequently the internal membrane which lines its cavity in the natural state.

Inversion usually takes place after pupping, although it may also occur unconnected with parturition, as the result of blows, or debility of the general system.

SYMPTOMS.—A careful examination must be made. If the case be one of inversion, a rough, soft, elastic body will be felt, and, probably, seen

also ; when the finger is introduced between the surface of the tumour and the walls of the vagina, its progress is arrested at a height which varies with the degree of protrusion, and the tumour is found to have a short neck ; an elastic catheter used in the same way is stopped in its course in a like manner, by a "cal-de-sac" round the tumour. Again, inversion comes on suddenly without any previous symptoms. When the inversion is allowed to remain, the surface of the uterus becomes dark coloured, soft, and gives rise to great fœtor and discharge. The difficulty of returning it to its proper place is greatly increased when it is allowed to remain inverted. The tumour, by pressing upon the urethra, obstructs the flow of urine ; and also causes great pain and strong efforts when the animal attempts to relieve the bowels and bladder.

TREATMENT.—The treatment is to return the uterus to its proper site, using the gentlest possible handling and fingering. This return is always difficult, and in many cases impossible. The only alternative is to pass a ligature round the neck of the tumour ; or the "ecraseur" might be tried instead. The displacement is often fatal in its results.

XIII.—PROLAPSUS OF THE VAGINA.

The walls of the vagina, being in a relaxed state, and acted on by an expulsive force from behind,

protrude externally. This displacement is usually met with during the period of "heat;" and sometimes disappears spontaneously when that function is over for the time being.

SYMPTOMS.—A red, soft, elastic swelling is observed at the external parts. The os uteri may be felt through and above it. If not returned, the swelling is apt to be injured, and it then becomes hard and disposed to bleed. The surface gets excoriated, and the natural secretion is increased in quantity.

TREATMENT.—The treatment is cleanliness, the frequent employment of cold-water douches, and the application or injection of the *hydrastis infusion*.*

XIV.—VAGINAL POLYPUS.

The tumour, called polypus, is sometimes met with in the vagina. Italian greyhounds are said to be peculiarly subject to such growths from some unascertained cause.

SYMPTOMS.—The pedicle or stalk of the polypus may be attached to any part of the vaginal wall, usually some distance backwards; and it varies both in length and thickness. The tumour itself varies in size; and it may or may not protrude externally. When small it is of course concealed from view within the vaginal passage, but as it gets larger it appears at the orifice occasionally,

* See Appendix.

and at length hangs out constantly. The act of passing water causes it to appear when it is at other times concealed; it recedes when the act is over. There is a mucous, or muco-purulent discharge, more or less abundant, tinged with blood, and offensive. This symptom should always excite suspicion of a concealed polypus, and should lead to an examination with the finger. In some cases these growths cause no symptoms, and are discovered only when they are seen. When polypus does permanently protrude it sets up some inconvenience, and may bleed somewhat freely when injured. The polypus is round, oval, or pyriform in shape, with its narrow part toward the vagina, and the broad end directed outwards; its surface is smooth and polished; if it be possible to pass the finger along the surface of the tumour, its pedicle and point of attachment can be made out; it is comparatively movable and insensible to the touch. Great care is necessary to prevent polypus from being confounded with inversion of the uterus.

TREATMENT.—The treatment of polypus is illustrated by the following cases:—

1. A pointer bitch belonging to Sir J. H. came under my care for a polypus, which protruded externally about an inch, and which was attached to the left side of the vagina. The polypus was speedily removed, without difficulty or loss of blood, by means of the polypus canula armed with wire.

2. A terrier bitch belonging to Col. M. was in much the same state as the above patient. Not having the instrument by me at the time, I gave *Calc. carb.* night and morning, and prescribed the local application of lime water. In twelve days afterwards the growth was shrivelled and lessened to about half its former size. I removed it as in the other case.

XV.—FUNGUS.

This somewhat ambiguous name is applied to a disease of the vagina, consisting of soft vascular growths or excrescences, which give rise to copious purulent discharge mixed with blood, and which easily bleed when slightly touched. The parts are in a state of irritation such as exists at the period of œstrum; are hot, and more or less painful, and are frequently licked. These growths are of a florid colour, and highly vascular, so that they readily bleed; they resemble a cauliflower in shape, and grow from a pedicle or stalk.

This disease follows difficult parturition, and injuries received during parturition, or during coition, or at the œstral period.

The same disease is met with in dogs, either primarily or secondarily—in the latter case as the result of neglected balanitis. An examination of

the part is sufficient to indicate the nature of the case.

TREATMENT.—*Hydrastis* should be given night and morning, and a little of the powdered drug should be sprinkled every day over the diseased surface.

XVI.—CANCER OF THE VAGINA.

A cancerous disease sometimes attacks the vagina. The exciting causes appear to be such injuries as may be sustained during natural parturition, by the use of instruments, or unnecessary violence in effecting delivery, etc.

SYMPTOMS.—When fully established the disease is sufficiently characterized and distinguished from any other affection of this part, by a tumour of variable size, hard in texture, uneven on the surface, and having a broad base; it has a peculiar livid colour, and the discharge which flows is intolerably offensive. The disease gradually extends, and what with pain, discharge, and general impairment of health, the dog sooner or later dies from exhaustion.

TREATMENT.—There is really no cure, but pain may be relieved by giving *Hydrastis* inwardly, and by injecting the *Hydrastis* infusion.* On the whole the more humane course would be to administer a poison.

* See Appendix.

CHAPTER VII.

DISEASES OF THE EYE.

I.—OPHTHALMIA.

This term is applied to inflammation of the mucous membrane which lines the inner surface of the eyelids, and is reflected over the front of the eyeball. This membrane is called the *Conjunctiva*.

Ophthalmia is a common disease amongst dogs. It may be produced by external violence, such as blows, bites, etc.; or by the irritation of some foreign body, as dirt, dust, thorns, etc.; or by wounds, caused by scratches from cats, thorns, etc. It is also caused by exposure to damp, cold weather, or to extreme changes of temperature, or when a dog plunges into cold water after violent exertion. Another cause is disorder of the digestive organs, the mucous membrane of the eye sympathizing with that of the stomach. Blaine states that he has seen pointers, setters, and spaniels, after hunt-

ing in cover, suddenly seized with ophthalmia in both eyes, "from some poisonous herb." It would be interesting to ascertain what this herb is that so soon inflames healthy eyes.

SYMPTOMS.—The symptoms of simple ophthalmia are intolerance of strong light, closure of the eyelids, which are more or less swollen, and constant flow of tears. The lids, though closed, are always in motion, as if the dog wished to open them, but dare not, owing to the pain caused by the admission of light. On separating the lids, the conjunctiva lining the lids and covering the sclerotic is found of a bright scarlet colour. There is a discharge of matter which glues the swollen eyelids together.

In some cases, the inflammation, at first limited to the conjunctiva, extends to the other structures of the eye. In addition to the foregoing symptoms, enlarged bloodvessels may be seen as red lines extending over the cornea; the pupil is blocked up by a whitish looking exudation, and the aqueous humour presents a reddish hue.

When the cornea is seriously implicated, an ulcer appears in its centre. The ulceration either remains stationary or increases in depth and width until the cornea is penetrated and the aqueous humour escapes. Then rank, tender granulations spring up from the ulcer, and rapidly growing, protrude through the lids. As Youatt concludes, "Under proper treatment, or by a process of nature,

these granulations cease to sprout; they begin to disappear; the ulcer diminishes; it heals; scarcely a trace of it can be seen; the cornea recovers its perfect transparency, and vision is not in the least degree impaired." This description applies to that form of ophthalmia which so frequently accompanies an attack of distemper. It differs from the other form in being preceded by an early and somewhat copious formation of matter, and involving *the deeper-seated structures* of the eye. Sometimes both eyes are attacked; generally only one.

An injected state of the vessels of the conjunctiva exists in several diseases as a symptom, and may be accepted as indicative of the mildness or severity of such diseases, and of the probability of recovery, or the reverse. Thus, in distemper and pneumonia, if the conjunctiva is highly injected, the major disease is severe, and may be fatal. It is said that when the eye is very red in cases of epilepsy, the dog has little chance of recovery.

Meyrick describes "another and totally distinct kind of ophthalmia" in the following words:—"A slight redness of the whites of both eyes, with inflammation of the lids; pustules, terminating in very small ulcers, form round the ball of the eye; there is no thick discharge as in common ophthalmia, but the eye waters copiously, particularly when it is touched or examined." These symptoms are generally observed in mangy, or weakly dogs, badly fed and housed.

Mayhew states that the abuse of purgatives, by weakening the digestive organs, will produce a state of the eyes resembling "all the symptoms of distemper, even to the circular ulcer in the centre of the organ."

TREATMENT.—In the treatment of the simple ophthalmia, the first thing to do is to find out the cause, and if possible remove it. If only one eye be affected, there is a probability that the inflammation has been excited by injury or by the irritation of some foreign body. The eyelids are to be opened and carefully examined by being turned inside out on the handle-end of a teaspoon; and foreign bodies, if present, should be gently removed. If thorns, etc., are found embedded or fixed in the cornea, they must be scooped out by the point of a lancet. Perhaps a few irregular lashes, or even one, may have set up the inflammation.

When the conjunctiva covering the cornea is lacerated or a minute portion of it taken off, there is great impatience of light and watering of the eye. Much relief is obtained by instilling two or three drops of castor, or of olive oil between the lids.

In all cases of *bruises* or *wounds* of the eyes, or eyelids, with or without ophthalmia, and however occasioned, *the* remedy is *Arnica lotion*,* frequently applied.

As a rule, the dog should be placed in a darkened room during the height of the inflammation; but

* See Appendix.

when the ophthalmia seizes a dog of a weakly habit, light and exercise are indispensable to the improvement of the general health, and also of the eyes. In all cases, the dog-house should be perfectly clean.

Hot fomentations give great comfort to the dog by relieving pain, during the early stage of the disease. When the eyelids stick together owing to the adhesive character of the secreted mucus, occasional anointing with olive oil will do good.

At first the diet should be rather low, but when the strength fails, or the dog is weak at first, or when the ophthalmia comes on during an attack of distemper, then nourishing food must be supplied with a liberal hand. Nothing is so sure to aid the disease in doing permanent injury to the eye as giving poor food. Sloughing of the cornea is frequent in starved dogs.

A solution of nitrate of silver is a popular remedy in ophthalmia, in some cases of which it is a most valuable and homœopathic specific. Yet when used in improper cases nothing can do so much harm. It is in simple ophthalmia, unconnected with disease elsewhere,—that is, when the inflammation is limited to the conjunctiva,—that this local remedy acts with the greatest promptness and success. One grain of the nitrate should be dissolved in an ounce of distilled water, and the solution dropped into the eye twice a-day. When the inflammation implicates the cornea or the

deeper tissues, this remedy will do no good, but certain harm. When the cornea is ulcerated, nitrate of silver will cause the ball to burst; and the aqueous humour will then escape, and fungus growth will spring up.

In simple ophthalmia it is quite unnecessary to do what the ancient practitioners advise; viz., "bleed, blister, and keep low;" whilst in other forms of the disease, these measures can do nothing but irreparable mischief. In these days it is superfluous to condemn such an exploded remedy as the seton.

The best remedies for ophthalmia are the following:—

*Aconitum** when there are febrile excitement; sensitiveness to light; profuse secretion of tears and of matter; and redness of the eyes.

Belladonna is another valuable remedy. It is indicated when the eyes are extremely sensitive to light, the vessels of the cornea and sclerotic injected, and when the inflammation has extended to the iris.

Mercurius when the conjunctiva is injected, with copious secretion of tears at first, and of thick mucus and pus subsequently; ulcers on the cornea, pustules round the eyes and on the margins of the eyelids; agglutination of the lids.

Euphrasia when there is a very abundant secretion of mucus and tears; swelling and sticking

* For the dose, etc., of these medicines, see "Introductory Remarks."

together of the lids; superficial redness; and great intolerance of light.

Nux vomica when the inflammation appears to depend upon derangement of the stomach, and when there are symptoms of catarrh, such as obstruction of, and discharge from, the nose.

Sulphur is indicated when the disease attacks mangy dogs, and when the cornea is opaque or ulcerated.

Arsenicum when the inflammation arises from cold, and the discharge from the eyes is of an acrid and corrosive nature.

II.—ENLARGEMENT OF THE “HAW.”

The “haw” is the name given to a movable membrane covered with conjunctiva, and situated at the inner corner of the eye. Its office is to defend the tender eyeball from injuries threatened from without, and to remove extraneous bodies that may have obtruded within the lids; hence, it is called the “third eyelid.”

From external violence, or the irritation induced by foreign bodies, or from some constitutional disorder, the haw becomes congested, inflamed, and enlarged. It then projects at the inner corner of the eye between the lids, and prevents them from closing, and thus causes considerable distress. The

same thing takes place when the conjunctiva is inflamed generally, either in the simple, or in the distemper form of ophthalmia.

This disorder should be first treated as partial ophthalmia, with the remedies mentioned under that disease. Should the enlargement continue, it should be excised by transfixing it with a hooked needle, drawing it out, and clipping it off with a pair of sharp scissors.

III.—CATARACT.

Cataract consists of opacity of the crystalline lens or of its capsule, or of both together. The lens is more frequently found opaque than the capsule. In health both the lens and its investing membrane are perfectly transparent. The opacity may affect the whole or only a part of either of these structures.

The capsular variety of cataract is generally caused by inflammation, or by wounds or blows affecting the whole eyeball, or part of it. The opacity then comes on very quickly.

Opacity of the lens itself, although it may arise from the above causes, is usually found in old dogs as the consequence of senile degeneration of tissue from imperfect nutrition.

The opacity that supervenes on inflammation

may be removed; whilst that form produced by old age always gets worse and worse.

Cataract is no respecter of dogs, attacking all alike, but especially those animals that are petted and highly fed, and that are thence predisposed to it from dyspeptic disorder.

Cataract may affect both eyes, or only one. In old dogs both eyes are usually cataractous, one wholly so, the other in part; whilst, if the opacity should have followed a blow or penetrating wound, the injured eye only is affected, and the other will remain sound until old age creeps on. As a rule, the blindness of old age depends on cataract.

Some writers on canine pathology mention "hereditary tendency" as one of the causes of cataract. But this in the present state of knowledge is mere theory.

SYMPTOMS.—Cataract is known by seeing behind the pupil an opaque body of a whitish-grey colour, which is best seen when the pupil is dilated by the previous application of Belladonna. This preliminary step should always be taken in aid of correct diagnosis, when the case is doubtful. Of course, vision is more or less imperfect in proportion to the size and situation of the cataract. From the movements and behaviour of the animal, the inferences may be drawn that vision is better in the evening or in a subdued light, than it is in the full sunshine; that it is improved so long as the pupil remains dilated under the action of Belladonna;

and that some degree of vision remains even when the lens appears to be an opaque mass.

TREATMENT.—As far as I am aware, there is no medicine that can clear away cataract when once fully formed. But attention to the general health, by proper exercise, change of air, good food without flesh meat, the cold bath, and friction to the skin, will probably check or moderate the progress of the disease.

IV.—HYDROPTHALMIA.

Sometimes the humours of the eyeball are greatly increased in quantity as the result of chronic inflammation of the deeper-seated tissues following a blow. The eyeball will then become distended and enlarged. The transparent humours will also assume a turbid hue. There will, of course, be apparent protrusion of the eyeballs, and impairment of sight, or total blindness. In some cases there is considerable pain; in others, none. The disease is probably incurable under any mode of treatment; but if it be evident that the pain is great, the distention should be overcome by puncturing the sclerotic with a needle. This simple operation will give immediate relief; it is rarely followed by inflammation, but the eyeballs slowly waste away and become sunken in the socket. In

those cases which go on to a certain point and then remain stationary, without causing pain, nothing should be done.

V.—AMAUROSIS.

Amaurosis, or gutta serena, is the name applied to a disease, in which the optic nerve, or the brain, is so disordered, as to give rise to imperfect sight. Amaurosis may be consequent upon some structural disease of the brain, or of the optic nerve. It may follow a blow, or some other form of violence received on the head; and it has been known to come on during immoderate suckling, and after excessive loss of blood. In some cases, it is difficult to make out the cause.

SYMPTOMS.—In gutta serena the eye is clear, bright, and transparent; the pupil is dilated, and the iris sluggish at first, immovable afterwards, as tested by the introduction of light into the eye. The movements of the animal show that there is partial or total blindness; he stumbles against every object in his way, and his whole gait is peculiar and characteristic. These symptoms may depend on several different pathological conditions of the interior of the eye. The human oculist has proved, by means of the ophthalmoscope, that the lesions which affect the internal structures are numerous

and various, and that they are improperly classified under the general head of amaurosis. But such distinctions have yet to be drawn in canine pathology. The old names, though wanting in scientific accuracy, are retained as conveniently designating those cases of blindness which are dependent on obscure and unascertained changes in the visual apparatus, especially the nervous part of it.

Youatt records an instructive case, in which the symptoms were those of amaurosis, and were probably caused by extravasation of blood from rupture of the retinal bloodvessels. He says,—“A dog received a violent blow on the right eye. Immediate blindness occurred, or the dog could apparently just discern the difference between light and darkness, but could not distinguish particular objects. The pupil was expanded and immovable. A pink-coloured hue could be perceived on looking earnestly into the eye.” The dog was treated as was the fashion when Youatt flourished; but the blindness remained and the dog was killed.

TREATMENT.—Medicines have little or no effect on this disease. Attention should be paid to the general health as directed for cataract.

VI.—PROTRUSION OF THE EYEBALL.

On this subject, I cannot do better than transcribe from Skinner's work on "The Dog," published by Lea & Blanchard, Philadelphia.

Protrusion "occasionally happens from the bite of a larger dog. The eye is forced out of the socket, and the lid contracts around it, and prevents its return. If the accident has not occurred more than a few hours, a little patience and adroitness will accomplish the return of the eye, and with a fair chance of preserving the sight. The part must be gently, but well cleaned, and a small stream of warm water made to run on to the eye, and the parts around, for more than a quarter of an hour. The object of this is to relax the muscles of the lids and the cellular substance surrounding the eye. The blunt end of a small curved needle must then be dipped in olive oil, and inserted between the edge of the eyelid and the parts on which it is powerfully contracting; and, having been removed once or twice for the purpose of being armed with more oil, it must be carried fairly round the eye, and between it and the lid. A somewhat larger crooked needle is now to be taken, that the purchase may be greater. The blunt end must be introduced between the eye and the lid, about the centre of the upper lid, and the lid elevated with some degree of force, and attempted, by means of the

curve of the needle, to be drawn over the eye, which, by a firm pressure on it with the moistened fingers of the other hand, is attempted to be pushed inward, and rather upward. In a great many cases this will be accomplished much more easily than would be deemed possible. If the practitioner does not succeed with the upper lid, let him try the lower one; but let him not torture the animal too much. The pressure of the needle on the irritated conjunctival membrane causes extreme pain, which the dog plainly enough evinces. If the return of the eye in this way is impracticable, the upper lid may be lifted once more at the centre, for it is there only that it can be got at, and with a pair of scissors, snipped as deeply as possible. This will put an end to the muscular contraction of that lid, and enlarge the aperture, and the eye may now be returned without much difficulty. The eye having regained its place, the divided edges of the lid must be brought together, and retained by two or three stitches, inserted by means of a small straight needle and waxed silk. A great deal of inflammation is apt to follow this last kind of operation. The eye had suffered severely enough before, and will not bear this new irritation. It will, therefore, be a point of duty and humanity to consider, when more than five or six hours have passed since the accident, and the eye cannot be returned by the first method, whether the practitioner should not proceed to the

VII.—EXTIRPATION OF THE EYE.

“ In the present case this is a very easy thing to accomplish. The assistant should press down the lid as much as possible around the eye, and the operator, taking the eye in his left hand, and pulling it slowly but firmly forward, should cut through the nerve and other tissues with one stroke of his scalpel, the division being made as closely as possible to the lids without wounding them. The bleeding will not be considerable, and will be easily checked. The eyelids must be opened, and a little very soft lint introduced into the cavity, not sufficient in quantity to press painfully on the tender parts within, yet enough tolerably to fill the hollow when gorged with blood. A piece of linen, or a cap contrived for the purpose, must then be tied over the eye, and the patient dismissed. On the following day the lint may be removed from the socket, and not in one case in twenty will there be any bleeding. The blemish will be considerably less than if the eye had been forcibly returned, and the sight destroyed.”

My practice is, after removing the eyeball, to put two stitches through the edges of the eyelids, by which means the sunken socket is concealed from view, and there is not the slightest vestige of an unpleasant appearance left.

VIII.—ECZEMA OF THE EYELIDS.

A disease resembling the “ophthalmia tarsi” of the human subject sometimes attacks dogs, particularly in connexion with eczematous mange.

SYMPTOMS.—Minute pustules form at the roots of the eyelashes, on the edges of the lids; the pustules soon break and pour out a discharge, which, drying into crusts, mats the hairs together, and agglutinates the lids. The ulcerative action extends deeper and deeper, destroying the hair-bulbs, and leading to loss of the eyelashes.

TREATMENT.—The treatment, to be effectual, should be resorted to early. The eyes should be carefully washed night and morning to prevent accumulation of scabs, and to enable the local application to reach the diseased surface. For the latter purpose, it is also advisable to clip the eyelashes off, close to the lids. A soft sponge wrung out of warm water is the best means of softening the adherent crusts, which can then be easily removed. An ointment composed of five grains of *Mercurius corrosivus*, first decimal trituration, and one ounce of simple cerate, will be found highly efficacious, and it should be thoroughly applied, after each cleansing of the lids, with a camel’s-hair pencil. At the same time, one drop of the sixth dilution of *Merc. cor.* should be given night and morning.

IX.—WATERY EYE.

Watering of the eye is a frequent symptom when the mucous membrane of the eye is inflamed. The mechanism for the conveyance of tears from the eye into the nose is obstructed by slight inflammatory thickening, or by accumulation of mucus, or by slight displacement; and the consequence is, that the tears flow over the cheek, more or less profusely.

This symptom ceases when the inflammation subsides, under treatment already given.

Some dogs, as the Blenheim spaniel, have a watery state of the eye as a constitutional peculiarity. Of course, in such a case, nothing but injury and pain can result from the use of astringent washes.

The general health should be attended to by means of proper diet, ventilation, cleanliness, etc., in those cases which are non-congenital, and independent of disease of the eye itself.

X.—FISTULA LACRYMALIS.

This means a fistulous opening at the inner corner of the eye, communicating with the lacrymal sac. It begins with more or less obstruction of the

nasal duct, which conveys the tears from the eye to the nose; this obstruction often depends on thickening of the mucous membrane lining the canal. The consequence of this obstruction is that the tears run over the cheek, and that some of the tears accumulate in the sac, forming a small tumour, called *mucocele*. When this swelling is pressed upon, tears and mucus can be squeezed upwards into the eye, or, if the obstruction in the duct is only partial, downwards into the nose. The mucocele is seated below the inner angle of the eye, and alternately disappears and re-appears. The accumulation of mucus and tears in the sac is followed by inflammation and suppuration; an abscess is formed, which bursts externally, and leaves a fistulous opening through which the tears escape from the sac on to the cheek.

TREATMENT.—The medicine most likely to be beneficial in this disease is *Petroleum*. One drop of the first dilution night and morning.

A solution* of *Merc. cor.* should be injected into the sinus twice a-day, the matter having been previously squeezed out.

* See Appendix.

CHAPTER VIII.

DISEASES OF THE EAR.

I.—OTITIS.

Inflammation of the ear is a painful disease to which dogs are sometimes liable.

SYMPTOMS.—It may be known by the dog shaking his head and holding it on one side. There is much pain and tenderness when the affected ear is pressed upon during the necessary examination. The flap, also, is tender and swollen. There is a discharge, at first serous and scanty, afterwards purulent and copious, from the ear. The inflammation is probably limited to the external passage, and as far as can be ascertained does not involve the inner ear.

When the discharge continues, the disease called "internal canker" is established. This is, in point of fact, "otorrhœa," symptomatic of chronic inflammation of the parts lining the external passage of the ear.

TREATMENT.—*Aconitum* is indicated at the be-

ginning of the disease, when there is some feverishness, hot, red, and swollen passage, etc.

The subsequent treatment is that of the so-called "Internal Canker."

II.—CANKER OF THE EARS.

There is a disease commonly called "canker within the ear," and another called "canker without the ear." The former consists of chronic inflammation of the membrane lining the passage of the ear. Water-dogs are prone to be affected, and in treating them it is important not to expose them afresh to the exciting cause—damp and cold. But the disease is not confined to them, for it attacks those dogs that are fed on a flesh diet, or have little exercise, or that are pent up in a dirty place. It oftener attacks long-haired than short-haired dogs, and is always more severe and obdurate in the former than in the latter. A gross state of the system strongly predisposes to canker. Canker sometimes follows the disappearance of the eruption of mange; and after having been once cured is apt to return, unless great care be taken as to diet, exercise, etc.

SYMPTOMS.—Soon after internal canker begins, the dog is observed to be frequently or constantly shaking his head with considerable violence. This

alone is a symptom that ought to strike the observer as indicating something amiss about the ear; it often, if not always, precedes the appearance of diseased action; so that when the dog is found to be frequently shaking his head, even in the absence of local disease, a good guess may be made as to what disease will shortly appear. The dog also frequently rubs and scratches his ears with his paw, and carries his head rather inclined to one side. On examining the ear, the membrane lining the passage is found reddened and inflamed; there is also some enlargement of the folds of the skin. At a later period, there is considerable pain where the flap of the ear is attached to the skull, and an accumulation of an offensive reddish or blackish discharge in the hollow of the ear. The parts are hot and generally thickened. The dogs thus affected appear to be temporarily deaf.

External Canker sometimes follows the internal. The constant shaking of the head and flapping and scratching of the ear causes irritation, which is followed by canker of the flap of the ear. In the first instance, there is merely a sore around the border of the ear; this sore receives great irritation from scratching, etc., and then the parts take on an unhealthy ulcerative action, which attacks the cartilage of the ear and extends in every direction. There is a considerable discharge of offensive matter from the ulcerated surface.

In some cases, these symptoms of external canker

are preceded by thickening of the edges of the ear, on which is found a scurfy eruption. There are likewise some pain and much itching. Under the irritation caused by rubbing to relieve the pain and itching, the parts become sore and ulcerated, and even cankerous. Mange may either precede or accompany this condition of the ears.

In inveterate cases of canker, or in those which attack a dog weakened by ill-usage or by bad food, or in those that are aggravated by the use of severe caustic applications, it is usual for the inside and outside of one ear, or of both, to be affected at the same time. Under the drain of puriform matter, or the irritation of pain, the dog may sink from exhaustion.

When internal canker is neglected, or badly treated, the small bodies seen at the bottom of the meatus gradually acquire a considerable size, and block up the canal more or less completely. They are polypi.

TREATMENT.—The treatment of the internal form of canker necessarily varies according to the stage of the disease. At first, when the part is simply inflamed—red, painful, and slightly swollen, a dose of *Aconitum** should be given four times a-day, and continued until the subsidence of these symptoms. No local applications should be applied.

When the disease has gone a step further—that is, when there is a reddish or blackish discharge in

* For the dose, etc., consult the "Introductory Remarks."

the ear, probably indicating extension of the inflammation to the cuticle of the ear and to the ceruminous glands, then the ear must be thoroughly fomented, and the accumulation must be removed by gently injecting lukewarm water into the ear by means of a caoutchouc syringe. The injection should be used as often as may be necessary; the parts wetted being afterwards thoroughly dried. Preparatory to these local measures, removal of the hair from the flap is advisable. If, after the removal of the discharge, the passage be found red and painful, *Aconitum* should be given as directed above. Should the discharge continue, or should the disease go on to ulceration, with secretion of pus, the injections of lukewarm water should still be resorted to, for the threefold purpose of relieving pain by the application of warmth, removing secretion which is apt to become offensive if allowed to remain, and securing cleanliness. In addition, *Calendula lotion** should be used after each injection, and it should be first warmed, because the inflamed ear is extremely sensitive to impressions of heat or cold. To quote from Youatt, "two persons will be required to accomplish the operation (that of applying the lotion). The surgeon must hold the muzzle of the dog with one hand, and have the root of the ear in the hollow of the other, and between the first finger and the thumb. The assistant must then pour the liquid into the

* See Appendix.

ear; half a teaspoonful will usually be sufficient. The surgeon, without quitting the dog, will then close the ear, and mould it gently until the liquid has insinuated itself as deeply as possible into the passages of the ear." Unless these directions are fully carried into effect, the application will not reach the diseased part, and will consequently have no good effect. At the same time, the dog should have one grain of *Merc. sol.*, first trituration, night and morning. In the majority of cases, this treatment will prove successful.

A few exceptional cases, however, will probably resist this treatment, either because the disease is unusually stubborn in consequence of some constitutional depravity, or because it has been neglected in the more remediable stage. When there is extensive ulceration, with copious secretion of pus and a tendency to fungoid growth, *Hydrastis Infusion** is invaluable. The mode in which it should be applied has been already described. In this stage, *Arsenicum*—a dose three times a-day, and continued for several days—is of great service in setting up a more healthy local action by improving the impaired tone of the general system. Other indications for its use are, the co-existence of disease of the flap, whether mangy, scurfy, or cankerous, and loss of appetite and of flesh.

Should the morbid growths which are sometimes found in the more advanced stage of the disease

* See Appendix.

be sufficiently large to admit of being removed, the polypus forceps should be applied to the base of each, and then the local application will more effectually reach the diseased part.

In external canker,—that involving the flaps of the ear,—the same internal and external remedies just recommended are equally efficacious in the respective stages of inflammation and ulceration. Internal and external canker are probably two forms of the same disease, but presenting different symptoms from the difference in the structure of the parts attacked by each. As the latter generally follows the former form in consequence of the dog shaking and irritating his ears, the cure of the one will of course aid in the spontaneous disappearance of the other; whilst the remedies employed will have a curative effect on the disease as a whole, when the two forms co-exist in the same animal. There was a time when sportsmen and knowing ones undertook, in blissful ignorance, to cure external canker by the summary process of “rounding” the dog’s ears—that is, cutting off the diseased border, and thereby making the flap smaller. The ear thus maimed becomes as bad as, nay worse than, ever; for the ulceration returns in the cicatrix, and is found more difficult to cure than the original state. The knife is again plied, with the same results—greater deformity, greater cruelty—and then the dog is killed as incurable. The recurrence of the disease proves that it does

not altogether depend on local morbid action, but on a constitutional cause that must be removed before a cure can be effected. Or, the disease of the flap may be re-excited by the contiguity of canker in the passage of the ear.

An important auxiliary in the treatment of canker is *rest*. The ears, and especially the flaps of them, must be kept still; otherwise the constant fretting of the parts by movement and rubbing will keep up the disease in spite of all purely medicinal treatment. A cap should be put on the dog's head; and the cap can be made by following Youatt's direction. "A piece of strong calico must be procured, six or eight inches in width, and sufficiently long to reach round the head and meet under the jaw. Along each side of it must be a running piece of tape, and a shorter piece sewed at the centre of each of the ends. By means of these, the cap may be tightly drawn over the head, above the eyes, and likewise round the neck behind the ears, so as perfectly to confine them."

Food, etc.—The diet also requires attending to. At first no animal food must be allowed, only vegetables. When the dog is very low and reduced in flesh by the discharge it is necessary to reverse this rule.

III.—POLYPUS.

There is an excellent paper on this subject, by Dr Mercer, in the "Veterinarian" for 1844. As the subject is very fully treated of, and contains all that is at present known of practical importance, I cannot do better than transcribe the greatest part of the contribution to these pages.

"Polypoid tumours, as they are usually seen within the external meatus, may be the result of a morbid action in three situations: the first may arise from chronic inflammation of any of the tissues which enter into the formation of the meatus; the second may be connected with a similar state of the membrana tympani; and the third may be the result of chronic inflammation of the lining membrane of the walls of the tympanum, the cavity of which they first completely occupy, and afterwards, extending themselves along the external meatus, ultimately make their appearance at the entrance of this tube.

"Polypi produced from the tissues of the meatus may be divided into two kinds:—

"First, The soft vascular and bleeding polypus, usually produced from the fibro-cartilaginous structure of the outer half of the tube; and, secondly, the hard and cartilaginous polypus or excrescence produced from the lining membrane of its inner half.

“As to the first of these forms of polypi, the hæmatoid, that arise from the external soft structure of the tube, they may be situated in any part of its parietes, but most commonly at its superior and posterior surface. In form they are generally pedunculated; their surface is rough, irregular, and glistening, in consequence of being covered with a thin layer of mucus, which is often tinged with blood, especially when any degree of violence has been applied to the external ear, and which has also been exerted upon the tumour. When the tumour becomes protruded externally, it has a blood-red and pulpy appearance, and its sensibility is so great that any manipulation of the concha, so as to investigate the condition of the external meatus, is attended with great pain, and is also often followed with considerable hæmorrhage.

“The second variety of polypus growth, the chondromatous, is that which is produced from the lining membrane of the inner half of the tube, the dermo-periosteum, and in its structure it differs somewhat from the former; it is more dense, and almost cartilaginous, and usually having a broad and more sessile base, occupies a greater extent of the parietes of the tube. Its surface is comparatively smooth, pale, and almost insensible to the touch; but according to the extent of the ulcerative process behind and within it, so will the nature and properties of the discharge be with which it is accompanied.

“ Both these species of polypus of the meatus, the hæmatoid and chondromatous, are most commonly connected with, and accompanied by, ulceration of the softer tissues, or caries of the auditory process. These excrescences are usually situated externally to the seat of ulceration, being produced from the vascular margin of the ulcer; and so long as they are permitted to remain, the latter morbid condition, the canker of the ear, will be kept up for an indefinite period; hence, should the animal be of any value, it becomes a matter of considerable importance to arrive at an accurate diagnosis of the actual conditions of the diseased parts. The symptoms, therefore, which attend the existence of polypoid growths of the external meatus are very similar to those that indicate the chronic form of ‘internal canker of the ear.’ These are also preceded by those of general pyrexia, which usher in the local disease, such as general languor and lassitude, loss of appetite, considerable thirst, turning out of the coat, and balling of the fæces. As these constitutional and general symptoms diminish in severity, then those characteristic of the local disease become gradually and more manifestly evinced. The animal has a dull, heavy, and rather watery eye; he moans or whines at intervals; and if his master be present he feels a pleasure, a confidence, and a relief in pressing and rubbing his aching ear against any part of his master’s body. Under other circumstances he presses it and harrows it against the

ground so as to obtain a slight relief, and then with an instinctive feeling he flaps his ears and shakes his head rapidly and repeatedly, so as to keep up the pleasurable relief he thus obtains. Should the symptoms be not so severe as those which I have now mentioned, the animal may still be suspected, at a glance, to be labouring under acute disease of the ear by his running about with little intermission, his mouth open, and tongue protruded and panting, and with a stupid sensibility, shaking his head, and pointing the affected ear to the ground. These symptoms, however, are most commonly allowed to pass unheeded, and in a few days a partial relief is obtained to the animal by the sudden and profuse discharge of a quantity of foetid pus. From this time the general and constitutional symptoms disappear, and those indicative of the local affection are alone predominant. The local discharge of pus, or pus and blood, becomes daily more and more foetid, in consequence of the extension of the disease to the bony tissue of the meatus, and the poor animal is thrust aside as an object of loathing and disgust. Should the dog, in the earlier stage of the disease, be muzzled and cast, and an inspection of the meatus be had recourse to, then there will either be found a phlegmonous abscess of the cellulo-fibrous structure of the meatus, circumscribed dermo-periostitis of the inner part of the tube, with caries of the osseous portion, or internal muco-tympanitis, with perfora-

tion of the membrana tympani, and evacuation of the matter along the external canal.

“ In that form of the disease to which I specially refer, where a polypoid excrescence follows and accompanies the ulceration or caries, if a period of three weeks or a month be allowed to elapse between the first exhibition of the discharge and the examination of the meatus, it may be found that the vegetation has attained a considerable size, and the discharge has become more and more profuse and bloody. The extent of bloody discharge, and its foetidity, will much depend on the nature of the tumour, and the original tissue of the meatus that may be affected. If there is much blood mixed up with the discharge, then in all likelihood there will exist a soft and vascular polypus, produced from the more vital fibro-cartilagenous structures of the meatus; and should the smell be excessive, and the discharge little tinged with blood, then the original disease will be found to exist in the osseous portion of the tube, and the polypus, if it does exist, will be of the chondromatous or cartilagenous kind.”

TREATMENT.—The growths should be removed by operation, and any disease of the meatus that may co-exist should be treated as for internal canker.

IV.—DEAFNESS.

Some dogs are deaf from their birth; others are so from some hereditary defect. This remark applies more especially to the white rough-haired terrier.

Sometimes the external canal for the passage of sound is bunged up with morbid growths. Hearing is then more or less impaired in consequence of the obstruction interfering with the transmission of sound. Hearing, of course, returns when this obstruction is removed.

In bad cases of canker, the auditory passage is filled with a mass of morbid growth, which effectually prevents hearing, and which returns if excised, until the channel becomes obliterated.

The other causes of deafness in dogs are unknown. Only those cases of deafness are curable that depend on a removable cause.

V.—SCURFY EARS.

Spaniels, in particular, are troubled with a mangy kind of eruption round the edges of the ear. The hair falls off, and there are heat and scaliness of the skin. This disorder may, but rarely does, run on to canker.

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Pointers and hounds are affected with a complaint which begins in a somewhat similar manner, but which assumes a more severe character, and is apt to terminate in true canker.

When mange, affecting the back, or feet, or any other part of the surface, suddenly disappears, or is repelled by outward applications, it is not uncommon to find one or both ears becoming inflamed, thickened, and scurfy.

TREATMENT.—When scurfy ears are found in association with a mangy state of the skin generally, the treatment should be directed to the major disease, according to directions laid down under “Eczema” and “Mange.” When mange does not co-exist, one dose of *Arsenicum** should be given thrice a-day, for several days, followed, if necessary, by *Sulphur*, in the same way.

VI.—SEROUS SWELLING.

There is sometimes a collection of bloody serum between the skin and cartilage of the ear, extending the entire length of the flap from tip to base. The fluid is enclosed within a membranous sac. The swelling is caused by constantly flapping the head, and sometimes it is found in association with canker. The swellings are hot and soft to the touch, and more or less tender.

* For the dose, etc., see “Introductory Remarks.”

TREATMENT.—The treatment is to slit up the sac from one end to the other, and when the fluid has all run out, to insert between the edges of the incision a dossel of lint soaked in *Calendula lotion*.* The suppurative process will soon be established, and the walls of the sac will gradually coalesce and become adherent.

* See Appendix.

CHAPTER IX.

DISEASES OF THE MILK GLAND.

I.—INFLAMMATION.

When the gland that secretes milk is injured by a blow, or any other mode of external injury, or exposed to cold or damp, inflammation is apt to ensue; the same result may be connected with the secretion of milk.

SYMPTOMS.—There are symptoms of general febrile disturbance, attended with pain and swelling in the part; and, if during the suckling period, with diminution and arrest of the secretion. In favourable cases, these symptoms subside, and the gland returns to its natural state; but matter generally forms and an abscess is established. The matter comes to the surface and points slowly; and is more liable to pervade a considerable portion of the gland than to be circumscribed.

TREATMENT.—*Aconitum** and *Belladonna* should

* For the dose of these medicines, consult the "Introductory Remarks."

be given alternately when there is febrile disturbance ; when the part is hard, knotted, tender, and hot ; and when the secretion of milk is arrested.

Mercurius should be given instead of the last two medicines when they fail to arrest the progress of the disease.

Hepar sulphuris, or *Silicea*, is indicated when the inflammation goes on to the formation of abscess.

Fomentations are useful in assuaging pain, and poultices of linseed meal should be used to bring the matter to the surface.

II.—LACTEAL TUMOUR.

It sometimes happens that the milk ducts are not thoroughly emptied of their contents in consequence of obstruction of their orifices on the surface of the teat. This accumulation of milk, acts in part as a foreign body, setting up irritation and inflammation, followed by change of structure ; the chemical decomposition which the retained milk undergoes is also a factor in the production of these morbid processes. After pupping, the glands swell and milk is secreted ; but one of the teats may become dammed up, and the above disorder will follow. The same thing may happen when the milk of a bitch suckling is dried up too soon, or too

quickly, especially if certain external applications be used to attempt the dispersion of the milk. Milk is also secreted to some extent independently of conception or parturition, particularly in high bred animals. Whether the animal has had, or has not had pups, the secretion of milk and the consequent enlargement of the gland take place about nine weeks after oestrus, when parturition would have happened had there been impregnation. Unless the glands are examined, and, if necessary, evacuated of their contents, at this period, unpleasant consequences are apt to come on.

SYMPTOMS.—Lacteal tumours are small, round, movable, deeply-seated, hard, painless bodies, which make their appearance in different parts of the gland. The swellings gradually advance, and may attain an enormous size, causing the animal much annoyance, and looking unsightly. These tumours are essentially of a benignant character, and consist of hypertrophy of the proper gland tissue. But as they are prone to take on an unhealthy ulceration, and even to degenerate into a cancerous state, no time should be lost in resorting to proper treatment. At an early stage they are small, and can be removed, if removal is deemed expedient, without much pain or difficulty. When the growths are large, it is obvious that they are exposed to external injury—liable to be hurt by blows, by the legs, by the ground. They often remain stationary after having grown to a certain extent, but

the morbid process is apt to be lighted up afresh by any cause of irritation; the part inflames and breaks, leaving an ulcer which discharges an ichorous bloody fluid.

TREATMENT.—The medicines most likely to disperse these tumours are *Belladonna*,* when they are connected with the secretion of milk; *Mercurius*, when they are the products of chronic inflammation; and *Iodium*, should these two remedies produce little or no reduction in their size. After having used these medicines for some time, it is possible that the tumours may remain in *statu quo*, in which case a surgical operation may be performed, if this step be deemed advisable.

III.—CYSTIC TUMOURS.

These consist of sacs, or bags, filled with certain contents, produced by secretion or growth from the lining membrane. The dilatation of a lacteal duct from accumulation of milk, as described under Lacteal Tumour, may give rise to a cystic tumour.

SYMPTOMS.—The contents of the sac are variable; generally transparent, thick, and glairy. There may be only one sac, or several; in the latter case, one or more secondary sacs grow out of, or upon the parent

* For the doses, etc., of these medicines, consult the "Introductory Remarks."

sac, until the whole tumour becomes enormously large. The walls of the sac are sometimes of cartilaginous density. Osseous deposits have been met with in such growths. They are painless, smooth, soft, well-defined swellings; lobulated when multiple; tensely filled with fluid; yielding to the touch, and covered with healthy skin. When the walls of the sac are dense, the softness of the tumour is, of course, less distinctly marked than usual. When the sac is injured by being dragged along the ground, etc., it ulcerates, and the ulceration may degenerate into a cancerous state.

TREATMENT.—Tapping and injecting iodine may cure a single cystic tumour; but a multiple tumour, the cysts of which do not communicate, cannot be successfully cured in this way, and the only alternative is a surgical operation.

IV.—CANCER.

Cancer is sometimes met with in canine practice, although not so frequently as is sometimes thought. It is a common mistake to assume that every tumour of the milk-gland, or of the teat, is true cancer; but it is true that, under peculiar circumstances, lacteal and cystic tumours, and the enlargement of chronic inflammation, may assume all the characters of a malignant growth.

SYMPTOMS.—At first, the tumour is small, knotted, hard, and irregular in outline; subsequently, after growing considerably, it becomes attached to the skin. The skin inflames and ulcerates, and open cancer is established. There is much pain, and an ichorous or sanious discharge. The edges of the ulcer are irregular, excavated, red or purple. The stench is intolerable, and death follows from exhaustion.

TREATMENT.—In the early stage, when the tumour is small and unattached to the skin, and when the constitutional powers are good, the extirpation of the tumours by the knife, whilst the animal is under the influence of chloroform, may be resorted to for the purpose of relieving pain and prolonging life. An operation cannot remove the disease, but it can remove the tumour, which causes much suffering; the knife is, therefore, merely palliative in its effect. Still, the disease, even then, is likely to return at a period more or less remote. The most humane course, in advanced cases, is to give a dose of prussic acid.

Hydrastis, internally and externally, may probably prove of service in relieving pain and arresting growth.

CHAPTER X.

DISEASES OF THE NERVOUS SYSTEM.

I.—CONCUSSION OF THE BRAIN.

An instance of this lesion is narrated in the fifth volume of the "Veterinary Record," from which the following extract of symptoms is drawn.

The animal fell from the upper floor of a house, down a well-staircase, into the hall, and when picked up was first supposed to be dead, as all power of motion was destroyed, and blood was escaping from both eyes and nostrils. The head was much enlarged from blood extravasated beneath the scalp; the pupils were dilated, vision lost, and there was total unconsciousness, although a painful whining noise was made. Pricking the skin produced no indication of pain being felt. There were occasional spasmodic contractions of the limbs, but no voluntary movement. The heart's action was slow and indistinct; the respiration stertorous.

Neither by external manipulation, nor by making an incision through the scalp down to the bone, could any fracture with depression be found. The animal made a good recovery.

The only thing to be apprehended *after* concussion is inflammation of the brain. One dose of *Belladonna** every four hours would lessen the probability of such a result; and if febrile excitement should come on, *Aconitum* may be given alternately with it every two hours. *Arnica* is also a valuable remedy in some cases. The animal should be kept quiet and free from excitement.

II.—COMPRESSION OF THE BRAIN.

Compression may arise from fracture of the skull with depression of the broken bone; from extravasation of blood on the membranes of the brain, or into the substance of the brain itself; from morbid growths, etc.

SYMPTOMS.—The symptoms of compression vary in severity with the cause; but there is always, in a fully-developed case, complete loss of consciousness, suspension of the special functions, loss of muscular power, etc. The dog is, of course, unable to stand up, and utters occasional moans.

In addition to these characteristic symptoms, there is a wound of the scalp and effusion of blood

* For the dose, etc., see "Introductory Remarks."

under the skin, when compression is due to fracture of the skull. A case is recorded of a dog sustaining fracture of the parietal bone with depression, from a quoit falling on the head. Symptoms of compression came on. The depressed bone was raised, and the animal recovered.

TREATMENT.—In compression from morbid growth, no treatment can be put in force. When it depends on extravasation of blood, the treatment advised for apoplexy should be resorted to; and if, on careful examination, it be clear that there is fracture with depression, the only rational treatment is to cut down upon and raise the depressed bone. The after-treatment consists in keeping the patient quiet, and on a low diet, and in giving *Aconitum* and *Belladonna* in alternate doses every two hours.

III.—CONGENITAL HYDROCEPHALUS.

An interesting instance of this uncommon disease is described in the "Veterinary Record," Vol. III., page 148. The dog was a French poodle, three months old. He was found lying on his side, making unsuccessful efforts to get on his feet, and in his attempts striking his head against the ground. When placed on his legs he ran about with his head down, his legs crossed, and his gait unsteady until he dropped down. These symptoms

were ascertained to have existed since birth, and they had gradually increased in severity. Three other puppies of the same mother were affected in the same way, but in a less severe degree. The dog ground his teeth, and had a voracious appetite. Subsequently he became worse, but the senses of smell, sight, hearing, and feeling were not affected. No unusual heat of head, nor enlargement, nor yielding of the bones on pressure, could be detected; but the pulse was slow, the bowels costive, the head drooped, and the eyes rolled upwards when the head was raised.

The symptoms and history indicated a congenital inherited disease, affecting the cerebellum more than the cerebrum.

The description of the post-mortem appearances is highly unsatisfactory. There were in the "cranial cavity" about two ounces of straw-coloured serum, "general inflammation of the meninges of the brain, and a peculiar state of the inner surface of the brain"—whatever this "peculiar state" may mean. A more careful and minute account of what was *seen* would have given additional value to a case of great pathological interest.

IV.—APOPLECTIC FITS.

These fits are due to pressure on the brain by distended bloodvessels, or by effusion of blood, or

of serum. They specially seize dogs that are confined or over-fed.

SYMPTOMS.—The symptoms of the attack are, that the dog is almost, or wholly insensible, lying motionless, and breathing heavily and noisily. The eye is fixed and suffused with blood; there is no foaming at the mouth. In some cases death is instantaneous; and, of those that are not so, the majority are fatal under any treatment whatever.

TREATMENT.—The medicines most likely to do good are *Aconitum* and *Belladonna*, given in doses of one pilule every half hour alternately, commencing with the former. *Opium*, in the same way, is indicated when the breathing is loud and heavy, and the insensibility profound.

V.—MENINGITIS.

(BY M. LEBLANC.)*

A dog, aged three years, was very subject to epileptic fits. After a considerable period the fits would cease. I have often seen these fits cease with the complete evolution of the adult teeth. The last fit was a very strong one, and was followed by peculiar symptoms. The animal became dispirited; the eyes lost their usual lively appearance, and the eyelids were often closed. The dog

* "Veterinarian" of 1843.

became very drowsy ; and, during sleep, there were observed, from time to time, spasmodic movements, principally of the muscles of the head and chest. He always lay down on the left side. When he walked he had a marked propensity to turn to the left. The animal was placed under my care.

I employed purgatives, a seton in the back part of the neck, and the application of the cautery to the left side of the forehead ; but nothing would stop the progress of the disease, and the dog died in the course of two months after the last epileptic fit. During his abode in my establishment he had the run of the garden when it was fine weather.

From the drowsiness that he had when he was shut up, he almost always recovered himself when he had his liberty, and especially while his strength remained. He was constantly in motion, and perpetually walking up and down from right to left. This terminated by falling from mere weariness ; but he presently rose again and recommenced his travels, and always with a quick pace. Latterly he began to take a circular course, instead of following that of the walks which were rectangular. He then traversed the squares, totally regardless of, or not seeing, the obstacles that were in his way.

When he was stopped by some obstacle, he at first endeavoured to make it give way ; but if it resisted his efforts in a circular direction he turned aside, but always towards the left. The nearer he

approached his end, the smaller were the circles that he took ; and, in the latter period of his existence, he did little more than turn, as he would on a pivot. When the time arrived that he could walk no more he used to lay himself down on his left side, or, if we put him on the right side, he turned his head always to the left.

During the whole of the case I did not observe any very evident sign of palsy. For a considerable period he had eaten with appetite ; but nevertheless he grew thin from day to day, although he was too well fed by the owners, who continually crammed him with food, notwithstanding my efforts to prevent it.

At the post-mortem examination I found a remarkable thickness of the meninges on almost the whole of the left lobe of the brain.

The dura mater, the two leaves of the arachnoid membrane, and the pia mater, did not constitute more than one membrane of the usual thickness, and presented a somewhat yellow colouring. The cerebral substance of the left lobe appeared to be a little firmer than that of the right lobe.

The scissures of the cerebral circumvolutions were here much less deep than those of the other side. The red vessels which ran in the scissures were of smaller size, and, in some places, could scarcely be discovered.

VI.—TURNSTIDE.

The disease termed "Turnside" by some writers, and said to resemble the "gid" in sheep, presents somewhat similar symptoms to the above. The disease is always fatal, and examination after death has shown the existence of hydatids, or of spiculæ of bone projecting from the inner surface of the cranial bones, or of some other organic lesion.

VII.—EPILEPSY.

The dog is more frequently attacked with epilepsy, and indeed with all other nervous diseases, than any other domestic animal, being strongly predisposed thereto in consequence of the excitability of his nervous organization.

The true epileptic seizure may arise from worms, teething, hardened excrement, or some other cause of irritation affecting the nerves distributed to an internal viscus.* The fits may also be caused by disease of the brain, or of the cerebro-spinal system, such as, the inflammation of the brain, or of

* A case of fits, induced by a curious cause, is recorded in the "Veterinary Record," 5th vol. The dog died, and on opening it a *knitted garter* was found extending from the pyloric opening of the stomach downwards along the intestines.

its membranes, which often proves a fatal complication of distemper. In some cases an epileptic fit ushers in distemper, but is not then necessarily fatal, nor does it hurtfully influence the subsequent progress of the distemper. Blows on the head have been known to be followed by occasional attacks of fits. Mental excitement, acting on a dog of nervous temperament, sometimes excites epilepsy. Thus, Youatt records a case of epileptiform fit, provoked by music. Pointers have fits during their work, especially at the moment of the "point." Fear and joy are alike exciting causes. Dogs that are travelling at a quick pace, especially if they are fat and unused to severe or long-sustained exertion, and if the weather be hot, not unfrequently have an attack. Sporting and high-bred dogs are those chiefly affected; and the young and old are equally liable to be seized, although generally speaking the attacks diminish in frequency as the dog increases in age. There is no doubt that epilepsy is hereditary. On this interesting point, Reynal states that he has met with one female and three male dogs that transmitted epilepsy to one or other of their offspring.

SYMPTOMS.—The attack is not ushered in by any particular symptom. The dog is suddenly seized, trembles on his legs, loses his sight; then falls down, struggles for a moment, and tries to recover his feet. Sometimes he succeeds, but generally, after stumbling about, he falls down

again on his side, stupified and insensible. At the moment of seizure a low cry is sometimes uttered. During the attack, the head is in turns stretched out, bent on the neck, and violently struck on the ground; the legs are strongly convulsed, and so is the entire muscular system also, producing the most varied contortions of the body, from the convulsive contraction of the affected muscles. The gums and lips are of a livid colour; the jaws are violently champed and the teeth ground, and sometimes the tongue getting between the teeth, is bruised and lacerated; the mouth is filled with frothy mucus which dribbles from the lips, and which is coloured with blood when the tongue is bitten; the respiration is difficult and embarrassed from the convulsive and unnatural action of the respiratory movements, and it becomes rattling and suffocating from profuse accumulation of mucus in the mouth and fauces. The special senses of hearing, seeing, feeling, etc., are completely suspended during the attack. In about four or five minutes, more or less, those convulsive movements gradually begin to lessen in severity, and the dog's senses slowly return. He opens his eyes, raises his head, looks about him in surprise, and frequently gets up and runs about as if nothing had been amiss. The excretions escape, and in the fæces are sometimes found segments of the tenia, in which case the cause of the epilepsy cannot be uncertain.

The foregoing is the description of a typical attack ; but in some cases the symptoms are different. Thus, under the influence of fright, the legs of the dog become stiffened ; the eyes fixed, protruded, and staring ; the muscles of the face and neck rigid from spasm ; and the animal falls down bereft of all its senses and paralyzed. The fæces and urine are discharged involuntarily. Some dogs after the attack is over immediately recover themselves ; others appear to be in a drunken-like state ; others conceal themselves in some dark or secret place ; whilst others, again, run away from home, and return after awhile with dread and doubt expressed in gait and look. In some cases, complete recovery does not take place until from half an hour to an hour after the beginning of the fit ; in others, the fore legs are so helpless that they are almost palsied.

It is scarcely possible to confound a well-marked attack of epilepsy with any other disease ; but sometimes chorea takes on an epileptiform character, and during the course of distemper dogs are occasionally seized with symptoms analogous to those of epilepsy.

The probability of cure depends on the cause. When epilepsy arises from structural diseases of the nervous centres it is incurable, but it can be cured when it owes its origin to some removable cause, such as worms, etc.

Epileptic attacks vary in frequency. The dog



may have several in the same day; then they cease for a considerable interval, and return as before.

The mental capacity of the dog seems to be impaired by frequent attacks of epilepsy. Reynal states that he has seen several epileptic dogs that had lost their former fondness for their owners, and that had become indifferent to caresses. One dog in particular, that used to be brisk and mettlesome when it heard the slightest noise, became reserved and scarcely barked after having had several epileptic attacks. And Gohier speaks of a dog that had been taught tricks, and that appeared to have forgotten everything, as after recovery it could not or would not perform as before.

Fits of an epileptiform character sometimes seize the bitch when she is suckling too many puppies. These are absurdly called by some writers *puerperal* fits,—a term which is only applicable to the human, and not to the canine disease. They depend on a low and exhausted condition of the system consequent on the excessive drain imposed by the requirements of providing milk to a large progeny. They occur in two classes of cases:—in fancy pet animals, whose natural irritability of constitution is not diminished by the over-feeding and pampering to which they are subjected; and in those that are sacrificed to secure a large litter to the owner, and are not sufficiently supported under the large demands made upon them by their

young. For some time the mother goes on "as well as can be expected," or she becomes gradually weak and thin. Suddenly, she staggers, falls, and lies in a half-unconscious state. The convulsions which ensue are either confined at first or exclusively to the respiratory muscles, the breathing being panting and laboured; or, in the most severe cases, they involve the whole body. The fit lasts from five to ten minutes, and may prove fatal at once; or death supervenes after repeated attacks of the convulsions, which follow each other rapidly.

TREATMENT.—The treatment of epilepsy should begin with the removal of its ascertained cause. The fit usually ceases of itself, or restoration to consciousness may be aided by the use of a warm bath, at a temperature of 94° F., and by dashing cold water on the patient's body. Then the recurrence of the attacks must be prevented, if possible. If the fits are due to over-suckling, all the puppies, except one or two, according to the stamina of the nurse, should be taken away, and food of a nutritious kind offered, or, if necessary, given. A dose of *China*, three times a-day, will assist in the restoration of strength, appetite, and flesh.

If the fits are connected with worms,* or constipation, the treatment must be mainly directed to the removal of these two exciting causes.

* Consult the Chapter on "Parasitic Diseases."

When they occur towards the termination of distemper, or any other disease, and when they are symptomatic of injuries to, or organic diseases of, the brain, they are usually fatal.

If epilepsy occurs in dogs that have been overfed and confined, the diet must be reduced, and moderate exercise allowed.

When caused by the irritation of teething, it may be necessary to lance the gums, and it is always advisable to give *Belladonna*.

It sometimes happens that particular articles of food, such as flesh, disagree with some dogs, and, by exciting stomachic irritation, induce fits. In such a case, the diet must be regulated.

Youatt records the case of a patient, suckling at the time, being thrown into the Serpentine. Under the influence of nervous shock or fright, the milk was suppressed, and fits ensued. This cause of fits can be easily guarded against.

When the attacks have become habitual, it is imperative not only to remove the existing causes, as far as they can be discovered, but also to place the animal under a persevering course of treatment.

The medicines most useful in epilepsy are the following:—*Belladonna** for irritability of the nervous system, with twitching of the muscles, contortion of the face, and convulsive action of

* For the dose, etc., of these medicines, consult the Introductory Remarks.

the muscles of the mouth ; protrusion, redness, and sparkling appearance of the eyes ; rigidity of the body, with the head and body drawn backwards during the actual seizure.

Chamomilla in pups, with derangement of the stomach, and colic, as denoted by vomiting of sour fluid and indications of abdominal pain, preceding the fit.

Nux vomica when the attacks are referable to indigestion, or to constipation.

Arnica is suitable when the fits are the result of a blow on the head.

Argentum nitricum has acted most beneficially in the convulsive seizures which come on during distemper.

Calcarea carbonica, when the fits are connected with teething ; it then appears to expedite the appearance of the teeth, thereby lessening the irritation of the dental nerves.

Cuprum is specially indicated when the attacks are caused by disease of the great nervous centres.

VIII.—TETANUS.

The disease which bears this name is manifested by constant spasms and rigidity of the muscular system.

It is divided into *idiopathic*, when caused by cold, fatigue, and exposure, or by the irritation of an internal organ; and *symptomatic*, when caused by injuries or wounds, especially of the feet. In many cases no satisfactory cause can be assigned. An irritated state of the stomach or bowels strongly predisposes to tetanus; external injuries or cold being the most common excitants. It is probable that these two classes of factors act concurrently in producing the disease.

It is a rare disease in the dog, and, moreover, a very fatal one.

SYMPTOMS.—Tetanus may be either partial or general; in the former case, limited to certain muscles, generally those of the jaw, and then the disease is called "lock-jaw;" in the latter case, involving all the voluntary muscles. It may also affect the muscles of the back solely, the body being bent like a bow, with the head drawn towards the tail; or the muscles of the neck, twisting the head towards the side, and causing the dog to walk sideways, if he can walk at all; or the muscles of the abdomen, bending the body forwards.

The spasms vary in intensity, and, after remitting for a short period, return with greater violence, leaving the dog in a state of great exhaustion.

The usual symptoms are as follows:—There is evident pain and stiffness when the dog moves; the face has a peculiar expression from incipient spasms of the muscles of that region; some part of the body is more or less distorted, according to the particular set of muscles acted on by the spasmodic action; the eyes are moved in a peculiar spasmodic manner. During the actual spasm the dog cannot stand and lies down; the legs are stiff, immovable, and extended; the affected muscles are hard, rigid, and firmly contracted; the limbs are convulsively twitched; the animal can be lifted up “all of a piece;” the mouth is filled with froth, because swallowing is impossible; the dog gives utterance to continual hoarse cries or howls; and the pulse is accelerated. These symptoms gradually abate, but other paroxysms come on, unless relief be given. The dog retains consciousness throughout, showing that the brain is not affected.

It must not be forgotten that symptoms closely resembling, if not identical with the above, are produced by *nux vomica*, and by its active principle, *strychnia*. The rarity of true tetanus might justly give rise to a suspicion of accidental or malicious poisoning.

TREATMENT.—*Arnica*,* when the tetanus is the result of a wound or other injury. The lotion† should be applied topically if the injury be recent.

Aconitum is likewise suitable in traumatic tetanus, especially lock-jaw; and when the spasms and general symptoms are of a severe character. It will generally be necessary to give these two medicines alternately.

Nux vomica, when the spasms bend the body backwards, and the entire muscular system is in a state of rigid spasm, the spasms being evidently excited anew by noise and touch.

Belladonna is specially indicated when the spasms twist the body to one side; and involve the respiratory muscles, thereby causing difficult and embarrassed breathing.

There are other medicines which have been found of service in this violent disease, such as *Acidum hydrocyanicum*, *Strychnine*, etc.; but the above are the best for ordinary cases.

When the jaws are locked, the medicines should be given in the form of pilules.

Food, etc.—Beef-tea should be given from time to time, and all noise, etc., avoided. When the jaws are firmly locked, it will be necessary to throw beef-tea, etc., up the rectum.

* For the dose, etc., of these medicines, consult the "Introductory Remarks."

† See Appendix.

IX.—CHOREA—ST VITUS'S DANCE.

Chorea is characterized by involuntary, tremulous, and irregular motions or twitchings of those muscles which, in the healthy state, are under the influence of the will. One or several groups of muscles may be thus affected. There are several *causes* which predispose dogs to this disease. It is most frequent in young dogs, although it may, in rare cases, appear at a more advanced age. Debility, arising from want of food, previous illness, or any other cause that induces constitutional weakness; close confinement or overcrowding; and inherited peculiarities of temperament or constitution, may be reckoned amongst the predisposing causes.

The exciting causes are less obscure. Worms, disordered states of the digestive organs, and accumulations of vitiated intestinal secretions, are probably the most frequent. Injuries to some part of the nervous system, such as blows on the head, may excite chorea. By far the most common, however, is a previous attack of distemper. Its occurrence has no relation to the severity of the distemper, as it may come on after a mild attack. It may occur either as a complication, or as a consequence of distemper.

The nature and seat of chorea are undecided points. Its occurrence in youth, and in connexion with debility and distemper, lends countenance to

the probability that the first condition is depression and excitability of the nervous system—two states which favour the production of irregular muscular action, under the unhealthy stimulus of excentric irritation, such as worms, etc. There are other cases in which the brain, or the cerebro-spinal system, is alone involved. In one case, Youatt found spiculæ of bone projecting from the parietal bone, and so keeping up meningeal irritation. It often happens, however, that no structural change can be discovered in any part of the nervous system; or, indeed, in any part of the body.

SYMPTOMS.—The spasmodic movements of chorea are either partial or general; usually the former. One leg or shoulder is jerked in an irregular way at fixed intervals. For a longer or shorter period, the disordered movements affect only one limb, or both legs are affected alike; in which case, when the dog is standing, the head and shoulders are bobbed down at each movement. Sometimes the hind-legs only are attacked; or the entire body; or the muscles of the eyelids, or those of the face. These characteristic appearances vary not only in extent, but in degree, from simple catching, up to unceasing and exhausting motions, which the animal has no power to prevent or diminish. They continue either in the upright, or the lying position; and if they cease during sleep, the sleep is disturbed and unrefreshing. In many cases, sleep does not affect the continuance of these movements. The

dog expresses, by moans and cries, the distress felt from his tormenting sufferings. Absolute repose is unknown to him from first to last. His temper gets irritable, especially in severe and prolonged cases; and he becomes thin and weak. In some cases, the general health is unimpaired; in others, broken down by want of rest and undue expenditure of nervous force. In some cases, the above state continues without abatement; in others, the spasmodic movements become less severe or extensive, and recovery appears at hand, but he presently relapses into his old state under the excitement of mental emotion, or a new disease. In addition to the foregoing symptoms, there may be found as precursors, or accompaniments, certain indications which point out disturbance of the digestive functions: such as, variable appetite, costive bowels, tumid abdomen, foul tongue, etc. The presence of worms should be inquired into. Chorea may terminate in true convulsions, fits, or paralysis agitans. In the latter case, the movements resemble those of chorea, but they continue invariable during sleep, are of a tremulous character, affect the whole system of voluntary muscles, and are aggravated by whatever excites alarm or fear. In chorea, the dog is quite conscious, and his power of volition remains good. The choreic movements do not occur in paroxysms; and the muscles which are affected with unnatural and unsteady movements are still under the influence, but not

under the absolute control of the will. There is no febrile excitement whatever.

TREATMENT.—The following remedies are respectively indicated by the subjoined symptoms:—

Nux vomica:* confined bowels, impaired appetite, and the other symptoms of stomachic disorder; trembling or convulsive jerking of the limbs, or of sets of muscles; irritability of temper, etc.

Ignatia: convulsive movements of the limbs, eyes, eyelids, or muscles of the face, aggravated by fright.

Belladonna and *Cuprum aceticum* are sometimes productive of benefit.

Food, etc.—Chorea is one of those diseases that are as much benefited by hygienic means as by purely medicinal remedies. The food must be particularly attended to. Boiled rice, with beef-tea and no solid meat, are the best, as being bland and unirritating to the stomach. Bread-sops and oatmeal gruel may be allowed as a change. Bones are out of the question. The dog's head should be steadied, if necessary, whilst he is eating and drinking; the chief point, however, is to give *small quantities* of the suitable food, unheeding the dog's voracious appetite. A cold douche-bath is often beneficial.

Youatt, in his work on the Dog, gives a case in illustration of the then treatment of chorea. During five months, the unfortunate subject underwent the

* For the dose, etc., refer to the "Introductory Remarks."

usual round of drugging. He had several "strong" emetics, several "strong" doses of salts;* setons were put in, and kept in for several weeks; tonic and distemper-balls were given in profusion. In about four months after this treatment had been going on, the dog was seized with a severe fit. A "physician" urged bleeding; the dog was accordingly bled twice, *secundum artem*; and tonics, emetics, purgatives, and the seton again resorted to afterwards. "After four doses (of salts) had been given, it was impossible to force any more upon him." The poor dog had some common sense in him! He was then sent "into the country." Six months afterwards he was brought back; and the following cruelties were practised on the poor brute: "His owner at length consented that the actual cautery should be applied to his head. The searing-iron for doctoring was used, and applied red-hot to the centre of the head. It was exceedingly difficult so to confine the dog as to make the application effectual without destroying the skin. Under the influence of the sudden violent pain, he wandered about for more than two hours, and then the spasms returned with greater force than usual. He refused all food."

* "He was dreadfully ill after taking the salts; perhaps they were not genuine. For two days he panted sadly; refused his food, and vomited that which was forced upon him. His muzzle was hot; he could scarcely stand; he lost flesh very rapidly."

Whether the salt was genuine or not, these are just the symptoms which attend an over-dose.

“ We determined to try the cautery to its full extent. We chained him up in the morning, and penetrated through the skin with the budding iron. The spasms were dreadfully violent, and he was scarcely able to walk or to stand. This gradually subsided, and then he began to run round and round, and that increased to an extraordinary velocity; he would then lie for a while with every limb in action. The owner then yielded to all our wishes, and he was destroyed with prussic acid.”

Such a catalogue of heartless and cold-blooded cruelty is a disgrace to the profession, and happily unexampled in the annals of veterinary medicine. Verbeyen states that the seton, vesicatories to the head, frictions with turpentine, and cantharides, were not productive of the happiest results in Youatt's hands; that he has tried the seton, but it aggravated the disease; and that counter-irritation generally is either useless or hurtful. Hekmeyer was obliged to remove a seton that he put into a choreic dog. Yet in the face of this overwhelming evidence against the use of the seton, etc., in chorea, “Stonhenge” advises a seton in the neck!

Mayhew orders *Nux vomica* in pill along with potash, hyoscyamus, quassia, and gentian; and speaks of it as “the most important ingredient.” He goes on to say, “*Nux vomica* must be used in very minute doses, to be entirely safe—from a quarter of a grain to a male pup, to two grains to the largest animal. That quantity must be con-

tinued for a week, four pills being given daily; then add a quarter of a grain daily to the four larger pills, and a quarter of a grain every four days to all the smaller ones: keep on increasing the amount, till the physiological effects of the drug, as they are called, become developed. These consist in the beast having that which uninformed people term a 'fit.' He lies upon the ground, uttering rather loud cries, whilst every muscle in his body is in motion. Thus he continues scratching, as if it was his desire to be up and off at a hundred miles an hour. No sooner is he rid of one attack than he has another. He retains his consciousness, but is unable to give any sign of recognition. . . . *I have beheld the physiological effect of nux vomica, but cannot recollect many instances in which I could date amendment from its appearance.*" The italics are mine. What is the use of poisoning the dog with excessive doses of nux vomica, instead of curing his chorea? If this drug be really indicated, as it often is, small doses will cure the disease without running the risk of killing the patient.

X.—PARALYSIS.

Paralysis may affect the entire muscular system, or only certain groups of muscles. The most frequent paralysis is that which involves the hind

legs, and which is more especially met with as a complication, or sequel of distemper.

SYMPTOMS.—The loss of muscular power and the weakness in walking are generally gradual in their development; in some rare cases, however, the dog is suddenly struck with paralysis. Wasting of the affected limbs and general emaciation follow. Paralysis varies from simple muscular weakness, causing tottering and feebleness in walking, up to absolute palsy, and then the dog drags the hind legs after him along the ground. Somewhat similar symptoms attend rheumatism of the muscles of the back—a disease that is sometimes confounded with true paralysis.

TREATMENT.—Begin with *Nux vomica*—one grain of the first cent. trit. night and morning, ceasing at the end of a fortnight, or sooner if twitching of the limbs should appear; and resuming the course two or three days afterwards.

Electricity is an invaluable remedy when the paralysis does not depend on advanced structural disease. A Pulvermacher's chain might be conveniently applied, or worn.

Belladonna, and afterwards *Rhus*, should be administered, if the above means fail.

CHAPTER XI.

DISEASES OF THE SKIN.

I.—ECZEMA.

A disease which closely resembles human eczema is frequently met with in dogs, and, like every other disorder of the skin, is classed under the one general head of "mange."

It is caused by confinement in a close place; want or insufficiency of exercise; food improper in quality or quantity; dirty bedding, etc.

One form is commonly called "surfeit," or "blotch," and is supposed to arise from poor food combined with insufficient exercise, and other similar causes. When fully developed, diseased patches, varying in size and irregularly circular, are observed on different parts of the body. From the surface of these inflamed patches a serous fluid exudes, which presently concretes into scabs, and mats the hair together. In a few days the scabs and hair fall off, leaving the skin bare, inflamed, and moistened with exudation. Thin scales form

from the desiccation of this exudation. There is usually considerable and violent scratching and rubbing from the itchy sensation, in which case the diseased surface is covered with some small clots of blood, the result of slight laceration of the skin.

The so-called "acute mange" is ushered in by febrile symptoms, and is characterized by an erythematous and swollen state of the skin. The swollen, thickened state of the skin depends upon infiltration of serum into the meshes of that structure. Vesicular and pustular eruptions follow, and when these burst, the diseased surface presents the appearance of superficial ulceration.

What is called "foul mange" is an aggravated form of the eczema above described. The skin is thickened, and exudes from its inflamed surface a large quantity of offensive serum or pus, or both; it is also chapped, wrinkled, cracked, and superficially ulcerated. The exudation forms thick yellowish crusts. The hair falls off, partly from constant and vigorous scratching, partly from being detached by the exfoliating scales.

The disease may be localized in certain parts, such as the scrotum, the eyelids, the ears, the feet, etc. When the eyelids are affected, the case assumes all the characters of the ophthalmia tarsi of man, which is a true eczematous eruption. When the disease attacks the ears, it constitutes or introduces the so-called "canker" of that part. When

seated between the toes and at the roots of the nails, the dog is lamed and the part is red, swollen, tender, and moist. Foul ulcerations are apt to follow, especially when the sanitary arrangements are bad, or the general health much impaired.

The puppies of mangy parents almost invariably inherit the same disease. This mange—that is eczema—is not catching. It is distinguished from parasitic mange, or itch, by the absence of the acari. Eczema is apt to return periodically, and as it depends on constitutional causes, its duration may be indefinite and its cure troublesome.

TREATMENT.—*Aconitum* * is indicated for febrile symptoms; itching over the whole body, and especially about the scrotum, etc.; hot and burning skin; small reddish-coloured vesicles, with itching.

Rhus, for redness of the skin over the whole body; swelling of the skin, with an itchy eruption of small, yellowish vesicles, which run into each other and become moist; a scurfy and fissured state of the skin; it is specially suitable when the eruption is situated on the scrotum, the eyelids, and the back.

Mercurius, for an eruption at first vesicular, afterwards pustular, which is sometimes dry, and sometimes moist, and which itches worst under the influence of warmth.

* For the dose, etc., of these medicines, consult the "Introductory Remarks."

Arsenicum, for burning heat and itching of the skin; scales, which peel off; reddish-coloured pustules, which break, and leave the appearance of small, shallow ulcers, with an ichorous discharge; painful blotches. It is likewise indicated for diarrhoea, debility, emaciation, enlarged abdomen,—symptoms that supervene upon advanced eczema.

Food, etc.—The diet must not consist of flesh, except in the case of weak puppies, or when the disease has induced marasmus and general debility. In all other cases, vegetable or farinaceous food is the most suitable; and even this should be given sparingly. The utmost cleanliness is required, and also good ventilation and moderate exercise in the open air.

The inflammation of the skin, and the consequent exudation and formation of crusts, is kept up by the constant scratching and rubbing in which the dog indulges as a relief to the itching sensation. It is consequently important to palliate this itching, as a step towards a radical cure, by lathering the skin every night with soft soap and warm water, and afterwards carefully drying.

For the other affections of the skin, consult the chapter on “Parasitic Diseases.”

II.—WARTS.

It is superfluous to define what a wart is. Warts are frequently found in the dog in different situations.

1. On the eyelids. When attached to the edge of the lid they keep up great irritation of the conjunctiva, that may end in troublesome inflammation. A wart so small as to remain unobserved, except after special examination, may do much mischief in the part.

2. On the mucous membrane of the prepuce, or of the vagina.

3. On the lips and mouth, causing the dog much discomfort, and preventing him from taking his food.

TREATMENT.—Excision, ligature, and *Thuja*. The last remedy may be applied full strength to the wart, night and morning; and at the same time from two to four drops of the first dilution may be given every night. For single warts, removal is, of course, the best remedy; but when a considerable part of the skin or mucous membrane is the seat of warty growths, and when the reproduction takes place after excision, *Thuja* will be found efficacious.

Calcarea carbonica, a dose night and morning, is an excellent remedy for warty growths.

CHAPTER XII.

ACCIDENTS.

I.—FRACTURES.

In plain language, fracture is a break in a bone, and it usually takes place from external violence. The fracture is *simple* when the bone is broken at one part, and there is no other injury; *compound*, when in addition to the fracture there is a wound of the soft parts communicating with the fractured bone; *comminuted*, when the bone is broken into numerous fragments. In the dog, the same fracture is often both compound and comminuted.

Any bone may be broken, but the accident most commonly befalls the bones of the fore leg, those of the hind leg, the thigh bone, the arm bone, in the order of frequency here stated. Several of the small bones, such as the metatarsal, or the metacarpal bones, may be broken by the same force at the same time. The long bones, as the bones of the legs and the ribs, are the most liable to be

broken by external violence; the flat bones, or those of the skull, the least so.

Fracture may be known—

1. By the deformity of the part injured. Thus, a broken leg is bent, shortened, or twisted; when the skull is fractured, there may, or may not, be depression of the broken bone. The displacement of the bone on which the deformity depends, is caused by the action of the muscular fibres attached to the broken parts, or by the action of the blow, as when a portion of the skull is driven in.

2. The natural movements are altered. The dog cannot move the limb as usual; perhaps all movement is impossible on his part. But the limb can be moved by the surgeon to an extent, and in a direction, that are not natural.

3. A crackling sound is heard when the broken ends are adjusted, and rubbed one on the other. The symptoms cannot be made out unless the ends are first brought into contact—this is obvious. When a rib is broken, this sound is heard during the action of respiration. In some cases, from the peculiar direction of the break, or from the particular bone broken, this symptom is wanting; it is most marked in fracture of the long bones.

4. The general symptoms are pain, swelling, heat, helplessness of the limb, etc. In the dog, simple fractures are not followed by much constitutional disturbance, but compound fractures induce great irritation and inflammation.

Fractures are repaired by the effusion of lymph, which becomes converted into either fibrous tissue or cartilage, and then into bone. The ends are thus firmly cemented together.

The principles of treatment are,—

1. To reduce, or set the fracture,—place the broken bones in their natural position. The upper fragment is to be held steadily in one hand, whilst the lower is extended until the limb acquires its natural shape and length.

2. To keep the limb in its natural place, and to prevent the action of the muscles which would, by contracting, disturb the fracture. For these purposes, splints are used of various materials, and bandages. Gutta percha, cut into slips of the proper length and width, make capital splints. Dipped into warm water, these splints are softened, and easily adapt themselves to the shape of the leg. The hair of the leg will act as a pad, and prevent any injury from the pressure of the splints when they become hard. In some cases, it is advisable to bandage the leg before applying splints, for the purpose of keeping down swelling. A bandage should be applied over the splints. Layers of old linen dipped into thick starch, form, when dry, a light and firm bandage, and give excellent support to the limb. Wadding should be previously used to fill up hollows. Care must be taken not to bandage too tightly, otherwise grave consequences will ensue,—much pain, swelling,

perhaps gangrene. Even when the limb is properly bandaged, some swelling will come on in the foot. The bandage should then be slightly slackened.

In fracture of a rib, denoted by depression at the site of injury, and by grating during respiration, the treatment is to encircle the trunk by a bandage, so as to diminish the movements of the rib—to keep the dog confined, for the same reason, exertion increasing respiration—and to feed on a low diet. The displaced fragments may irritate the pleura and lungs, and set up dangerous inflammation. This complication should not be overlooked.

When the skull is fractured with depression, the brain and its membranes are apt to suffer. Professor Simonds has put on record a case of this kind. Head symptoms followed a depressed fracture caused by a quoit hitting the dog's skull. The depressed bone was raised and the dog did well.

*Arnica lotion** is invaluable in fractures, as in all injuries. It should be used to the part three times a-day, completely saturating the bandages, etc., so that it may penetrate to the skin.

Absolute rest is indispensable to perfect union; hence, the dog should be confined in such a way as to prevent all use of the injured limb until recovery is completed. He should be muzzled to

* See Appendix.

prevent him from biting off the bandage. In some cases the bones do not unite properly, and it may be expedient to give the dog exercise, or allow him to roam about, as the rubbing of the broken ends will excite some degree of inflammation and exudation, followed by perfect and firm union of the broken ends.

In compound fracture, it is necessary, in the first place, to remove all loose splinters or fragments of bones, and to saw off any sharp point that may protrude through the wound, provided it be evident that union will not take place unless these means be resorted to. Then the limb should be set, and bound up with splints and bandages.

In some cases a false joint remains after fracture through the non-union of the broken bone. This may happen when the fracture has not been properly set, or when it has been disturbed or moved by muscular action, or when the limb has been carelessly bound up, or when the reparative processes have been inadequate to perfect union from some constitutional defect. The ends are united by cartilage, instead of by bone; the limb is weak, and there is obviously some extent of movement where the bone was broken.

Aconitum, or *Arnica*, should be given if the injury be severe, and attended with feverishness, etc.

II.—DISLOCATIONS.

Dislocation means the displacement of the articular ends of bones, without concomitant fracture. This accident happens most frequently in the hip, elbow, shoulder, knee, hock, and toe joints.

SYMPTOMS.—The symptoms are,—that the joint is altered in form as compared with the corresponding joint of the opposite side—there is a depression or a prominence where there should be neither, and the limb is either lengthened or shortened. The joint is fixed and its natural movements are circumscribed; neither the dog nor his doctor can move the limb with its natural facility and to its natural extent. This fixedness of position, and the absence of crackling are sufficient to distinguish dislocation from fracture. There is another distinction of great value: if a broken bone be put into its proper shape by adjusting its broken ends, the deformity will presently return when the bone is left to itself; whereas, a dislocated bone put into its natural place remains there and the distortion is removed.

Sometimes there may be both dislocation and fracture of the same bone, and then the difficulty of cure is increased.

In dislocation of the hip-joint, the head of the femur (or thigh bone) is carried away from the socket in three different directions, viz., upwards, backwards, or forwards; or upwards and backwards

at the same time. The exact dislocation may perhaps be made out by ascertaining the exact position of the head of the bone by the unnatural prominence which it occasions. In this, and indeed in all other cases, it is necessary to determine the direction of the dislocated bone, because the mode of its reduction is varied accordingly.

The stifle-joint may be dislocated inwards, or outwards,—more frequently the former.

The lower jaw is sometimes, but rarely, dislocated downwards. The elbow-joint is more frequently dislocated inwards than outwards, and there is usually fracture also.

TREATMENT.—Dislocations are reduced by those means which bring the head of the bone into such a position that the muscles fixed to it can drag it into its socket. The socket is firmly held by an assistant and kept fixed, whilst the operator pulls the limb gently and steadily till the muscular resistance is counteracted, and the bone slips into its proper place. The joint should then be kept in perfect rest, to prevent inflammation. Dislocations should be reduced as speedily as possible.

It is plain that each dislocation requires a different mode of reduction as regards the direction in which the extending power should be applied, the joint affected, and the relative position of the head of the bone to its socket. It is impossible to give full directions for every case without a long lecture upon, and a demonstration of, each joint. The best

plan is to call in a veterinary surgeon, or in his absence a human surgeon, who would no doubt willingly render his services and apply his knowledge of the treatment of man's dislocations to those of the dog.

III.—WOUNDS.

In treating a wound, the first thing to do, is to stop bleeding. This may be done by exposing the wound to the atmosphere, by pressure with the finger, or a compress of lint bound down by a bandage, by the application of cold water, etc. These means will always succeed, unless the hæmorrhage proceed from a wounded artery of considerable size. In such a case as this, firm and constant pressure is the immediate, and a ligature the radical remedy.

The second thing to do is, to remove all foreign bodies from the wound, such as clots of blood, dirt, splinters, thorns, by means of the fingers, or forceps, or affusion with water. No wound will heal whilst these substances remain in it.

In the third place, the sides of the wound should be brought together and kept there. The hair should be closely clipped away from the skin near the edges of the wound. Then, whilst the sides of the wound are held together, a thick layer of Colloidion should be applied by means of a camel's hair

pencil. This substance forms a thick film under which the wound heals. But when the wound is larger or deeper, Collodion is not sufficient, and stitches are necessary. Pass a strong needle, armed with silk or hempen thread previously well waxed, through one side of the wound, from without inwards, then through the opposite point of the other side from within outwards. The thread is then to be tied, without unduly straining the parts, and the ends clipped closely off. Other stitches are to be put in in the same manner, at about the distance of half an inch, until the whole extent of the wound is accurately sewn up. The dog's mouth should be muzzled, or he will nibble the stitches out and cause the wound to gape again. A piece of lint, saturated with *Arnica lotion*,* and constantly kept moist, may then be placed over the wound and kept there by a bandage. The wound will heal by adhesion, or by the process of granulation, in which latter case matter will form. The stitches may then be removed. *Calendula lotion** will expedite healing.

Large open wounds, with loss of substance and destruction of the skin, such as tears and bites, are best treated by the constant application of *Calendula lotion*,* the healing efficacy of which cannot be too loudly eulogized. When the wound is painful or inflamed, poultices may be required for a day or two, but the kindly action of *Calendula* generally enables one to dispense with their use in such cases.

* See Appendix.

IV.—SPRAINS OR STRAINS.

A sprain means a violent stretching of tendons or ligaments, probably with rupture of some of their fibres. Sporting dogs are obviously subject to this accident during the exertion of the chase. The animal is lame, and the injured part, wherever it may be, is hot, painful, and swollen.

TREATMENT.—In treatment, perfect rest is essential, and to make sure of this a splint may have to be put on the limb to keep it quiet. If there be much pain, fomentations are required twice a-day; if not, the part should be kept moist with *Arnica lotion*.* For the chronic enlargement and stiffness that frequently remain after the acute symptoms have subsided, the best remedy is *Rhus liniment*,* rubbed in twice a-day. The same remedies in the form of dilution, or pilules, should be given internally.

V.—SORE FEET.

Foot-sore consists of contusion, followed by inflammation and suppuration, of the elastic pad on which the dog walks. If properly attended to, the injury may not proceed beyond the stage of contusion. Long travelling on hard dry ground, or hunting over a rough country will bruise the feet.

* See Appendix.

Rest and the constant application of cloths saturated with *Arnica lotion** will soon set matters right.

But the case is more severe and serious when inflammation comes on as the result of the repeated contusions inflicted by continued travelling on hard ground. The foot or feet become swollen, hard, hot, painful; the animal cannot stand; the appetite is gone and there is general febrile excitement. The result is either that the sole sloughs off, or that matter forms.

The feet should be put into linseed poultices containing five drops of *Arnica tincture*; the poultice should be changed once a-day; the dog should be muzzled, else he will tear off the poultice; and if the pain be very great, fomentation should be used twice a-day. Should suppuration take place—the swelling of the foot becoming soft and fluctuating—the lancet should be used, and a poultice, medicated with five drops of *Calendula tincture*, applied night and morning, until the matter is all evacuated. The same poultice treatment is applicable when the sole threatens to slough. For the remaining sore, *Calendula lotion*,* constantly kept to the part, is the best remedy. The dog should afterwards wear boots until the pad becomes firm and able to bear pressure.

* See Appendix.

VI.—ELONGATION OF THE CLAWS.

In some cases the claws become unusually long, and turn round, in a curved manner, and penetrate into the elastic pad of the foot. The result is, that great pain and swelling are occasioned. The part may even become inflamed, and matter is not unlikely to form.

TREATMENT.—The treatment consists in shortening the offending claw, and then applying *Arnica lotion*.* The foot should be kept constantly wet with the lotion, and the dog should rest. Fomentation and poultices should be applied if necessary.

VII.—INFLAMMATION AT THE ROOT OF THE CLAW.

The toes, at the roots of the claw, are sometimes found swollen, hot, and painful; the redness extends between the toes; there is a serous discharge from an ulcerous sore; the toes at the point of juncture of the claws are enlarged; when the affected claw is touched the dog gives vent to expressions of severe pain; and the claw appears as if it were dropping off. The disease is caused by injuries,

* See Appendix.

and by the irritation of dirt lodging on the part and between the toes.

TREATMENT.—The only treatment required is fomentations to relieve pain and to insure cleanliness. *Arnica lotion** is of great service in these cases.

* See Appendix.

CHAPTER XIII.

GENERAL DISEASES.

I.—RHEUMATISM.

Rheumatism is a disease with which dogs are very frequently attacked. The great exciting *cause* of rheumatism is cold and damp combined. Hence the frequency of kennel-lameness amongst fox-hounds, etc.; the dogs, whilst hot, being turned into a cold, damp, or exposed kennel. Pet dogs kept in a highly-heated or close atmosphere, and accidentally exposed to cold, are apt to contract chest-founder,—their stimulating diet, artificial mode of life, and gross habit acting as powerful predisposing causes. In such dogs, the rheumatism is usually of the acute type.

The disease is most rife during spring and when east winds prevail. One attack strongly predisposes to subsequent seizures.

SYMPTOMS.—There are two forms, the acute and the chronic.

1. Acute rheumatism, which usually arises from exposure to cold and damp, is characterized by febrile excitement and pain of the muscular system generally. The pulse is increased in frequency and volume; and the dog shivers, appears dull, hides himself in a corner, and is loth to move himself, from the fact that motion would increase his sufferings. When touched, or when one makes-believe to touch him, he cries out—being then more frightened than hurt. But if he be touched with the hand, ever so lightly, he screams out, or snarls and raises his back and temper. The urine is scanty and high-coloured, and the bowels confined. The mouth and nose are both dry and hot.

2. Chronic rheumatism differs from the acute, in the symptoms being of a milder and more lingering character. The pulse is little if at all accelerated, and the pains, judging from the dog's behaviour, are more bearable than in the acute form. This form may, or may not, supervene upon the acute.

Rheumatism, either of the acute or the chronic form, may localize itself in any part of the body where fibrous tissue is found.

It is comparatively rare that the smaller joints are involved; and like human rheumatism, that of the dog wanders about from one part of the body to another.

There are two situations which are attacked in preference to all others by a rheumatic affection peculiar to dogs in its symptoms and results:

these situations are the lumbar region and the shoulder.

1. When the back is affected, the disease is not unlike human lumbago, acute or chronic, according to its violence and duration. The loins are more or less tender to the touch, and the dog is reluctant to move, and feels pain when he does move. There is this peculiarity—that the hind legs are dragged, and apparently or really paralyzed; hence some writers speak of “palsy” of this part. This loss of power in the muscles of the loins and hip may be either partial or complete, and may last the dog’s lifetime. In severe cases, some degree of weakness usually remains after recovery, although complete restoration is not impossible. It remains to be proved whether or not the paralytic symptoms so often attendant on the two chief forms of partial rheumatism result from the spinal membranes, or the sheath enclosing the nerves distributed to the legs, being involved in the rheumatic inflammation.

2. When the muscles which connect the shoulder blade to the trunk are attacked, the disease is called “chest-founder,” or “kennel-lameness;” this, also, may be either acute, or chronic—most frequently the latter. The symptoms are the following:—stiffness, soreness, and pain on pressure in one or in both shoulders, much increased by compelling the dog to jump, when the affected muscles are violently concussed and brought into action. The

stiffness is also evident when the dog is going down hill. In protracted or severe cases, the fore legs may be more or less powerless. The disease is usually very obstinate, and sometimes incurable.

In every case of canine rheumatism, there is another peculiarity in the bowels being invariably much constipated, especially in association with the paralyzed state of the limbs. Some writers even assert that there is a "rheumatic inflammation" of the bowels in every case of rheumatism, indicated by heat and great tenderness of the abdomen, and by torpid bowels. Here it is more probable that the rheumatism is seated in the abdominal muscles.

Sprain of the muscles connecting the shoulder to the body gives rise to symptoms like those of rheumatism of these muscles; probably the two disorders have been frequently confounded, and it is certainly sometimes difficult to distinguish the one from the other.

In dogs, as in man, a dangerous complication of rheumatism is apt to make its appearance as part and parcel of the original disease. The valves which guard the orifices of the heart, and prevent the backward flow of blood, consist of fibrous tissue covered by serous membrane. These valves become inflamed, and this is especially so, when the rheumatism is acute and the heart's action increased in force and frequency. The result is that the integrity of these valves is impaired, and that an

unnatural sound is heard proceeding from the heart. This sound is called the "bellows-murmur;" it must be accepted as clear proof of valvular lesion when associated with rheumatism. Another symptom of endocarditis—as this complication is technically designated—is increased frequency and difficulty of breathing. The dog may recover in favourable cases, but the heart and breathing are permanently diseased. Probably many of the cases usually regarded as "asthma" are really cases of chronic heart disease.

The *materies morbi* of the rheumatic fever of man is said to be lactic acid, which accumulates in the blood in superabundant quantity, and excites all the pathological phenomena of the disease. The same cause is probably at work in the dog. That this acid can produce endocarditis in dogs has been conclusively demonstrated by the interesting experiments of Dr Richardson, published in the *Medical Times and Gazette* of 18th July 1857. Another interesting point is that *the sclerotic tissue of the eyeball was found inflamed.*

A highly interesting circumstance touching "kennel lameness" is mentioned in the "Veterinarian" of 1844. It appears that the royal buckhounds were attacked by this disease, and that the water supplied to the dogs passed through a leaden pipe, and in its course became largely impregnated with lead. The pipe was of course removed. But I can find no further reference to the matter. *It*

would be important to ascertain whether or not "kennel lameness" disappeared with the removal of the lead—the supposed cause.

TREATMENT.—*Aconitum** is indicated at the beginning of the attack, when there are symptoms of febrile excitement; and also when the general symptoms and physical signs point out heart complication.

Belladonna, when the affected parts are extremely tender to the touch, and painful when moved, causing lameness. It is specially suitable when the shoulder is the seat of the disease.

Bryonia is indicated in cases of acute rheumatism, particularly of the legs, attended with frequent full pulse, thirst, high-coloured urine, pain aggravated by motion.

Nux vomica is frequently beneficial when the stomach is out of order and the bowels costive, and in those cases which are attended with symptoms of paralytic weakness of the muscles of the legs.

Rhus is another remedy which is attended with good results in those cases where the dog appears to have lost the muscular power of the legs, and when the muscles of the back are principally affected.

I have employed the Turkish bath in kennel lameness with satisfactory results. I may here remark that it is a great mistake to suppose that

* For the doses, etc., refer to the "Introductory Remarks."

dogs do not sweat. The bath demonstrates the perspiratory action of the dog's skin.

II.—ANÆMIA.

In this disease there is absolute diminution of the mass of blood, with relative diminution of the red blood corpuscles. In the human subject, "if the blood be analyzed, it will be found that the red globules are deficient; so that instead of existing in the proportion of 120 to 130 per thousand, as in health, they are reduced to 80, or 60, or even, in severe cases, to 30."

Anæmia may be caused by want of proper nutriment. When the food is improper in quality or insufficient in quantity, the materials necessary for the formation of healthy blood are not supplied to the system; and the consequence is that the blood becomes poor and watery and colourless.

Any disorder of the organs engaged in the conversion of food into blood would lead to anæmia, even when the food is of a proper quality, and when it is given in suitable quantities. So that the peculiar condition of the blood of anæmic patients may be brought on either by imperfect assimilation of food, or by want of proper food; or these two causes may co-operate in the same case.

Fresh air and sunlight are important auxiliaries in the preparation of good blood. All animals—placing man on the same level as the dog—have poor blood and weak bodies, when cooped up in dark, crowded, ill-ventilated places.

Diminution of the blood circulating in the body, and impoverishment of its quality, are produced by any kind of hæmorrhage, such as bloodletting. Any disease attended with loss of blood will be followed by the same state. Hæmorrhage may be the effect as well as the cause of anæmia. Passive dropsy may also supervene on anæmia from loss of blood. Excessive secretion of milk may lead to the same result.

Anæmia is generally found in puppies who have been badly kept as regards food and good air.

Worms are likely to be developed where anæmia is present; and then the disease is much increased in severity.

In addition to pallor of the visible mucous membrane, there is overpowering muscular prostration, followed usually by œdema of the legs; and the pulse is small and weak.

TREATMENT.—The most important medicinal remedies are the following:—

Nux vomica when there are the symptoms of disordered stomach or impaired digestion (see “Indigestion.”)

Ferrum.—One grain of the first trituration every night, and one drop of the strong tincture of *China*

should be given every morning for a considerable period.

Food, etc.—Fresh country air, exposure to the sun's rays, out-door exercise in moderation, cold bathing in salt water, or in a solution of Joce's "Salmarine," and good nourishing food—food of a class calculated to favour growth and development—are indispensable in treating this disorder with success.

III.—RICKETS.

In this peculiar constitutional disease, the bones, some or many of them, are imperfectly developed and distorted. The bones have the natural structural arrangement, but are deficient in the earthy constituents to which they owe their firmness and solidity; they are soft, weak, pliable, and cartilaginous.

It is produced by defective hygienic arrangements, and especially by want of good food, fresh air, and sunlight. The disease generally attacks pups exposed to these causes, or placed in a dirty, confined kennel, or brought up on the milk of a weak or unhealthy mother. Blaine says, "Many whelps, among the fancy breeds of great cities and large towns, are *born* with the predisposition, particularly pugs and the smaller sort of bulldogs; there is also a breed of wry-legged terriers

that without doubt originated in rickety specimens, which were afterwards cultivated for particular purposes—as for rabbit-hunting, etc.”

The following interesting remarks are taken from the “Medical Times and Gazette” of 16th May 1863:—

“The mother is eight years old, and the father two years old. There were eight pups in the litter, four of which remained with the mother and were perfectly healthy, and four were removed after the lapse of twenty-five days; two of them were sickly, but got well by being fed on boiled meat and bread and milk. Those two which were presented to the Society were fed upon meat, bread, and broth; but the animal food formed the largest proportion. After being thus fed for three weeks, they began to exhibit a difficulty in walking, particularly on their hind-legs. A little afterwards the articulations became swollen, and the fore-legs began to bend. Their eyes were running, but their appetite remained good. At one time their whole body was so painful that they could not bear to be touched. They now present those symptoms of rickets which are observed in the human subject. They are bow-legged, have swollen articulations, and large stomachs. Dr Dick considers those specimens conclusively demonstrative that rickets is not identical with scrofula, and does not owe its origin to hereditary syphilis, as it is sometimes believed, but thinks that it is induced by improper or in-

sufficient food. Too much animal food or bad milk in early life, he believes, induce rickets. And for that reason rickets is found not only in the poorer, but also in the better classes."

TREATMENT.—The treatment of rickets is rather dietetic than medicinal. The animal should have as much nutritive food as its stomach can digest. A teaspoonful of cod liver oil three times a-day will probably do good. Regular exercise in the open air, an occasional shower-bath, and cleanliness are valuable adjuvants.

Two grains of the first trituration of *Calc. phos.* should be given night and morning for some time.

IV.—MARASMUS.

Marasmus depends on disease of the mesenteric glands in the abdomen, and is brought on in the first instance by disordered digestion, want of food, mange, and numerous diseases which induce general debility. Young dogs are more liable to be affected than those whose constitutional powers have become properly developed.

SYMPTOMS.—The chief symptoms are, voracious appetite and gradual wasting, in consequence of the course of the chyle, or elementary blood, being obstructed by the disease in the glands through which the chyle must pass; belly tumid and

pendulous; coat dry, harsh, and staring; growth stunted, and legs bowed; breath foul; fæces offensive, and either costive or relaxed. Death takes place from starvation.

TREATMENT.—Air, exercise, and generous food. The most likely medicines to do good are—

Calcarea and *Sulphur*,* to be given alternately when there are enlarged glands, cutaneous eruptions, looseness of the bowels, etc.

Arsenicum is often of service for emaciation and loss of strength, diarrhœa, thirst, etc.

V.—OBESITY.

Accumulation of fat is either an indication of health, or a symptom of disease, according to its amount, position, and consequences. Fat is naturally deposited in the tissues as a storehouse of fuel for the purposes of life, when the animal is moderately fed and little exercised. But when the deposition becomes so excessive as to impair the general health, or derange the easy working of the animal machinery, the condition is essentially a morbid one. Then the minimum quantity of food sufficient to keep “body and soul” together is all converted into fatty tissue, and it is a work of the

* For the dose, etc., of these medicines, consult the “Introductory Remarks.”

utmost difficulty to consume the accumulation by the usual expedients of exercise and abstinence.

Immoderate deposition of fatty matter is usually found in the tissue that lies underneath the skin, and that connects the muscles one with another; in the folds of the peritonæum; around the kidney and milk-gland; and within the chest, especially around the heart and large vessels. Sudden death has been known to occur in dogs that have had the last-named organs enveloped in fat; but it is most probable that the immediate cause of death in such cases was the morbid state known as "fatty degeneration" of the tissue of the organs themselves, rather than mere accumulation of fat around them.

Want, or insufficiency of exercise; confinement in an impure, close atmosphere; rich or luxurious food; or ordinary food in excessive quantity, lay the foundations of obesity in the ordinary run of dogs; but where a strong predisposition to fatness exists, even plain food in small quantities, and moderate exercise, will not keep the dog's form within moderate dimensions. When the dog is over-fed, or fed on rich food, the alternative of the non-deposition of fat is the setting up of some cutaneous disease attended with exudation as a means of ridding the system of superfluous material. The abolition of secretory function implied in the spaying of bitches and castrating of dogs, invariably tends to promote deposition of fat.

The impairment of the vital functions caused by inordinate fatness is indicated by disorder of the respiratory and circulatory system; the breathing becomes panting, short, and asthmatic, more especially during exertion; the circulation embarrassed; the muscular system weak and flabby; the digestive functions deranged; and a condition of the general system induced which most unfavourably influences the course and termination of any disease that may spring up.

TREATMENT.—The treatment consists in giving the animal a due amount of exercise in the open air, and in altering the diet both as to quantity and quality. I would also suggest a trial of the *Fucus vesiculosus*, a remedy which has been used with good results in human practice. *Iodium* has acted satisfactorily in my hands.

VI.—ABSCESS.

An abscess signifies a collection of matter—"a gathering," in fact. It begins with inflammation, as indicated externally by heat, tenderness, and swelling of the part. Abscesses are either external or internal. Internal abscesses are the results of inflammation, as of the liver, the lungs, etc. External abscess usually follows the inflammation set up by injuries, the presence of foreign bodies, etc.

The external abscess may be situated on any part of the body, and begins as a hard, painful swelling, which gradually enlarges and softens, and makes its way to the surface; the skin then inflames and breaks, allowing the matter to escape. The sides of the abscess slowly come together as the matter runs out, and at last heal. Deep-seated or diffuse abscesses do not run so favourable a course; they have no tendency to come to the surface, but rather burrow amongst muscles, cause sloughing of the connecting areolar tissue, and produce great constitutional excitement and exhaustion. These results must be anticipated, and prevented by lancing. In fact, in all cases the sooner the matter is let out the better, after the abscess has come to a head. An abscess ripe for lancing may be known by its soft, elastic, fluctuating feel—such a sensation as is produced by squeezing a ripe gooseberry. The opening should be large enough to allow free scope for the escape of matter, and it should, if possible, be made at the softest and lowest part of the abscess. To prevent adhesion of the lips of the cut, a tent—or narrow strip of tape, one or two inches long—should be put half in and half out of the abscess. Fomentations should be used if there be much pain; and the part previously denuded of hair by clipping, should be covered with a poultice, which should be changed at least night and morning. The poultices should be continued until all the matter has

escaped, and then *Calendula lotion*,* dabbed on two or three times a-day will quickly help to heal up the wound.

Aconitum† should be given when symptoms of feverish excitement become manifested;

Hepar sulphuris when the matter is slow in coming to the surface of the skin; and

Silicea when it is desirable or necessary to expedite the healing up of the parts.

VII.—DROPSY.

Dropsy is an accumulation of watery fluid or serum, in one or more of the serous cavities of the body, or in the inter-spaces of the areolar tissue, or in both.

When the serum is effused into the areolar tissue of a part, that part is said to be *oedematous*, and the disorder is called *oedema*.

When the serum is collected in the serous cavity of the pleura, there is *hydrothorax*, or dropsy of the chest—a serious result of thoracic inflammation, and spoken of in its proper place.

Ascites, or dropsy of the belly, consists of an accumulation of serum in the peritonæal sac. This form of dropsy is also mentioned under its proper head.

* See Appendix.

† For the dose, etc., consult the “Introductory Remarks.”

There are other local dropsies, bearing names indicative of the local lesion, such as dropsy of the head; of the ovary, etc. *Anasarca* is the term used in speaking of a collection of serum, more or less considerable, in the areolar tissue of the body generally.

Dr Tanner says, "To explain the mode in which dropsy may originate, it must be remembered that from all the surfaces of the healthy body, a kind of excretion or oozing forth of fluid is constantly taking place, accompanied at the same time by absorption; so that when the two processes of exhalation and absorption are properly balanced, the surfaces will merely be kept moist. But suppose that the balance from some cause is disturbed, imagine exhalation to take place more rapidly from the surfaces of one of the shut sacs, or absorption more slowly, than in health. Under such circumstances, it is clear that dropsy must result. It is probable that absorption takes place by the lymphatics, by the lacteals, and by the veins; the first removing the worn out particles of the body; the second taking up the chyle from the alimentary canal; while the third imbibe the fluid exhaled from serous membranes. In dropsy, the veins are generally in fault, and it often happens that from congestion these vessels are unable to take up more fluid. Hence, if the process of exhalation remains even as in health, an accumulation of fluid must take place."

In *Anasarca*, the areolar tissue under the skin is infiltrated with serum, and the body presents a swollen appearance without any redness of the skin itself. The swollen part, when pressed upon with the finger, yields, and this "pitting" continues for a short time and gradually disappears. The effusion varies in extent, and is generally confined to the legs and belly,—to the areolar tissue of these parts. The fluid, of course, gravitates towards the most depending parts. There is usually a certain amount of anasarca in ascites and hydrothorax; when the causes of these two last diseases continue long, general dropsy is the consequence. Œdema of the legs is met with in anæmia—a disease in which the blood is poor and watery—from mere passive transudation of the serum of the blood.

The immediate cause of dropsy is, as has been stated, a loss of balance between the exhalation and the absorption of serum; whilst the remote causes are improper food either in quality or quantity, and whatever tends to debilitate the general system.

Dropsy is accompanied by certain symptoms which vary considerably with its causes and complications. The symptoms of local dropsies correspond with the disturbance which local organs undergo in consequence of the accumulation, and of long-standing or recent disease. Old and worn out dogs are liable to dropsy from disease of the

liver, when there are, of course, indications of hepatic disturbance. Disease of the kidneys, by which the excretion of fluid is diminished, may give rise to dropsy. A quick, feeble pulse, loss of appetite, thirst, mange, piles, weakness, are some of the most marked symptoms which are present in dropsy.

For the treatment of dropsy, refer to the directions for the treatment of ascites, etc.

VIII.—ASCITES.

This is the name given to a collection of serum in the cavity of the peritonæum.

Ascites, which is more frequently met with in dogs than in any of the other domestic animals, occurs in two forms—idiopathic or active, and symptomatic or passive.

1. *Idiopathic* ascites generally attacks young and strong dogs, and is caused by exposure to cold and damp. Sudden changes of the weather, damp kennels, drinking or jumping into cold water when the body is heated by active exercise, exposure to wet and cold after having been confined in a warm place, are amongst the means by which active ascites is induced. In such a case the symptoms come on suddenly, and the effusion is poured forth rapidly; there is no pain of the abdomen, but some febrile

excitement; and the effusion is not so much an inflammatory product as the result of a loss of balance between the processes of exhalation and absorption, whereby the fluid of the blood, under the application of cold to the skin, exudes into the peritonæal cavity, instead of being excreted and discharged by the natural channels. Anasarca, or dropsy of the areolar tissue, may co-exist. Another form of ascites, which is of a truly inflammatory character, is that which is the sequel of acute, or of chronic peritonitis.

2. *Symptomatic* ascites is rather a symptom than a substantive disease. In the dog, chronic disease of the liver, the spleen, the kidneys, etc., not unfrequently leads to ascites. This is especially the case when the liver is either contracted or enlarged, particularly the former. The flow of blood through the vena portæ is then retarded; the tributaries of that vein become distended and relieve themselves of a part of their fluid contents, which collects in the peritonæal cavity. The same effects are produced by the pressure of tumours on the trunk of the vena portæ.

Ascites very frequently follows asthma, and the repercussion of mange and eczema.

SYMPTOMS.—The most obvious symptom of ascites is of course the enlargement of the abdomen. The precursory symptoms necessarily vary with the cause which has produced the accumulation of serum. There is probably a history of asthma, or

chronic cough, or skin disease, or ravenous appetite with progressive wasting. Or the appetite has been observed to be wanting, the dog has lost his usual playfulness, appears dull and languid, passes little water, has confined bowels, and probably the hind legs are somewhat swollen. The enlargement is observed after a variable period; or it may come on in a few hours after a previously healthy dog has been exposed to cold and damp. On directing attention to the abdomen, which may or may not be slightly tender to the touch, important morbid conditions are discovered. The belly may be slightly or enormously enlarged; and as this enlargement may be mistaken for pregnancy, obesity, or tumours, it is necessary to be careful in pronouncing one's diagnosis. The presence of *fluid* in the abdomen is indicated by fluctuation, that is, when the open flat hand is placed against one side of the belly, and a slight tap is made with the fingers of the other hand on the opposite side, a sensation is felt which is caused by the movement of fluid. This sign of ascites is most marked when the accumulation is considerable; but even a small quantity can be detected by the experienced hand. Again, when the palm or surface of the left hand is placed flat on the abdomen of the dog, and the dorsal surface of one finger struck with the tips of the right hand fingers—when the abdomen is thus *percussed*—valuable information is obtained. In whatever position the dog may be placed, a clear sound is

elicited at the upper part of the abdomen, and a dull sound at the lower part, because the bowels float above the liquid which always gravitates nethermost. As the effusion increases, the breathing becomes quicker and more laboured, and is accelerated on the least exertion. If this be allowed to go on, the lungs have no room to play in, because the swelling encroaches on the capacity of the chest, and the dog dies suffocated. Dropsy of the cellular tissue of the legs and skin of the belly and chest frequently precedes, and almost always accompanies, internal dropsy. In addition to these symptoms, the pulse is weak, the appetite bad, the thirst great, the secretion of urine diminished, the bowels confined, and the strength reduced.

The following account is taken from the "Veterinary Record," vol. v. page 23:—A Newfoundland dog had been costive, dull, and off his appetite for several days. The veterinary surgeon who attended the case found the dog dull-looking, and unable to void fæces from their being hard. He noticed that the body appeared full and tympanic, but he felt no fluctuation, and therefore ascribed the enlargement to distention of the intestines from impacted fæces. Purgatives and enemata were accordingly used, but with only slight benefit. Some days afterwards the symptoms became more severe, and still the same open-the-bowels treatment was resorted to. The dog died. There was *half a pailful of serum in the belly*, neither food nor

excrement in the bowels, and the *liver was enlarged and softened*. The heart was wasted, and its structure soft and flabby; *the cavity of the pericardium contained two quarts (?) of a coffee-coloured fluid*, and the serous surface of the pericardium was studded with fibrinous deposits.

Of course, the veterinary surgeon made a mistake in this case, and he was not ashamed to avow it in a public journal. *Humanum est errare*. The enlargement, which he attributed to a collection of hardened excrement in the bowels, was really due to enlargement of the liver, and copious serous effusion into the abdominal cavity. Percussion over the abdomen would have detected the dulness of the liver exceeding its healthy limits; and holding the palm of the left hand on the left side of the dog's belly, at the same time striking the right side with the tips of the right fingers would have detected fluctuation—the movement of fluid. When the bowels are filled with fæces, the sound on percussion is of course dull, and gives the idea of solidity underneath the fingers; whereas when there is simply effusion, the sound is not of necessity dull, the uppermost part of the belly giving the clearest note.

Although the treatment was based on a wrong diagnosis, still the case was evidently far advanced, and the patient would have died in spite of the best-directed means.

Blaine says, "Dropsy of the belly may be dis-

tinguished from fat by the particular tumour that the belly forms, which, in dropsy, hangs pendulous, while, at the same time, the backbone sticks up, and the hips appear prominent through the skin: the hair also stares, and the feel of the coat is peculiarly harsh. It may be distinguished from pregnancy by the state of the teats, which always enlarge as gestation advances; nor has the impregnated belly, however full, that light tense feel, nor the shining appearance, which are observed in dropsy: there may be also foetal inequalities distinguished in it; and when pregnancy is at all advanced, the young may be felt to move. The most unequivocal mode, however, of detecting the presence of water is by the touch. If the right hand be laid on one side of the belly, and the other side is gently struck with the left, an undulating movement will be perceived, exactly similar to what would be felt by placing one hand on a bladder of water, and striking it with the other.

TREATMENT.—Ascites unconnected with organic disease is generally curable; but when dependent on diseases of the liver, spleen, heart, etc., it generally ends fatally.

The medicines most likely to be of service are the following:—

Aconitum,* when the ascites is of the active kind, with some febrile disturbance and tenderness of the abdomen.

* For the doses, etc., refer to the "Introductory Remarks."

Mercurius, when the ascites is caused by disease of the liver. It is also indicated in active dropsies with febrile symptoms.

Arsenicum, when the ascites follows asthma, or the disappearance of skin disease, or is caused by liver disorders; when the urine is scanty, the debility and wasting considerable, the countenance pinched and anxious, and the legs swollen.

Bryonia is particularly indicated in those acute cases which are brought on by sudden changes of temperature, or by exposure to cold when the body is heated.

Helleborus, *Digitalis*, *Squilla*, and *Cantharis*, are also of service in some cases.

In the "Veterinarian" for 1843, Professor Dick has some valuable practical remarks on the use of iodine in this disease. A dog with ascites was tapped three times, losing six quarts of serum in five weeks, and in spite of diuretics, tonics, and various remedies, continued to get worse. "He was then put under a course of iodine, which soon began to show its beneficial influence, by speedily allaying his excessive thirst, and, in about a month, the whole of the effusion was absorbed, although, from the size of the abdomen, it must have amounted to a similar quantity to that drawn off on the three previous occasions. The dog's appetite speedily returned; he gained flesh rapidly, and has continued quite well; and, from being a perfect skeleton, soon became overloaded with fat."

Another dog affected in the same way, "was put on a course of iodine, which was gradually increased. As absorption rapidly took place, the swelling was completely taken up; but partly in consequence of pushing the medicine too far, and partly from extensive disease of the liver, unfavourable symptoms took place, and he sank rather unexpectedly."

It would be interesting to know what doses cured the first dog, and what killed the last; for the action of iodine, like that of other drugs, varies with the quantity given.

The removal of the fluid, by the operation of tapping, is imperatively called for when the breathing is much obstructed. The trocar should be pushed through the abdominal wall, in the middle line, midway between the navel and the pubis; and all the fluid allowed to escape through the canula. The belly should be bandaged for several days to give mechanical support to the weakened part, and so far to lessen the chances of re-collection. There is always some amount of danger in connexion with tapping. When the serum is thick, brown, and foetid, an unfavourable result may be apprehended. Tapping is of least service when the dropsy depends on organic visceral disease; and of most service when the mere pressure of the fluid prevents the due absorbent action by which the accumulation might be otherwise removed. In all cases it must be looked upon rather as a temporary

expedient than as a curative means. It may be necessary to tap more than once; and in some instances it will be observed that with each tapping the fluid accumulates again more and more rapidly.

IX.—RABIES.

“ Mr Youatt’s description has been the one most uniformly accepted and quoted. He says, The disease manifests itself under two forms. The *furiosus* form, characterized by augmented activity of the sensorial and locomotive systems, a disposition to bite, and a continued peculiar bark. The animal becomes altered in habits and disposition, has an inclination to lick or carry inedible substances, is restless and snaps in the air, but is still obedient and attached. Soon there is loss of appetite and thirst, the mouth and tongue swollen; the eyes red, dull, and half closed; the skin of the forehead wrinkled; the coat rough and staring; the gait unsteady and staggering; there is a periodic disposition to bite, the animal in approaching is often quiet and friendly, and then snaps; latterly, there is paralysis of the extremities; the breathing and deglutition become affected by spasms; the external surface irritable, and the sensorial functions increased in activity and perverted; convulsions may occur. These symptoms are paroxysmal,

they remit and intermit, and are often excited by sight, hearing, or touch.

“ The *sullen* form is characterized by shyness and depression, in which there is no disposition to bite, and no fear of fluids. The dog appears to be unusually quiet, is melancholic, and has depression of spirits; although he has no fear of water he does not drink; he makes no attempt to bite, and seems haggard and suspicious, avoiding society, and refusing food. The breathing is laboured and the bark is harsh, rough, and altered in tone; the mouth is open from the dropping of the jaw; the tongue protrudes, and the saliva is constantly flowing. The breathing soon becomes more difficult and laborious; there are tremors, and vomiting, and convulsions.”

“ Virchow denies the existence of two distinct forms; he considers these to be merely prolonged states of certain stages of the disease, viz., that the sullen form is the first or melancholic stage, and that the furious is the second or stage of irritation. He describes the disease in dogs as consisting of three stages, and in the following manner: the first stage is the *melancholic*, and is often unnoticed and unrecognised at its onset; still there may be observed a palpable change in the natural condition, alternation of depression and exaltation, restlessness and change of place, sudden waking from sleep, irritability, deranged digestion, anorexia. The dog has often a greedy appetite, but sometimes leaves his

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food or snaps at it; there is natural thirst and no fear of water. After these premonitory symptoms have set in, the specific character soon becomes developed; there is great susceptibility in the cicatrix, when a bite or wound has been the antecedent, a change of affection, character, and desires, a proneness to lap his own urine, and eat the fæces of other dogs; a peculiar idiosyncrasy to take all sorts of unwholesome and indigestible things, such as straw, paper, wood, etc.; there is much sexual excitement, and eager licking of the genitals of other dogs; he seems friendly with the cat, but exhibits a marked change of affection towards his master; he becomes shy and backward, and avoids observation. The organs of deglutition and respiration become involved; there are spasms and difficulty in swallowing, as if something was sticking in the throat; alternation in the voice; arrest of salivary secretion; application of the tongue to cold surfaces, such as stone, iron, etc. Changes also take place in the motor system, for in all there is more or less debility and weakness."

"The second stage is the irritable and *furiosus*. It commences generally in from one to three days, but may set in after twelve hours; it is seldom, however, met with after the eighth day. This irritation, the height of the disease, is not always uniform in its course; the paroxysms are strongest and longest at the onset, commencing with restlessness and irritability; he runs out of the house,

attempts to bite, goes from place to place without thought or reason, endeavours to break his chain or destroy his kennel, and on his inability to do so increases in rage, and if he gets loose will run great distances. It is this proneness to bite which renders this period so dangerous. The paroxysms may last several hours, and often even a whole day; then follows a remission which is very deceptive, as all the signs of disturbance subside; but the dog, aware of his unsociability, generally hides. The disease is very often described from dogs who have been hunted, hooted, and followed about in the streets and goaded on to madness, and in these severe symptoms are superadded, such as panting and flow of saliva, outstretching of the tongue, thirst, dread of water, thrusting the tail between the legs, starting of the hairs, etc., etc. The chief and prominent symptoms of this stage consist in psychological and æsthetic changes; there is a kind of acute mania and delirium, disobedience, no knowledge of his master, no avoidance of danger, sudden anger and snappishness, outbursts of wildness, loss of general sensation, and all sexual feeling. The changes in respiration and deglutition are, altered tone of voice, between barking and howling, indicative of extreme distress, swelling of the fauces, tongue, and nose. The movements of the body are rash and hasty, and the heart's impulse strong. The duration of this stage varies; it generally lasts three or four days, passing into the next and final

stage; but in rare instances it may terminate suddenly in death, through a form of apoplexy.

“The third stage is the *paralytic*. The paroxysms now become weaker and remittent, the animal emaciates rapidly, the coat falls off, the flanks sink in, the hind extremities are weak and lame, he lies on one side in great prostration, but when roused is still snappish, and bites; if able to walk, he totters and drags himself along; the eyes are sunken and dull, the mouth open and dry, the tongue hanging out and hard, the heart's action weak, irregular, and intermittent, the breathing oppressed; convulsions may occur. Death takes place from exhaustion, or during a paroxysm, in five to eight days from the first attack.”*

I am not aware of any certain cure for this disease.

X.—DISTEMPER.

Distemper is not peculiar to any age; the young and old are equally exposed, although the favourite period for the attack is between the sixth and twelfth month; or during the period of second dentition, at whatever age that may take place. The disease is always most severe and fatal when it attacks young puppies of the smaller breeds.

One attack does not altogether exhaust the sus-

* Holmes' System of Surgery. Vol. iii.

ceptibility to another, or to other attacks; it has, however, a certain preservative and modifying influence.

The disease prevails in summer, more so in spring, most so in autumn, when diarrhoea is a frequent and troublesome complication.

It is both endemic and epidemic—in the former confining its ravages within the limits of certain districts; in the latter, spreading wide and far. Different epidemics of the disease are characterized by particular local complications; in one, the bowels are chiefly involved, in another, the respiratory organs, and in a third, the nervous system.

The disease is undoubtedly contagious, although some dogs escape it just as some human beings escape fever or cholera. Dogs that are pampered and confined suffer from distemper more severely than others.

The most frequent exciting causes are exposure to damp and cold, and whatever induces debility of the system, such as rickets, mange, catarrh, etc.

SYMPTOMS.—The symptoms present considerable variations, which depend upon the rapidity of the disease, the character of the prevailing epidemic, and the local complication; but they all show that the disease is essentially a low fever, accompanied by prostration of strength and wasting, with a strong tendency to some particular local lesion.

The onset of the attack is either sudden, or gradual, generally the latter. In the earliest stage,

the dog is observed to be dull and depressed, and takes no notice of food, or of his owner; there is sometimes vomiting and purging, but usually these symptoms do not come on until a more advanced period. In a short time, a scanty, clear, and watery fluid issues from the nose; the eyes are watery and unusually sensitive to light; and the animal has a short, dry, husky cough, which appears as if provoked by irritation in the throat, and is aggravated by exertion. The dog is observed to give an occasional sneeze. In a morning, there is a slight moisture, or perhaps a little dry mucus, at the corner of each eyelid; and the everted lid is rather more vascular than usual. The pulse is slightly increased in frequency—from 110 to 130 per minute, according to the patient's age. There is evident prostration of the nervous and muscular systems, progressive emaciation and no appetite. These catarrhal-like symptoms may lead the owner to suppose that the disease is nothing more than a simple "cold," but the dog's age and the prevalence of distemper will naturally arouse suspicion.

As the disease advances, fresh symptoms appear and existing ones become aggravated. There is constant shivering, accompanied by aversion to cold, and preference for warmth; the coat stares; the bowels are either relaxed or confined, and the fæces dark; the urine is scanty and high-coloured; the pulse is still more frequent and compressible; the temperature of the surface, and especially of

the paws higher ; and frèquently an offensive vomit comes up from the stomach. At the same time, the nasal discharge assumes a purulent character, and increases in quantity ; it adheres to the nasal orifices and obstructs respiration, much to the patient's annoyance : the respiration is quickened ; and the cough is short, almost constant, and sonorous. On listening to the chest, the respiratory murmur is found diminished in intensity, and somewhat obscured by mucous rattles. These symptoms show that the disease has travelled along the mucous membrane from the nose to the air-tubes, and that *bronchitis* is established.

Recovery, indicated by subsidence of all the symptoms and by return of appetite, may now take place ; or the disease may run on to *pneumonia*. This event is known by the pulse remaining quick and becoming weak, the thick nasal discharge forming adherent crusts, and perhaps mixed with streaks of blood ; and the respiration getting more and more difficult and laborious. The cough generally continues, and brings up rusty-coloured mucus. The most marked sound heard in the lungs is the tubular respiration which denotes consolidation of the pulmonary parenchyma. Death almost invariably happens in such cases, either from the severity of the lung lesion interfering with the function of respiration, or from exhaustion consequent upon the general disease.

Of the several complications which come on

during the course of distemper, *conjunctivitis* and *keratitis* are the most common; and they appear, unlike the others, at an early stage of the primary disease. At first, the eyes are watery and intolerant of light, and a slight mucous discharge exudes between the lids. The vessels of the conjunctiva are unusually distinct, both on the globe of the eye and on the inner surface of the lids. The discharge soon assumes a purulent character, and when abundant runs down the face. The lids are frequently agglutinated, especially in the morning, and the photophobia is extreme. In those cases in which the inflammation extends to the cornea, a general cloudiness gradually comes over the cornea, rendering it opaque and white, and, of course, impairing vision. Then in the centre of the cornea, or towards one side, there appears a circular ulcer, at first minute, but gradually extending in depth and width. Minute abscesses sometimes form between the layers of the cornea. The ulcer at last penetrates the cornea, the aqueous humour escapes, the iris protrudes, and the extreme pain is relieved. When the distemper yields, these affections of the eye gradually subside, and the ulcer heals up, leaving only a small speck, which generally disappears after a little while.

On examining dogs that have died of that form of distemper which invades the respiratory mucous membrane in particular, and which usually presents the foregoing symptoms, we find, in the earlier

stage, when a convulsion has carried off the patient, the mucous membrane of the nose and of the pharynx in a congested state. When the disease has lasted for a longer period, the membrane lining the frontal and ethmoidal cells, as well as the nose, is found to bear all the appearance of high inflammatory action, and the cells are more or less filled with pus. The nasal membrane is also sometimes found ulcerated, and even the septum eaten through: hence the fetid discharge and hæmorrhage sometimes met with. This ulceration may also be found in the pharynx, larynx, and bronchial tubes. The mucous membrane of the air-tubes is fully injected, and the tubes contain abundant muco-purulent secretion. When pneumonia has existed, we find circumscribed congestion, and the signs of lobular hepatization, and of suppuration. Pleuritic adhesions and serous effusions are less common.

In some cases, the chief force of the disease falls on the digestive mucous membrane. This complication is most apt to come on in distemper during the second period of teething, or when the dog has been fed too freely, or on improper food. Nothing, however, is so sure to encourage the tendency to diarrhœa and dysentery, and even to excite them, as purgatives, and especially calomel. The derangement may consist simply in the passage of liquid stools, or of imperfectly digested food; but this is very prone to run on to *dysentery*. The appetite is usually ravenous and vitiated, and

there may or may not be vomiting. After inaction of the bowels and some indications of colicky suffering, diarrhoea begins. The dog's back is arched, his abdomen tender to the touch, and he looks round every now and then to the seat of pain. He gives utterance to sharp, short cries. The intestinal discharge is liquid, dark coloured, and chiefly consists of mucus mixed with more or less blood; in some cases pure blood is passed. There is strong straining in the act of passing this discharge. Subsequently, the breath becomes most offensive; ulcerations appear on the gums, palate, tongue, pharynx, and an offensive discharge flows from the mouth. All these symptoms increase in severity, the vital powers become profoundly prostrated, and death from exhaustion or convulsions soon ensues.

These symptoms of intestinal disease are generally preceded by the cessation of the discharges which characterize the primary disease; and they sometimes complicate the termination of the typical form of distemper.

The post-mortem appearances are: Enlargement of the mesenteric glands; entire extent of intestinal mucous membrane more or less injected, contracted in calibre, thickened, and lined by adherent lymph; small ulcers, surrounded by an inflammatory circle, situated near the orifices of the glands of the small intestines.

The disease known as "Yellow Distemper" is by some regarded as a local complication of ordi-

nary distemper; by others, as a distinct disease. The discharge from the nose is usually so scanty as to escape cursory observation. There is a characteristic yellow line of the skin, mouth, and eyes; the fæces are yellowish and decidedly offensive; the bowels obstinately confined; the urine high coloured and scanty. The disease makes rapid progress; the animal will neither eat nor move; and in about three days death takes place in the majority of cases, unless the treatment be prompt. On examination after death, the yellow colour is found to pervade all the organs, the liver is congested, and the gall-bladder filled with thickened and dark bile.

In some cases a *pustular eruption* breaks out on the surface of the chest and belly, inside of the thighs, etc. The pustules break, and scabs form from the pus concreting. Writers differ widely in their views on the nature of this complication; it is a subject that requires further investigation. The breaking out of such an eruption is on the whole favourable. Is not that form of distemper, in which there is a pustular eruption, identical with, or analogous to, smallpox?

The nervous system is severely deranged in a large proportion of distemper cases.

Encephalitis, or inflammation of the brain and its membranes, begins differently in different cases. In some, this complication of distemper sets in by a paroxysm of general convulsions—"a distemper

fit"—which may prove fatal at a comparatively early stage of the general disease, or which may be succeeded by other similar attacks that carry off the animal. In other cases, encephalitis is preceded by the discharge from the nose diminishing or ceasing, or by an existing diarrhoea abating; and also by a peculiar bright and sparkling appearance of the eye. In a third class of cases, stupor is the first indication of head disease. It is most prone to come on when distemper attacks dogs whilst teething.

The head is hot; the carotid arteries throb violently; the eyes are injected and brilliant; the pupil contracted; the dog emerges from a spiritless state into one of vivacity; the appetite recently absent is now voracious, and also depraved, for the animal eats immoderately, and even gnaws at wood and other indigestible bodies. Then the jaws are champed, frothy saliva flows from the mouth, twitchings appear about the face, eyelids, and other parts; unconsciousness steals over the animal, and he appears to be blind, for he stumbles against every obstacle in his way. Sometimes symptoms of maniacal violence come on; the dog bites himself and every object near him, tears up the ground, etc. These symptoms subside and return after uncertain intervals, and generally terminate in convulsions. Suddenly, the eyes glare and turn in their sockets, and the dog falls down violently convulsed; its body and limbs spasmed, rigid, and

variously distorted ; consciousness suspended ; the secretions passed involuntarily, etc. These movements gradually abate, the senses return, and the animal probably starts off in a fright, as if he were "mad." These fits vary in frequency, duration, and severity. Death may take place under the first attack, or not until after several violent seizures. The appearance of an eruption at the beginning of these attacks is a favourable event. In some cases, the unconscious animal turns his head to one side, and constantly walks round and round in a circle ; the pupil of the opposite side is widely dilated, and general paralysis supervenes. Paralysis of the hind legs and chorea are occasional sequelæ of this disease of the brain.

TREATMENT.—The following medicines, when carefully selected according to the annexed indications, will be found more successful in curing this canine scourge than allopathic means.

Aconitum,* in the first stage, when there is dulness, loss of appetite, inflamed watery eye, quick breathing, and accelerated pulse. It may also be resorted to at a later period of the disease to check the tendency to local inflammations.

Belladonna is indicated, especially when the eyes and throat are affected, as indicated by sensitiveness of the eyes to light, increased vascularity of the white of the eye, and of the inner surface of the

* For the dose, etc., of these medicines, refer to the "Introductory Remarks."

lids, agglutination of the lids, and evident pain in these parts; and, as regards the throat, by an inflamed appearance of the back of the mouth, and by dry, irritating cough, evidently excited by irritation at the top of the windpipe. It is also a valuable remedy when the brain is involved, with such symptoms as delirium, and fits. In some cases of encephalitis, it may be necessary to give *Aconitum* and *Belladonna* in turns.

Bryonia is required when symptoms of bronchitis set in, viz., short, hurried, and oppressed breathing; rattling of mucus in the chest; frequent moist cough, etc. Both this medicine and *Aconitum* may be needed in such a case as this.

Arsenicum is indicated by these symptoms: intense injection of the vessels of the eye; swelling and closure of the lids; profuse secretion of tears, and intolerance of light; ulcers and specks on the cornea. Also, by frequent sneezing and profuse discharge of thin acrid mucus from the nostrils, with obstruction; or, an offensive and bloody discharge from ulceration of the nasal membrane; also, when the bowels are affected, with frequent discharge, accompanied by colicky pains, straining, weakness, and exhaustion. This remedy is indicated whenever the disease has prostrated the powers of life, the animal then being emaciated, weak, without appetite, and otherwise in a state apparently lifeless.

Phosphorus is indicated particularly when the

lungs are inflamed, as shown by the rust-coloured expectoration, the laboured breathing, and the characteristic signs heard on examining the lungs. It is also a good remedy for the diarrhœic complication, when the discharge is thin, and slimy, or even bloody.

Phosphoric acid has been of service when there is excessive, slimy, or watery diarrhœa; foetid purulent discharge from the nose; and general prostration.

Mercurius corrosivus is indicated when the mouth is covered with small superficial ulcers, the secretion of saliva increased, and the breath offensive; and also, when there are frequent discharges of bloody mucus from the bowels, with colic, urging, and straining.

Mercurius dulcis is more particularly required for the so-called "yellow distemper," the advent of which may be anticipated by the diminution or absence of the natural colouring matter in the excrement. When this is observed, or when the disease is established, *Merc. dulc.* should be immediately given in from two to five grain doses of the A trituration every two or four hours, according to the severity of the symptoms. Should feverish symptoms co-exist, repeated doses of *Aconitum* should be interposed.

Veratrum may be of service in cases of diarrhœa, etc., indicating *Arsenicum*, but continuing in spite of it. Or both these medicines may be given

alternately, especially when the disease is advanced, and the symptoms are typhoid in character.

Food, etc.—The patient should be put in a clean, dry place, where he can breathe plenty of pure air, and yet be protected from cold and damp. Cleanliness is of the utmost importance. The discharges should be removed at once, and the litter changed every day. Soft hay forms the best and most comfortable bed, and it can be easily replaced when soiled. A certain amount of warmth is necessary. M'Dougal's disinfecting powder may be used if necessary, according to the directions given on the packet.

It is impossible to be too particular about the diet. No solid food of any description must be given until the disease is quite over. Weak broth or gruel, and fresh cold water, are sufficient for the first few days; boiled rice, milk, and bread, are also good. Fancy food, such as domestic favourites are allowed to eat, must be rigidly withheld; otherwise, all such articles will help the disease to kill the dog. At a later period of the disease, when the appetite is lost, or the animal is too weak to eat, the most nutritious food must be given by gentle force. Strong beef-tea, arrow-root, etc., should be given frequently in small quantities. When there is great prostration, wine, either alone or mixed with beef-tea, is required. During convalescence, the diet must be as strictly

regulated. Animal food should be very carefully and gradually introduced, and overloading the stomach or forcing the appetite are equally hurtful.

XI.—SMALLPOX.

This disease, which is much more common on the Continent than in this country, has been fairly described by Barrier and Leblanc.

SYMPTOMS.—At first, the animal is dull and depressed, and carries his head drooped; the eyelids are half-closed, and the eyes vacant in expression; the nose is hot and dry; the tongue furred; the dog prefers to lie down, and when induced or compelled to get up and walk, the pace is slow and unsteady; the bowels are confined and the urine high-coloured; the pulse is somewhat accelerated; and there are occasional, or frequent vomitings. Sooner or later, diarrhoea comes on. The evacuations are bilious, dark, and offensive; the countenance is expressive of anxiety and uneasiness; and there are evident indications of prostration. Four or five days from the onset, after shivering, vesicles appear on the head, and thence gradually spread to other parts of the body; these vesicles subsequently break, and the resulting scab falls off in due course.

A pack of hounds ate the carcasses of some sheep, dead of *clavelée* (smallpox). Seventeen of them became ill. At first, distemper was suspected, as the dogs were low spirited, weak,

paralytic in their limbs, and had a viscid, greenish discharge from the nostrils. A copious crop of "pustules" appeared, and the disease was thereafter, rightly or wrongly, regarded as smallpox. Eleven died.

It has been stated that some dogs were infected from sheep with this disease during the recent Wiltshire epidemic; and that in both animals the disease was identical in its symptoms.

In smallpox, the skin is affected in the following manner:—The skin of the belly, groin, etc., is redder than usual, and dotted with small, roundish spots, either isolated, or irregularly clustered together. Each spot gradually gets larger, and its centre becomes prominent and pointed, and contains a clear fluid, which subsequently acquires a pus-like appearance. Each spot is now flattened. The contained fluid escapes on the rupture of its envelope; scabs form from the drying of the fluid, and gradually fall off. In some parts of the body, a permanent minute scar remains and the hair is destroyed for good.

TREATMENT.—*Aconitum** is to be given at the onset for the feverishness.

Arsenicum is required for the diarrhoea and prostration, and for the typhoid symptoms which come on towards the end of severe cases.

Mercurius, *Tartar emetic*, and *Vaccinine* may be useful in special cases.

* For the doses, etc., of these medicines, refer to the "Introductory Remarks."

CHAPTER XIV

PARASITIC DISEASES

Parasites are minute animals which infest and feed upon other animals ; and parasitic diseases are the disorders which these intruders set up.

Parasites may be arranged into two classes,—*Epizoa*, or external ; and *Entozoa*, or internal.

I.—EXTERNAL PARASITES.

The parasites of this class are divisible into :

- (1.) Those that live on the surface of the skin ; and,
- (2.) Those that live in its proper structure.

1. *Parasites Living ON the Skin.*

(a) The *louse*, resembling, but larger than, that of man, and unable to live on the skin of the human being.

(b) The *flea*.

(c) The *tick*, varying in size, sticking firmly to the skin by claws, producing great local irritation,

and appropriating to itself a large quantity of the dog's blood by suction.

SYMPTOMS.—Lice excite considerable irritation and itching of the skin, followed, when present in large numbers and in a chronic case, by a peculiar papular eruption—*Prurigo pedicularis*. The itching causes the dog to rub and scratch himself, with more or less vigour; red streaks, dotted with minute drops of congealed blood, may then be seen on the skin. The tops of the small pimples may be rubbed off, and a little serum exuded; matter may even form on them if the general health be bad. Lice, besides being the direct cause of these eruptions, and by inducing scratching, may also invade a skin previously diseased.

Dogs in bad health, living on poor food, and breathing foul air, are peculiarly liable to be infested with these vermin.

TREATMENT.—The parasites must be killed, and that without injuring the dog. Soft soap and warm water should be thoroughly rubbed, not merely on the hair, but *into the skin*, so as effectually to reach the roots of the hair, until a good lather is produced. The dog should then be thoroughly drenched with, or dipped into, tepid water. When thoroughly cleansed by these means, the skin and hair should be dried before a fire, and by friction with a towel. In bad, or obstinate cases, it is a good plan to thin the hair, in order that the lice may be the better reached. After drying,

the nits, which adhere to the hair, should be removed by sprinkling the surface with tincture of camphor, and afterwards carefully combing and brushing. The lips and eyelids, where such creatures most congregate, must not be forgotten. It may be necessary to repeat these processes once or twice. A dose of *Arsenicum* should be given three times a-day to cure the eruption, which, however, generally disappears of itself when its lively cause is removed.

The old bedding should be destroyed; in fact, the dog should sleep in a new place ever after the first dressing; or until, by fumigation, washing, painting, etc., the parasites and their nits are effectually destroyed. Shavings, or hay, are the best materials for bedding.

In some cases, instead of camphor, *Staphysagria* may be used, either sprinkled on in the form of powder, or rubbed in as the decoction. *Merc. cor.** also destroys the parasites; but care should be taken lest salivation take place. The latter is the best application for ticks.

2. *Parasites Living IN the Skin.*

(a) The *Sarcoptes canis*, producing the itch disease, or so-called "mange."

The acarus, when it reaches the skin, burrows in the epidermis, and irritation is excited. Papules or vesicles, or both, appear, partly as the result of

* See Appendix.

this irritation, but chiefly as the result of the rubbing and scratching excited by the irritation. The extent of the eruption and the violence of the itching sensation vary according to the number of acari present, and the thickness or delicacy of the skin. From the same causes, a general efflorescence appears in the vicinity of the papules, giving the skin a red appearance, which is best observed where the integument has little colouring matter in its structure.

Papulæ are especially well marked on those breeds of dogs that have thick and comparatively unirritable skins. Presently, scales form, the hair falls off, the skin becomes infiltrated, thickened, and wrinkled; but there is no exudation on the surface.

In some cases, the papules become vesicles, and these contain a serous fluid, which escapes when the vesicle bursts, and forms yellowish crusts.

Pustules are sometimes met with, and when they burst the contained matter concretes into thick, brownish scales. This is especially the case in domestic favourites, with tender skins and luxurious appetites. The pustules are chiefly located on the inner surface of the thighs, under the abdomen, in the pubic region, etc. In these cases, the skin, is moistened with a serous exudation, having the appearance of drops of sweat.

The common varieties of mange—red, dry, moist—mark the different eruptive conditions of

the skin. They all depend on the same cause—the itch parasite, but are immediately and chiefly produced by the vigorous scratching which the itching sensation provokes. Whether the eruption be a simple efflorescence, or papular, or vesicular, or pustular, will depend partly on the state of health of the animal, partly on the sensibility of the integument, and partly on the duration of the disease. Hence the external features of confirmed and developed mange vary according to circumstances; but in all such cases, the hair drops off, the thickened skin—known to be thickened by pinching up a fold between the finger and the thumb—is thrown into wrinkles, especially about the head and on the back, and disfigured by scabs, chaps, and fissures. On some parts, small red points of clotted blood will be observed.

All parts of the body may be invaded with mange, but it generally manifests itself first about the back, the nose, the ears, and the eyebrows. In five or six weeks, so rapidly does the disease spread, that the whole body may be mangy; and in bad or neglected cases, the dog sinks into a state of incurable cachexia.

The itching is the most distressing symptom; slight at first when the acari are few and the irritation caused by their presence in the skin is bearable, but gradually increasing with the rapid multiplication of the parasites. The itchy sensation is at first confined to the spots where the acari

are deposited, and are engaged in channeling the epidermis; but subsequently the sensory nerves of the skin convey the sensation of universal itching, and the wretched animal spends his days and nights in rubbing, scratching, and nibbling himself.

(b) The other form of itch, or parasitic mange, is due to the presence of the *Demodex folliculorum* in the sebaceous and hair follicles.

This acarus sets up a slight circumscribed swelling of the skin, attended with a little increase of temperature and redness. Numerous small pimply tumours, due to inflammation of the follicles, make their appearance; and fluid, at first serous, subsequently purulent, exudes from, or can be squeezed out of, these swellings. The skin is after this covered with minute pustules; the exuded matter hardens into scabs, and the skin is thickened and chapped as in the preceding form of mange. The hair drops off. The itching is neither very vehement nor frequent.

The presence of this parasite in the hair follicles may be proved by placing an extracted hair-bulb under the microscope, when the demodex will be seen. The hair which falls off is never restored, as the follicle is destroyed by the inflammation and suppuration of its lining membrane.

Diet, confinement, and ill-health predispose the dog to become affected with mange.

It is highly contagious. It is a matter of com-

mon observation that some healthy dogs do not catch what is supposed to be true mange, even when they sleep with so-called mangy dogs—that other dogs become affected only after repeated and long-continued contact—and that others, again, become mangy in a few hours. In the first case, the disease is probably eczema, which resembles the mangy parasitic eruption in rough detail; in the second case, the disease is due to the demodex, whose habits, structure, and habitat prevent it from rapidly passing from one body to another; whereas, in the third case, the adult or larval acari, lying superficially or moving about nimbly, easily transpose themselves, or get transposed.

Some writers speak of the hereditary nature of mange. It is obvious that *true* mange has no such character; it cannot be transmitted from parent to offspring, and cannot be produced except by an animal parasite external to the patient.

When mange breaks out on a domestic favourite, the unpleasant fact should be remembered, that the disease is communicable to man by the transmigration of the parasite.

As in man, so in the dog, skin diseases may be caused, not only by animal, but by *vegetable* parasites. In the dog, this important subject requires further investigation; but there appears to be no doubt that a form of "mange," most frequent in young puppies, and characterized by depilation,

furfuraceous scales, and slight scratching, is due to the presence of such a growth.

TREATMENT.—The object is to kill the parasites. First, wash the whole body thoroughly with soft soap and warm water; then dry the skin and hair; and, lastly, rub in *Benzine*. These applications may have to be repeated more than once; but one thorough application is generally sufficient as far as the destruction of the acari is concerned, and the remaining eruptions usually disappear without any treatment. *Sulphur ointment* is another good remedy; washing being used as directed. The *whole* body should be subjected to these processes at the same time, because if one parasite escapes destruction, others will soon be bred. The bedding, etc., should be destroyed; and the dog, after having been thoroughly dressed, should be provided with a new place to lie on.

In some cases it may be necessary to give internal remedies; the treatment of eczema should then be referred to.

II.—INTERNAL PARASITES.

(1.) *In the Air-Passages.*

Pentastomum tenioides.—This worm occupies that part of the respiratory tube which lies anterior to the larynx, and specially inhabits the nasal sinuses, etc. Obstruction more or less marked is the consequence of its presence in this region.

Chobart first discovered it in the frontal sinus of the horse and the dog. He confounded it with the *tænia*, and christened it the *tenia lancéolé*. Blanchard examined many dogs without finding it, and states that the helminthological collection at the Jardin des Plantes contains only two specimens. It has been found in dogs in different parts of the Continent, and also in other animals. Leuckart introduced the *Pentastomum denticulatum* of the rabbit into the nostrils of a dog, where he afterwards found the *Pent. tenioides*. He concludes that the former, which lives encysted in the viscera of several species of animals, is the larval form of the latter. He states that mature ripe eggs are thrown off from this parasite and discharged with the nasal mucus of its host in the act of sneezing. These embryonic forms manage somehow or other to get introduced into the bodies of other animals, where they become fully developed. Fürstenberg has found the immature or asexual form in the mesenteric glands of the sheep, as developed from the eggs of this parasite, which are swallowed by the sheep with its food. When a dog or wolf eats the entrails and mesenteric glands of such sheep, the embryonic parasite sticks to the nose and lips, and afterwards passes up the nostrils, where it becomes firmly fixed by its hooks. Here the embryo gradually increases in size, is endowed with sexual organs in about two months, and attains its full development in twelve. Colin introduced fifty

immature parasites into a Newfoundland dog. Eight months afterwards the dog was killed, and eleven mature parasites, nine males and two females, were found in the ethmoidal cells and about the turbinated bones. The males moved about; the females were fixed by their hooklets to the pituitary membrane, and had their copulative sacs filled with spermatozoa, and their oviducts crammed with eggs.

SYMPTOMS.—As to the symptoms produced by the worm, whilst Rudolphi found a dog which he examined perfectly well, and Dujardin, Miram, Colin, etc., make no reference to any disorder in their cases; on the other hand, Chobart gives rather a dark account of the effects produced. The animal, he says, is subject to convulsions, during which it is violently agitated, stops short, hits itself on the head, rolls over, rubs its nose on the ground, and the jaws are convulsively champed. It devours everything within reach, such as wood, straw, etc., discharges a large quantity of saliva, passes urine involuntarily, and sneezes without ceasing. Death sometimes ensues.

The mucous membrane of the nose is found to be red, blackish, ecchymozed, thickened, and ulcerated; the sinuses more or less filled with pus; and even the ethmoid bone sometimes partially carious.

TREATMENT.—Trepine the nostrils and inject with water. Inhalations of chlorine and tobacco smoke. Chloroform?

(2.) *In the Digestive Organs.*

(a) The *Holostomum alatum*. This worm has been found in the small intestine. It is provided with two small suckers; one situated at its anterior extremity, and at the same time serving as the mouth; the other, on the abdominal surface, enabling the worm to fix itself. The body is divided into two parts, of which the anterior is marked either by a constriction, or by a considerable membranous enlargement, and performs the functions of a sucker; whilst the posterior is the thicker, and is cylindrical in shape.

(b) The *Spiroptera sanguinolenta*, found in tubercles in the stomach and glands of the œsophagus. No ill effects are produced; when in the stomach there is said to be great voracity of appetite.

(c) The *Ascaris marginata*.

(d) The *Trichocephalus depressiusculus*.

(e) The *Dochmius trigonocephalus*.

(f) *Tæniæ*, or tape-worms, of which there are three or four varieties in dogs.

The common "round worm" is cylindrical in form, from four to eight inches long, pinkish in colour, and tapering towards both ends. They sometimes crawl from the bowel into the stomach, and are vomited either singly, or several coiled up into a ball; or they pass downwards and are discharged. The "maw worm" is from half an inch to an inch long, the tail pointed, and the head

obtuse and puckered where the mouth is situated. They exist in immense numbers in the rectum, and set up great local irritation.

Worms of the class *Cestoidea*, to which the *tæniæ* belong, have a soft flattened body of considerable length. The head, which is the smallest part of the body, is situated in front, and is furnished with four suckers and a double circlet of hooks, which fix the parasite to the intestinal mucous membrane of its host. The body is composed of numerous segments, or joints, which are continuous with the head and with each other in a backward direction; each joint is an independent creature, the last joints being provided with male and female reproductive organs, and containing fecundated ova.* The most posterior and larger joints, when sexually mature separate one by one, or several of them together, and are discharged into the outer world, along with the *fæces*, whilst at the same time new joints are being as constantly produced from behind the head. Sometimes the segmental envelope of a free joint is disintegrated whilst still within the bowel of its host, and then the liberated ova are seen as a whitish sandy powder. Expulsion, however, is the rule, and is a necessary step in the full development and propagation of the worm. The expelled segments may be observed to move by the alternate contraction

* Dujardin calculates that the *Tenia serrata* of the dog contains twenty millions of eggs.

of their longitudinal and transverse fibres, ova being discharged along the trail.

The ova are so constructed as to resist influences apparently the most destructive, and hence they retain their vitality in the outer world for an indefinite period. The majority, however, perish in various ways; whilst the minority, after many ups and downs, blown about by the winds and carried hither and thither by streams, gain admission into the body of some animal either on the grass, leaves, etc., which it eats, or in the water which it drinks. By some such passive means they get into the stomach of man, dogs, pigs, sheep, deer, oxen, etc., where they enter upon a higher stage of development, *provided* their new abode be adapted to that end; for the ova perish in an unsuitable host.

In a *suitable* body, the tendency of the eggs is to assume the bladder, hydatid, or cystic form, which is really the undeveloped condition of the mature tænia. Each ripe egg encloses an embryo, consisting of a vesicle armed with six small hooks. In the stomach of the proper host, the capsule of the ova, or the egg-shell, breaks, or is digested away, and the contained embryo is set free. By means of its hooklets it bores its way, and thrusts its vesicular body through membranes, vessels, and solid structures; or, reaching a bloodvessel, is passively carried with the blood to different parts of the body. If it reach an unsuitable region it dies and degenerates into a granular or atheroma-

tous mass. According to the species of worm, the liver in man and cattle, the brain in sheep, and the muscles in the pig, are the proper habitats where alone the embryo survives and becomes a cystic worm. In the substance of a congenial resting-place, the embryo becomes enclosed in a cyst, and the head of the future tænia, furnished with four suckers and a double circlet of hooks, becomes gradually developed from the interior of the embryonic vesicle.

There are three forms of cystic worms, each of which is non-sexual, and consists essentially of a tænia head united by a neck to a vesicular body of variable size and shape according to the species; they are the *Cysticercus*, the *Cœnurus*, and the *Echinococcus*. They reside in the bodies of animals which serve as the prey or food of some other animal infested with the mature tænia. Thus, the *Cysticercus pisiformis* of the hare and rabbit becomes the *Tænia serrata* in the dog; the *Cysticercus tenuicollis* found in the pleura, peritoneum, mesentery, etc., of sheep and oxen, becomes a tænia exactly like the *T. serrata* when the dog eats these parts of the animal's body; the *Cysticercus cellulosæ* of the pig undergoes a similar development; the *Cœnurus cerebralis* of the sheep passes through the same change; and the *Echinococcus* of man, or domestic animals, which contains innumerable tænia heads, is bred in the dog into a small tænia with only three segments. These worms, in the bladder state,

remain quiescent; they cannot escape from their habitat by any effort of their own; and many of them die either of themselves or with their host, without reaching the mature condition. Before they can be developed into the corresponding mature parasite, they must be devoured along with the flesh of their host by some suitable animal; thus the *Cysticercus pisiformis* is developed into a corresponding tænia in the dog, but not in the cat. In the stomach of a proper animal, the cyst or bladder of the worm is digested away, leaving the head and neck untouched. The head previously inverted within the cyst is now everted through the neck—turned inside out, in fact. The hooklets and suckers on the head fix themselves firmly into the mucous membrane of the intestine; the body, marked transversely into segments, begins to grow backwards from the head; new joints continue to be produced; the mature sexual ones are detached and escape, and thus the wonderful round of development goes on.

Küchemeister, Siebold, and others have bred the *Tænia cænurus* in the dog, by giving the *Cænurus cerebralis* of the sheep. The latter worm is well known as the hydatid worm which is so often met with in the brain of sheep, and which produces the disease known as “sturdy.” The mature worm exactly corresponds with the *Tænia solium* of man. On the other hand, when the ripe joints of this tænia were given to young lambs with

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their food, symptoms of sturdy came on in about eighteen days afterwards. On examining the bodies, the *Cysticercus cœnurus cerebralis* was found in different organs in progressive stages of formation, but it was only in the brain where the true cystic form was found developed. Hence the brains of sturdy sheep should not be given to a dog as food; and no dog affected with tænia should be kept near a flock, until it is quite free from the worm. Stall-fed flocks, no dog being required, are free from sturdy.

The ova of the canine tænia may get into the human body, either by means of eating vegetables, or other food, or by drinking water where dogs are allowed to run about, or by allowing the dog to kiss its mistress's lips. In Iceland fearful effects follow. There hundreds of dogs are kept to tend the sheep and cattle. They get their tæniæ by eating the offal—so often containing larval worms—of the slaughtered cattle. The eggs of these tænia, when in the human body, produce the *Cysticercus echinococcus*, from which it is said one-sixth of the whole population suffers. Should this cystic worm, which contains innumerable tænia heads, be discharged from the man's bowels or stomach, or make their way out by ulceration or by a surgical operation, the heads may be swallowed by dogs; and thus the stock of tænia is kept up, aided by the dog eating other cystic worms from the domestic animals.

(g) Siebold found another kind of cestoid worm, corresponding with the human *bothriocephalus*, voided in fragments by a Pomeranian dog. It is the *Dibothrius serratum*.

GENERAL SYMPTOMS.—The animal affected with worms in the bowels is usually dull and depressed, uneasy and restless, utters doleful cries and howls, and becomes unsociable in disposition and irritable in temper. The hair is dry, shaggy, foul, and destitute of the natural gloss; appetite variable, and often ravenous; the breath offensive; and the nose dry and hot. Notwithstanding the greedy appetite, emaciation and weakness come on. Attacks of diarrhœa occasionally alternate with constipation; small lumps of mucus are voided, and little bits of excrement. Paroxysms of colic are frequent; fits attack young dogs especially. A tense and enlarged state of the belly, and a short, dry, irritable cough, are also occasionally symptomatic of worms. The “maw-worm” induces intolerable itching of the rectum, but rarely any of the more serious symptoms as above. Chobart records having seen many dogs vomit balls of *Ascarides* (*Strongylus trigoncephalus*?). These dogs had vertigo, convulsions, and coma, etc. The “round worm” sometimes crawls into the stomach, and even upwards into the nostrils, and then sets up great irritation. The severe symptoms are produced only by the *tæniæ*, or when the other worms are present in large numbers. The *tæniæ* sometimes obstruct the bowels, and

thereby excite inflammation, followed by death. When the worm, or a piece of it, is discharged, the nature of the case is divested of its previous obscurity.

TREATMENT.—The object is to destroy and expel the worms. The means are various :—

1. *Areca Nut*. Valuable against the round and maw worm. A dose—about two grains to every pound of the dog's weight—of the fresh powder should be given in broth thickened with oat-meal, every week for three or four weeks ; and a dose of castor oil six hours after each dose of the nut.

2. *Oil of Turpentine*.—Alone it is apt to irritate and inflame the kidney, and intoxicate the brain. This is prevented by mixing with castor oil, which keeps it in the bowels and carries it off, although even then vomiting is sometimes excited. The dose is one drachm for a medium-sized dog, mixed with a tablespoonful of castor oil. It acts best against tape-worms.

3. *Pomegranate Bark*.—About a scruple of the powdered bark, followed in six hours by a dose of castor oil, is a good anthelmintic against tape and round worms.

4. *Powdered Glass*, as much as covers a shilling, given in butter, is a popular and efficacious remedy.

5. *Oil of Male Fern* (twenty drops, made into a bolus with flour, and followed by a dose of castor oil) is valuable for tape-worm.

All of these remedies act differently in different dogs, so that whilst one dose may suffice in some cases, two or more may be necessary in others. The dose may also require to be increased, the effects on the animal being carefully watched, as the object is not to destroy the dog, but the parasite.

The dog should be starved for some hours before, and be strictly confined after, taking the medicine until the worms are discharged. They should then, with the discharged fæces, be burned or deeply buried. This mode of preventing propagation by the destruction of the ova is doubly imperative in the case of tape-worms.

An injection of olive oil is of service in ejecting the maw-worm from the rectum.

(3.) *In the Urinary Organs.*

(a) The *Strongylus gigas*.—This worm is sometimes of a red colour, from its food consisting of blood drawn from the vessels of the kidney; at other times white, when suppuration has taken place around it in its habitat. The head is obtuse; the mouth small and orbicular, and surrounded by six papillæ; the body is cylindrical and elongated, and marked by tranverse and longitudinal impressions; the tail of the male is blunt, and terminated by a dilated membranous pouch, from which a slender point projects; the female's tail is straighter and thicker.

The usual abode of the strongylus is the kidney; at first situated in the pelvis and calices of that organ. In a few cases it has been met with in the ureter and bladder; in one recorded instance it occupied the whole length of the ureter. In another case, already mentioned, the worm was lodged in the urethra and obstructed the flow of urine. It has also been observed in parts contiguous to the urinary passage. Thus, Leblanc observed in three living dogs a subcutaneous tumour near the penis, which contained a strongylus, which had evidently passed through an abnormal opening in the urethra into the adjacent areolar tissue. Again, Plasse found in a dog, three strongyli, one of which was partly in the abdomen, having passed through the ruptured renal capsule, and partly in the kidney. In such cases, the worm probably makes its way out of its usual habitat after the death of its host.

From two to eight have been found in the same animal.

SYMPTOMS.—The symptoms vary. In some cases, the dog ails nothing; in others, he is wasted, weak, and writhes and howls night and day. When the ureter and urethra are not obstructed, the discharged urine is purulent or bloody; there may be suppression of urine when the kidneys are disorganized, as they often are to a very great extent, and obstruction when the worm lies in the passages. The urine is passed drop

by drop, and with great urging and pain, when the worm is in the bladder. The eggs of the worm are seen in the urine by the aid of the microscope. This is the only diagnostic sign of the existence of the strongylus.

(b) M. Vulpian found a nematoid larval worm in the kidneys of a dog. The kidneys presented a large number of small colourless tumours, from 80 to 100 in each kidney, and chiefly situated under the proper capsule of the organ. In the majority of these tumours a small worm was found; whilst in others, no parasite could be discovered, probably because it had perished and disappeared. Redi met with somewhat similar cases.

(c) Hydatids have been found in the dog's kidney, according to Youatt.

TREATMENT. — *Turpentine* is the most likely medicine to do good for worms in the kidney.

(4.) *In the Blood.*

(a) Three species of worms, the *Dochmius trigonocephalus*, the *Strongylus gigas*, and the *Filiaria hematica*, have been found in the blood of the dog, or in its heart.

Of these, the filaria is much the most common. It has been met with in immense numbers by Gruby and Delafond, circulating with the blood in the larval state, and taking up its abode in the right cavities of the heart and in the pulmonary artery when it reaches maturity. The larvæ are

so small that they cannot be seen without the aid of a microscope. They either produce no symptoms whatever, or, when they are situated about the heart, excite convulsions, and induce sudden death from stoppage of the heart. Voracity of appetite is almost invariably present.

(b) The *Spiroptera sanguinolenta* has been met with by Morgagni and other observers, lodged in small tumours in the walls of the aorta, and in connexion with the vessels of the kidney.

(5.) *In the Brain.*

Dupuy has found on the surface of the dog's brain a large number of hydatids;—cysticerci, according to Rudolphi. Youatt says, "Hydatids have been found in the different passages leading to the cranium, but they have not penetrated." What does this mean?

Probably "Turnside," a disease sometimes met with in dogs, and analagous in symptoms to sturdy in sheep, may depend upon the presence of hydatids.

APPENDIX.

LIST OF INTERNAL REMEDIES.

Scientific Name.	Common Name.	Strength.	Dose.
<i>Acidum hydrochloricum.</i>	Muriatic acid	The strong acid considerably diluted with water.	} (Used to remove tartar from teeth.)
<i>Acidum hydrocyanicum.</i>	Prussic acid.....		
<i>Acidum nitricum.....</i>	Nitric acid.....	3d do.....	do.
<i>Aconitum napellus.....</i>	Wolf's-bane.....	3d do.....	do.
<i>Ammonium causticum...</i>	Caustic ammonia...	3d do.....	do.
<i>Argentum nitricum</i>	Lunar caustic.....	3d do.....	do.
<i>Arnica montana.....</i>	Leopard's-bane.....	3d do.....	do.
<i>Arsenicum album.....</i>	Arsenic.....	3d do.....	do.
<i>Aurum muriaticum.....</i>	Muriate of gold.....	3d do.....	do.
<i>Belladonna.....</i>	Deadly nightshade..	3d do.....	do.
<i>Bromine.....</i>	Bromine.....	3d do.....	do.
<i>Bryonia alba.....</i>	White bryony.....	3d do.....	do.
<i>Calcareo carbonica.....</i>	Carbonate of lime...	6th do.....	do.
<i>Calcareo phosphorica....</i>	Phosphate of do.....	1st trituration..	One grain.
<i>Cannabis sativa.....</i>	Hemp.....	3d dilution.....	See page 8.
<i>Cantharis.....</i>	Spanish fly.....	3d do.....	do.
<i>Carbo vegetabilis.....</i>	Wood charcoal.....	6th do.....	do.
<i>Chamomilla.....</i>	Chamomile.....	3d do.....	do.
<i>Chelidonium majus.....</i>	Great celandine.....	3d do.....	do.
<i>China.....</i>	Peruvian bark.....	} Mother tincture 3d dilution.....	} One drop (in anæmia).
<i>Colocynthis.....</i>	Bitter cucumber.....		
<i>Cuprum aceticum.....</i>	Acetate of copper....	3d do.....	do.
<i>Cuprum.....</i>	Copper.....	3d do.....	do.
<i>Digitalis.....</i>	Foxglove.....	3d do.....	do.
<i>Euphrasia.....</i>	Eyebright.....	3d do.....	do.
<i>Ferrum.....</i>	Iron.....	1st trituration..	One grain.
<i>Helleborus niger.....</i>	Christmas rose.....	3d dilution.....	See page 8.
<i>Hepar sulphuris.....</i>	Liver of sulphur....	6th do.....	do.
<i>Hydrastis canadensis....</i>	} 1st trituration.. 3d dilution.....	} One grain. See page 8.
<i>Ignatia amara.....</i>	St Ignatius' bean....		
<i>Iodium.....</i>	Iodine.....	3d do.....	do.
<i>Ipecacuanha.....</i>	Ipecacuanha root....	3d do.....	do.

Scientific Name.	Common Name.	Strength.	Dose.
Kali bichromicum	Bichromate of potash	3d dilution	See page 8.
Kali chloricum	Chlorate of do.	1st do.....	Ten drops.
Kali bromidum.....	Bromide of do.	1st do.....	See page 8.
Kali hydriodicum.....	Iodide of potassium.	Crude salt	{ One grain (in salivation, etc.).
Mercurius iodatus.....	Iodide of mercury..	1st trituration..	One grain.
Mercurius vivus.....	Quicksilver.....	6th dilution	See page 8.
Mercurius corrosivus....	Corrosive sublimate.	6th do.....	do.
Mercurius solubilis	Soluble mercury..	{ 6th do..... 1st trituration..	do. One grain.
Nux vomica	Vomic nut.....	{ 1st do..... 3d dilution	One grain. See page 8.
Opium.....	Opium.....	3d do.....	do.
Petroleum.....	Stone oil.....	3d do.....	do.
Phosphorus.....	Phosphorus	3d do.....	do.
Podophylin.....	May apple.....	1st do.....	do.
Plumbum aceticum.....	Acetate of lead.....	3d do.....	do.
Rhus toxicodendron.....	Poison oak.....	3d do.....	do.
Silicea.....	Silica	6th do.....	do.
Spongia.....	Toasted sponge	6th do.....	do.
Strychnia.....		3d do.....	do.
Sulphur.....	Flowers of sulphur..	6th do.....	do.
Squilla.....	Squills.....	3d do.....	do.
Tartarus emeticus.....	Tartar emetic.....	3d do.....	do.
Thuya.....	Tree of life.....	1st do.....	do.
Veratrum album.....	White hellebore.....	3d do.....	do.
Vaccinine	Vaccine matter.....	3d do.....	do.

EXTERNAL APPLICATIONS.

1. *Calendula Lotion.*

Prepared by mixing one tablespoonful of the mother tincture with a pint of water.

Used in cuts, lacerations, flesh-wounds, canker and serous swelling of ears, sore feet, balanitis, rectal and other abscesses in general, blain and inflamed mouth from salivation, etc. In some

cases, a few drops of the strong tincture may be added to poultices.

2. *Rhus Lotion.*

Prepared as last.

Used in sprains of ligaments and tendons, and also often beneficial when rubbed gently into a part affected with rheumatism.

3. *Arnica Lotion.*

Prepared by adding two tablespoonsful of the strong tincture to a pint of water.

Used in all kinds of injuries caused by mechanical violence, to wounds after surgical operations, to fractures, dislocations, injuries of the feet, etc. Poultices may be medicated with a few drops of the mother tincture.

4. *Nitrate of Silver.*

One grain to one ounce of water, which must be distilled. Useful in some cases of ophthalmia and canker of the ears.

5. *Thuya Occidentalis.*

The mother tincture is sometimes a good remedy for warts when thoroughly rubbed in.

6. *Mercurius Corrosivus.*

Five grains of trituration A, thoroughly mixed up with one ounce of fresh lard free from salt.

Useful in some cases of mangy, or eczematous disease of the eyelids.

7. *Solution of Mercurius Corrosivus.*

Prepared by dissolving one part of the crude drug in ten of boiling water.

Valuable, if injected into the sinus of fistula in ano, and of fistula lacrymalis, and when applied in parasitic diseases of the skin, and to destroy ticks and other vermin.

8. *Hydrastis Infusion.*

Pour a pint of boiling water on an ounce of the powder; shake frequently; strain after twenty-four hours.

Useful in so-called "cancer" of the teats, of the vagina, of the scrotum, etc.; in balanitis, canker of the ears, prolapsus of the vagina, fistula in ano.

9. *Benzine.*

Valuable in many cases of skin diseases due to parasites, especially mange.

10. *Sulphur Ointment.*

Prepared by thoroughly mixing one part of sulphur with two parts of hog's lard.

Used in mange, etc., to kill the parasites.

11. *Staphysagria.*

Powdered stavesacre, or the decoction, is useful when the dog is troubled with vermin.

GLYSTERING.

A glyster may be thrown up by placing and holding the dog on his side on a table. The pipe of the syringe being well oiled is to be gently introduced into the rectum, and the fluid then pumped up.

The quantity must of course be proportioned to the size of the dog—from half a pint to a pint is a proper quantity for medium-sized animals. Warm gruel and warm water in which soap is dissolved are the best in obstinate constipation.

In some cases of disease attended with exhaustion, great irritability of the stomach and vomiting, it may be necessary to inject beef-tea, or arrow-root and wine. The quantity should be small to insure its being retained.

CASES.

1. FISTULA IN ANO.

A dog (female) belonging to Mr H—, came under treatment on 30th October 1862. General health good; licks the part. Silicea was given twice a-day, and *Merc. cor. lotion* injected into the sinus night and morning. A permanent cure was effected in ten days.

On 6th June 1861, a dog, also a female, belonging to Miss C—, came under treatment for the same complaint. The same remedies were used, and a cure was wrought in a few days. Six months afterwards, there was a slight return, which yielded permanently to the same medicine and injection.

2. OPHTHALMIA, DIARRHŒA, ETC.

On 28th March 1863, the Hon. Mr Lyttleton's dog was placed under my care. He had quick, feeble pulse, accelerated respiration, great prostration of strength, diarrhœa, vomiting, and inflamed eyes. The dog was previously under an allopathic veterinary surgeon, and was getting worse.

One drop of *Arsenicum* was given every three hours, and subsequently four times a-day. On 3d April, the dog was discharged cured.

3. VOMITING AND DYSENTERY.

On 21st June 1863, I saw a terrier belonging to Mr Forster. The dog was sent up to town from Wakefield, on

the 15th, and when taken out of the train was much agitated and frightened, probably from seeing strange faces and hearing strange sounds. The eyes were red, tears ran down the face, and there were symptoms of choking; took nothing to eat or drink for two days; then took a morsel from the hand and shortly after vomited it. An allopathic veterinary surgeon who was consulted, prescribed an emetic and a brownish-coloured mixture; these brought on profuse purgation, which ended in dysentery. He also ordered the dog to be walked out; great exhaustion was the result.

When I examined the animal, the following were the chief symptoms:—Pulse almost imperceptible; is constantly lying down; food when taken is instantly vomited; great prostration; frequent discharge of bloody stools; eyes intensely red, and lids stuck together.

To have one drop of *Arsenicum* (3) in a teaspoonful of water every hour for four hours, then every three hours.

22d. Evacuations not so loose; a little blood passed at the last; no retching after the first dose. To have same medicine, and a little arrow-root gruel, a teaspoonful of which at a time is not rejected.

23d. The arrow-root, though frequently given, is not vomited; can now take it voluntarily; evacuations more natural. Continue as before.

24th. Still improving; still takes the arrow-root; evacuations natural; is very lively; barks savagely at strangers for the first time. Continue medicine.

25th. Tired of arrow-root and looks for other food; eyes still tender. To have *Arsen.* and *Euphrasia* every four hours alternately.

30th. Quite well.

4. MERCURIAL DISEASE.

On 2d January 1863, a dog belonging to R. G. Macdonald, Esq. (Chief of Clanronald), was sent to me for advice. I

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was informed that the animal had been under an allopathic veterinary surgeon, and that it was getting worse. The symptoms were,—weakness and opacity of one cornea; conjunctiva much inflamed; eyes mattery and half closed; gums red, swollen, and covered with numerous small ulcers; breath insufferably offensive; appetite bad, etc. I gave *Hepar Sulphuris* every four hours; and in a few days the case was cured.*

The owner was so much gratified with the result that he sent the following letter to *Bell's Life*:—

“DOG DOCTORING.—Mr Editor: Although no country exists where all animals are more valued and more carefully looked after than in our own, yet it really astonishes me how seriously prejudice stands in the way of the advance of their medical treatment. I have no doubt that both my wife and myself owe our continuing in existence to homœopathy. We both suffered severely, and I was brought to death's door by allopathic blunders last winter. Speedily we reached convalescence under the comforting and simple remedies of homœopathy, prescribed by Dr E. H., and I, although advanced in years, feel almost to have a new lease of life. We have a small Cuba dog, which we lately placed in the hands of the best neighbouring vet. The poor thing got worse and worse, with hot nose, inflamed gums, and loose teeth. We had faint hopes of his living. On Friday I addressed myself to Mr Moore, 11 Upper Berkeley Street, Portman Square. I sent the dog next day. He found him suffering solely from mercury, with which the dog was salivated, and by which his stomach and bowels had suffered severely, given to him by the allopathic vet., who administered himself. By the evening the little creature was much relieved. Now, the third day, he is recovering his sight, which I omitted to say was almost gone, and I confidently expect

* I have had several such cases under treatment, all of which have done well with *Hepar sulph.*

his entire restoration. Her Gracious Majesty's stables and kennels are regulated under homœopathy with most evident proofs of the safety and advantages it affords. I have now no earthly interest in either system. Formerly a member of various hunts and sporting societies, I have no longer the full vigour for their allurements, and I have put all the above to paper merely in the hope that it may prove of beneficial influence.—Yours, etc. C.

January 5, 1863."

5. RHEUMATISM.

On 22d July 1863, I visited a female poodle belonging to the Rev. W. Fleming. It had been ill several days.

The dog could not bear to be touched anywhere; howled fearfully when handled; stood or lay in whatever position it was placed for the time being; after a while, moved on, with a howl, and arched back, to get out of sight in a corner. There was no loss of appetite, and no feverishness. To have *Rhus* three times a-day. It went with the family to the Isle of Wight, and returned on the 31st no better. On 1st August it had a Turkish bath with considerable relief; but two days afterwards it was as bad as ever, and there was also violent twitching of the muscles of the neck. *Cuprum* was now given, and in three days the dog was well.

6. SALIVATION.

On 2d July 1863, I saw a Chinese dog belonging to Lady Neville. Two years previously it had distemper, and was treated in the old way. Since then there has been a constant dribbling of saliva from the corners of the mouth; the saliva hangs in strings to the ground; and the animal has been in consequence of the nuisance banished from the house and kept in the stable. The breath is most offensive, and several of the teeth are decayed. There is a constant

jerking movement of the whole body, sometimes better sometimes worse. To have *Hepar sulph.*—one drop of the 6th dilution, night and morning.

7th.—The coachman informs me that the dog began perceptibly to improve after the first dose, and I now find the dog quite well. Continue medicine once a-day, for a few days longer.

10th.—Slight cold; discharge from nose and eyes; matter discharge from mouth. To have *Argentum nitricum*—two drops of the mother tincture to four ounces of water; of this a dessertspoonful night and morning.

13th.—Well.

7. DISTEMPER.—FITS.

On 10th July, I was consulted respecting a Pomeranian dog, concerning which the owner gave me the following history:—About the middle of June, it was attacked with distemper, being then five and a half months old. Several doses of common flour of sulphur were given without beneficial effect; on the contrary, the symptoms got worse, and the right eye became much inflamed. On 25th June, vomiting, followed by great prostration, came on. The owner gave *Belladonna* (homœopathic) for four or five days, with the effect of reducing the inflammation of the eyes, and of arresting the vomiting. On 6th July, the symptoms were, violent pain in bowels, profuse diarrhoea, foul breath, and thick discharge from eyes. *Arsenicum* was then administered until the 13th, when the dog appeared quite well, with the exception of being restless and eating little. On 15th July, the day being very hot, the dog was seized with a fit which lasted over an hour, leaving him paralyzed in his hind quarters and legs, so that he staggered and fell when attempting to walk. The owner then came for my advice. I prescribed one pilule of *Nux vomica* every two hours. Another fit of two hours' duration came on the same

night. Next day, the dog had great difficulty in dragging himself out of his kennel, and he appeared to be only half conscious. The same medicine was continued for several days with very decided improvement. On 2d August the report is "right side slightly affected; when running the dog inclines his head to that side and exhibits symptoms of giddiness; right legs fly out; and he occasionally falls down." Nitrate of silver was then given three times a-day, and in a few days the recovery was complete.

8. DISTEMPER.—FITS.

On 1st November 1861, I was called to Folkestone to see a dog, belonging to Lady Hawley, that had not thoroughly recovered from distemper. Several fits had come on. The head was held on a level with the top of the shoulder, and twisted to one side, with the left ear turned in an upward direction; the dog in going down a step would turn a somersault; and the left side was partially paralyzed. Nitrate of silver effected a cure in a short time.

9. DISTEMPER.

On 5th May 1863, J. B. Ferryman, Esq. of Rhodeville, Cheltenham, wrote to me respecting three setters, ill of distemper. The symptoms briefly given were these:—Short, dry, husky cough; slight, yellowish discharge from eyes and from genitals; lassitude and disinclination to move about; appetite bad, etc. *Aconitum*, *Belladonna*, and *Mercurius* had been given, but the dogs continued to get a little worse. I sent a supply of *Arsenicum*. On the 9th, I was informed, that that medicine was discontinued at the end of twenty-four hours. The dogs became very cold, and trembled to an alarming degree; were very hot towards evening; the noses were hot and dry; the eyes red and sunken; one of them appeared to be blind, as he ran

against obstacles in his way ; the bowels were costive and there was great thirst. *Aconitum* and *Belladonna* were given by Mr F. every four hours alternately. After this, their general appearance improved, and the breathing became easier and less panting, but the cough remained choking and frequent. One of the dogs was described to be in almost a hopeless state, and passed blood.

On the 25th, Mr F. wrote as follows :—"I have pleasure in informing you that I think my dogs have quite overcome the distemper ; they feed well, and are recovering their strength and condition."

10. FITS.

Several years ago, Captain B. consulted me respecting his King Charles dog. It had been put into a pond to have a swim, and a few days afterwards had a fit. Gradually the attacks became more and more frequent, and the dog would have several in a day. During the fit, the eye-balls were staring, prominent, wild-looking, and rolled about ; the head turned on to the left shoulder ; the teeth gnashed, and the mouth filled with foamy saliva ; the nose turned up and the lips retracted, the legs strongly convulsed ; the dog lay half on his belly, half on the side. These attacks usually lasted from one to three minutes ; the dog, on recovering, looked dull and tired, but in a short time looked as usual. I prescribed several remedies, but without good effect ; and the animal died a few days afterwards. At that time my practical acquaintance with homœopathy was limited, and I am inclined to think that the dog might have been restored had I known more of the treatment.

I was recently called to a dog belonging to the Duke of ——. The symptoms so closely resembled those of the last case, that I immediately asked the question, "Has the dog been in water ?" The answer was in the affirmative. I

ordered *Rhus*, one drop every three hours, and in three days the dog was well. Like the last, this dog was a King Charles.

Another dog, also a King Charles, had the same symptoms as the above, with this addition, that the hind legs were quite paralyzed. When the dog walked, it made progress with its fore legs, but the hind ones were dragged after, and were stretched out with the pads turned upwards. *Rhus* effected a complete cure in a week.

In all three cases, immersion in cold water seemed to be the exciting cause of the fits; in all three the breed was the same; and the head of each was turned towards the *left* side.

GLOSSARY;

OR,

EXPLANATION OF SOME TECHNICAL WORDS NOT EXPLAINED IN THE BODY OF THE WORK.

- ABDOMEN.** The belly.
- ACUTE.** Applied to describe the severe character, rapid progress, and short duration of some diseases.
- ALIMENTARY CANAL.** The entire passage from mouth to anus along which the food passes.
- ALVEOLAR** means a small trough; applied to the sockets of the teeth.
- ANTI-PERISTALTIC.** An action of the bowels contrary to the natural one.
- ARACHNOID.** The cobweb-like membrane of the brain.
- ARTICULATION.** A joint.
- ASEXUAL.** Absence of male and female characteristics.
- ASPHYXIA.** Literally, want of pulse; but generally used to express the consequences of interrupted respiration.
- ASSIMILATION.** The conversion of food into nutritious materials.
- ATROPHY.** Wasting from defective nutrition.
- CACHEXIA.** Bad habit of body.
- CALCULUS.** A "stone."
- CALCULI.** Stones.
- CARTILAGE.** Gristle.
- CATARRH.** A cold.
- CEREBRAL.** Belonging to the brain.
- CEREBRO-SPINAL.** The brain and spinal marrow.
- CHLOROFORM.** The vapour is inhaled to produce insensibility to pain.
- CHYLE.** The nutritious part of the food, absorbed from the bowels to be converted into blood.
- CHYMIFICATION.** The process whereby food is converted into chyme, which is food changed in the stomach.
- CHRONIC.** Long-standing, as opposed to acute.
- CICATRIX.** The mark left after healing of a wound, or of an ulcer.
- COMA.** Drowsiness.
- COMMINUTED.** Broken into several pieces.
- CONGENITAL.** Applied to diseases or malformations existing at the time of birth.
- CONCEPTION.** The first stage of female generation.
- CONTUSION.** A bruise.

- CONVALESCENCE.** The state of recovering.
- CORNEA.** The front clear portion of the eyeball.
- CORYZA.** Cold in the head.
- DENTAL.** Belonging to the teeth.
- DENTITION.** Teething.
- DEPILATION.** Shedding the hair.
- DIAPHRAGM.** The midriff muscle.
- DIGESTIVE SYSTEM.** The organs for digesting food.
- DUODENUM.** The first portion of the small intestines.
- DURA MATER.** The fibrous and outermost membrane of the brain.
- DYSPNŒA.** Difficulty of breathing.
- ECZEMATOUS.** Relating to a class of skin disease.
- EFFLORESCENCE.** A condition of the skin in which there is general redness, etc.
- EMBRYO.** The rudimentary state of animals or of vegetables.
- ENEMA.** An injection. Enemata, injections.
- EPIDERMIS.** The outermost layer of the skin.
- ERYTHEMATOUS.** A superficially inflamed state of the skin.
- EXPECTORATION.** The act of discharged matters from the chest ;
of the matters themselves.
- EXPIRATORY.** Expelling air from the lungs.
- EXTRAVASATION.** The passage of blood from the bloodvessels into
the surrounding tissues.
- EXUDATION.** Liquid flowing from the surface of the skin, or of
membranes.
- FAUCES.** The gullet.
- FLATUS.** Wind.
- FURFURACEOUS.** Scaly; bran-like.
- GANGRENE.** The first stage of mortification.
- HELMINTHOLOGICAL.** Appertaining to worms.
- HEPATIC REGION.** The part where the liver is situated.
- HEPATIZED.** Liver-like in density and appearance.
- HÆMORRHAGE.** Flow of blood from ruptured bloodvessels.
- HEREDITARY.** Transmissible from parents to offspring.
- HERNIA.** The protrusion of an internal organ from its natural
cavity.
- HYGIENIC.** Relating to the preservation of health.
- HYPERTROPHY.** Increased size of tissues, or of organs, from ex-
cessive nutrition.
- HYPOCHONDRIA.** The right and left regions of the belly, under the
last ribs.
- INCARCERATION.** Imprisonment.
- INFLAMMATION.** A state in which a part, if external, is hot,
swollen, red, and painful.

- INFLUENZA.** Epidemic catarrh.
- INTEGUMENTARY SYSTEM.** The skin.
- IRIS.** A movable membrane in the interior of the eye.
- JEJUNUM.** The upper portion of the small bowels.
- LARYNX.** The upper part of the windpipe.
- LIGATURE.** Thread, silk, wire, etc., to tie arteries or strangulate tumours, etc.
- LUMBAR REGION.** The loins.
- MASTICATION.** The act of chewing.
- MEMBRANA TYMPANI.** The drum of the ear.
- MENINGEAL.** Belonging to the membranes of the brain.
- MENINGITIS.** Inflammation of the membranes of the brain.
- MOTHER TINCTURE.** The strongest tincture prepared.
- MUCO-PURULENT.** A mixture of pus and mucus.
- MUCOUS MEMBRANE.** A membrane that secretes mucus.
- NECROSED.** Mortified.
- NERVOUS SYSTEM.** The brain, spinal marrow, nerves, etc.
- NUCLEUS.** A kernel.
- ORGANS OF CIRCULATION.** The heart and bloodvessels, etc.
- CESTRUM.** The function of "heat."
- OSSEOUS.** Bony.
- OVIDUCTS.** The tubes containing eggs.
- PAPULE.** A pimple.
- PARASITIC.** Applied to diseases caused by animals which feed upon their host ; such as worms, etc.
- PAROXYSMAL.** Occurring in fits and starts.
- PATHOLOGICAL.** Relating to the investigation of the nature of diseases.
- PATHOLOGY.** The investigation of the nature of disease.
- PARENCHYMA.** The proper substance of the lungs, liver, etc.
- PARTURITION.** The act of bringing forth young.
- PERCUSSION.** The act of striking upon the chest, abdomen, etc., to produce sounds whereby the state of the subjacent parts may be ascertained.
- PERISTALTIC.** The worm-like contraction of the bowels.
- PHARYNGITIS.** Inflammation of the back of the mouth.
- PHARYNX.** The back part of the mouth.
- PIA MATER.** One of the membranes of the brain.
- PLETHORIC.** Full habit of body.
- POST-MORTEM.** After death.
- PREDISPOSING CAUSE.** A state which renders the body susceptible of disease.
- PREMONITORY.** Warning.
- PREPUCE.** The foreskin.

- PURIFORM.** Mattery.
- PUS.** Matter.
- PULMONARY.** Appertaining to the lungs.
- PURULENT.** Consisting of matter.
- PUSTULE.** An elevation of the outermost layer of the skin from the presence of pus.
- RECTUM.** The last portion of the large bowel.
- RESPIRATION.** The function of breathing.
- RESPIRATORY MURMUR.** The sound caused by the ingress and egress of air, as regards the lungs.
- RESPIRATORY SYSTEM.** The windpipe, lungs, etc.
- SALIVATION.** Increased secretion of saliva.
- SANIOUS.** Thin, serous, offensive discharge.
- SCALP.** The covering of the head.
- SCLEBOTIC.** The fibrous membrane of the eyeball.
- SEROUS MEMBRANE.** A membrane that secretes serum.
- SPASM.** Cramp; firm muscular contraction.
- STERTEROUS.** Snoring.
- STRANGULATION.**
- STRANGULATED HERNIA.** Protrusion of gut from abdomen, unreturnable and constricted.
- STETHESCOPE.** An instrument for conducting sounds from the chest, etc., to the ear of a listener.
- SUPPURATION.** The process whereby matter is formed.
- SYMPTOM.** A sign, or mark of disease.
- THORACIC CAVITY.** The cavity of the chest.
- TRITURATION.** Reducing, or reduced to powder.
- TRAUMATIC.** Belonging to, or caused by, wounds.
- TYPANITIC.** Drum-like.
- TYMPANUM.** The drum of the ear; the cavity beyond the drum.
- ULCERATION.** The process by which an ulcer is formed.
- URETER.** The tube from the kidney to the bladder.
- URETHRA.** The tube from the bladder outwards.
- URINARY PASSAGES.** The passages for the conveyance of urine.
- UTERUS.** The womb.
- VAGINA.** The passage leading to the womb.
- VASCULAR.** Relating to bloodvessels.
- VESICLE.** A small bladder-like elevation of the skin, containing fluid.
- VISCUS.** "Any organ which has an appropriate use."
- VISCERA.** Plural of viscus.
- VISUAL.** Relating to seeing.
- VOLITION.** The act of willing.

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