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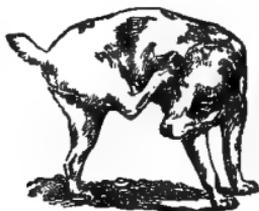
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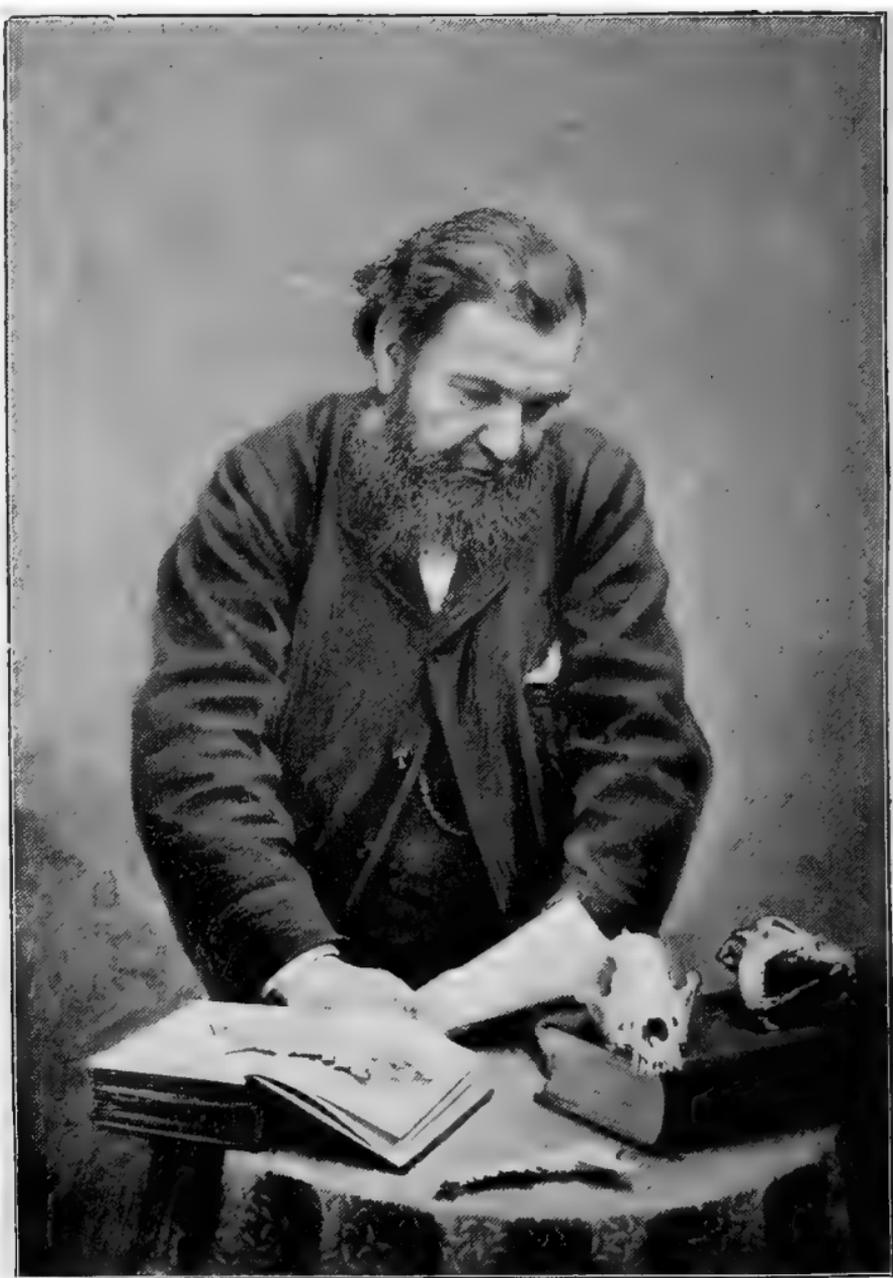
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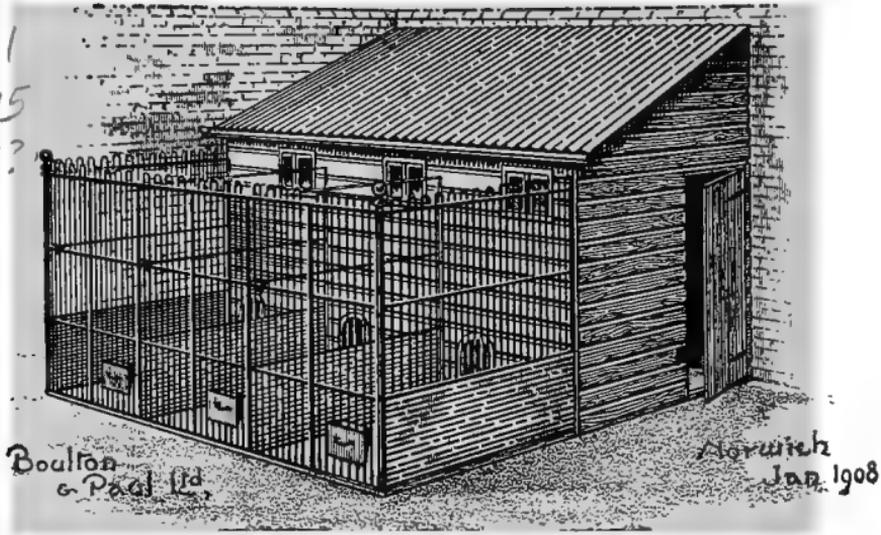
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PREFACE.

IN presenting dog-owners with the Fourth Edition of "The Diseases of Dogs," the Publisher may be pardoned if he express his great satisfaction that this little work has been so generously appreciated that a new edition has been rendered necessary. That feeling of satisfaction is, moreover, vastly increased by knowing that the previous editions have been instrumental in saving many dogs' lives, and many more from needless suffering. With dogs, as with their masters, timely remedies frequently prevent serious ailments.

The Fourth Edition has been carefully revised throughout, and no pains have been spared to bring the book up to date as regards both the Principles and the Practice of Canine Veterinary Surgery. Numbers of diseases which did not find a place in the previous issues have been included, and it is hoped that by thus widening the scope of the book, its usefulness will be correspondingly increased. Again, what may be termed the general portion of the work has been considerably amplified, such details of Kennel Management as Housing, Feeding and Grooming—all of which exert a powerful influence upon the dog for good or ill—being more fully treated, a feature which it is hoped will find favour with dog-owners and tend still more to increase the sphere of usefulness of the little book.

Despite what has been done, difficulties may arise which are not provided for in this little Manual. When this is the case, a question addressed to *The Bazaar*, Bazaar Buildings, Drury Lane, London, W.C., will elicit full information by a Specialist in the columns of that paper.

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DISEASES OF DOGS.

INTRODUCTORY.—It is said that every man forty years of age should be his own doctor, and there is, I think, still more reason why every man who owns a dog, even without having attained the age of forty, should be, in all simple cases, his own dog doctor; indeed, there is no one so well qualified as the master, for he best knows the peculiarities of habit and temperament of his favourite, and is therefore in the best position to administer to his ailments when “out of sorts.” Home treatment may be successfully practised if a few fundamental facts are borne in mind and a few ruling principles of action observed.

It should never be forgotten that health is the natural state, and that when disease is present, in nine cases out of ten it is the master's fault; and before making the poor beast the receptacle for a lot of nasty physic, it should be asked whether his treatment is governed by that wisdom and care his devoted obedience and fidelity have a right to demand. The young gentleman who practises on the wonderful self-sacrificing obedience of Neptune, by repeatedly sending him into the water in cold weather to swim after nothing—need not be astonished if he afterwards finds him curled up in his kennel suffering the agonies of rheumatism; and when darling Fido so frightens his mistress with that low moan, succeeded by that painful and prolonged howl, with his back arched, his feet tucked in towards each other, and vainly trying every possible posture to escape the pain, he is merely paying the penalty of that last lump of sugar. True, Fido may have had sugar frequently without suffering in this way, but the last lump is the straw that breaks the camel's back; and no surprise need be felt if persistence in the kindly meant but objectionable practice induces repeated attacks of colic, ending in inflammation, and possibly in death.

I would particularly impress on all who own dogs—especially young owners—that it is not only to their interest, but it is their duty, to be true masters, ruling with firmness and kindness, and providing for all the wants of the animal in lodging, food, and exercise on principles of common sense; for thus only can health be maintained. If a dog have not proper food provided at proper times, but is allowed to be the scavenger of the yard and the street, what wonder if he become loathsome and diseased, a nuisance to his owner and everyone else? If, on the other hand, he be pampered, petted, and stuffed with tit-bits and sweet cakes, he will lose all kindliness of disposition (the great charm of a companion dog), and become a morose, peevish, snappish misanthrope, that your friends may praise, but dare not pat; he will lose all beauty of form, all sprightliness and elasticity of action, and become an unshapely, asthmatical lump of obesity, to whom the slightest physical exertion is a trouble. Ladies, who are the great offenders in this way, should remember that dogs are never so healthy and happy as when in good working condition—that is, when they can take a good gallop without puffing.

AGE, TO DETERMINE.—In the dog there is no trustworthy indication of age, as in the case of horses and cattle. The age of puppies can, however, be determined by the **TEETH** (which *see*). In grown dogs the teeth are not by any means a certain index, for in some they remain white and entire until a considerable age has been attained, whilst in others, from disease, they are covered with a yellow deposit very early in life. The natural wear and tear is governed by accident, the sort of work the dog has been used to, and also to some extent by the kind of food he has generally had. For instance, dogs that are fed largely upon bones invariably have the teeth worn prematurely; while in dogs which have been foolishly allowed to retrieve hard substances, such as stones, the teeth are of very little guide in the determination of age. Speaking generally, however, after the third or fourth year the dog's teeth begin to show a deposit of tartar, and become yellow in comparison with the beautiful white enamel of the perfect ones. Moreover, the teeth at that age are somewhat worn at the points, and are not so even as they were, say, at two years. Again, once the teeth begin to decay in a comparatively young dog, such an animal soon exhibits signs of age. The advisability, therefore, of keeping the teeth free from tartar deposits will at once be seen. Persons accustomed to have dogs constantly about them can generally give a pretty shrewd guess as to age, but the most acute observers are often wide of the mark, so much do individual animals differ in the indications of age

they offer to the eye. The approach of old age is evidenced by a staidness and gravity of manner, disinclination to active exercise except at the call of duty, the eye loses its lustre, and slightly sinks, while around it grey hairs appear, which gradually extend over the face. In pugs I have observed the black face turn grey at a very early age, and the more intense in colour the mask, the earlier this change appears.

AGE TO WHICH DOGS LIVE.—The duration of life in the dog varies greatly. Cuvier calculates the length of life of the dog to be seven times that of the period of his growth. Blaine says he knew a mother and son in good health and vigorous at the ages of twenty and twenty-one, and Youatt says the dog has been known to linger on till he reached his two and twentieth year; and occasionally cases are reported of a much greater age, but I have never seen an instance supported by proof. Some time back a number of correspondents favoured me with communications on this subject in *The Bazaar*, but only in one case could I feel satisfied that the dog had reached the age of twenty years. That dog was of no particular breed, and was owned by a farmer near Guildford. Dame Juliana Berners, authoress of the "Book of Hunting," commonly called the "Boke of St. Albyn's," writing of the greyhound, says :

"When he is comyn to the nynthe yere
Have him to the tannere
For the best hounde that ever bytche had
At nynthe yere he is full badde."

Many dogs, however, retain almost pristine vigour until long past that age, but, as a rule, at fourteen or fifteen, if not at an earlier age, a dog becomes offensive in smell, and in many other ways a nuisance.

AGE OF MATURITY.—The smaller breeds may be said to attain full growth in about twelve months from birth; but the largest breeds do not arrive at maturity much under two years, and there are gradations between these consistent with the varieties. First development of œstrum, or "heat," is often taken to be proof of maturity in bitches; but it is an error, and it is detrimental to health to allow bitches to breed until full grown.

MODES OF ADMINISTERING MEDICINES.—Some medicines are readily taken in the food, and when this is the case it saves much trouble and needless alarm and irritation to the dog. In a little savoury broth or porridge most dogs will take castor-oil, olive oil,

sod-liver oil, syrup of phosphates, Fowler's solution of arsenic, etc., and many powders, such as areca-nut, kamala, santonin, etc. Where powders are refused in the food, they should be mixed with a little butter, lard, honey, or syrup, and placed well back on the tongue. To do this, force the mouth open by pressing the lips against the teeth and gums, and the medicine can then be placed on the tongue by an assistant. In the case of large, powerful, and restive dogs the mouth can be held open by means of a towel twisted round the upper jaw. With small dogs place the animal in such a position in a corner that it cannot back; never hold it between the knees, which is so often done, for this is to court sickness or injury. As soon as the medicine is placed on the tongue the dog's mouth should be closed and held shut till he is seen to swallow, but the mouth must not be held so as to interfere with his breathing through his nostrils. In giving a pill or bolus the same method should be adopted. Of late years, however, the difficulties attending the administration of certain nauseous medicines to dogs have been largely overcome by the introduction of Messrs. Freeman, of Birmingham. This firm has hit upon the happy idea of capsuling the medicines, and their innovation cannot be too widely known, especially by those owners living at a distance from a veterinary or other person accustomed to administer a drug.

In administering liquid medicines which the dog will not take voluntarily, it is necessary to drench him. To do so, the ordinary plans are to use a spoon, or recourse is had to an earthenware or strong glass bottle, such as a ginger-beer or a soda-water bottle. With the spoon the medicine is generally spilt, and the use of the bottle is fraught with great danger, and that from two sources: first, the medicine is delivered from the bottle too fast, and in a manner that makes it impossible for the dog to swallow, and choking is the result; secondly, there is very great danger of the bottle being shivered to pieces between the dog's jaws, lacerating the mouth, throat, etc., and causing serious and dangerous wounds.

A much better way of giving liquid medicines is to gently raise the animal's head, place the fingers in the angle of the lips, and draw them outwards, forming a sort of funnel.

Here it will be well to warn the over-zealous owner against the common but reprehensible practice of separating the teeth. By so doing there is considerable risk of the dog being choked. Equally objectionable and almost as common is the habit of pinching the animal's throat with a view to facilitating the administration of the medicine.

The dog's stomach being very sensitive, many medicines are at once rejected, and to prevent this it is sometimes necessary to tie

him up for half-an-hour after giving the dose, with his head in a slightly elevated position.

Some medicines are so extremely nauseous that their effect on the palate causes immediate sickness, and it was specially to meet such a case that Mr. Sidney E. Barrett designed the syringe-drencher illustrated at Fig. 1. The medicine measure and drencher (Fig. 2), which I invented and had made some twenty years ago, was intended to answer the same end.

In giving nauseous medicines—such, for instance, as oil of malefern, which is often prescribed for worms—Mr. Barrett's method is excellent. It was, in fact, the giving of that medicine, which I had advised for his dog, that suggested the plan to Mr. Barrett, which he thus describes: "I gave the drench by means of a glass syringe,

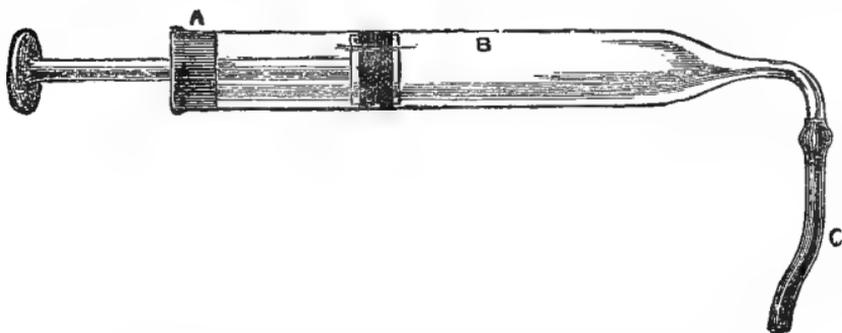


FIG. 1. MR. SIDNEY E. BARRETT'S SYRINGE-DRENCHER FOR GIVING MEDICINES TO DOGS.

on the end of which I fitted a 3in. long bit of indiarubber tubing. I filled the syringe by pouring the stuff in at the end A (Fig. 1), and then placed the piston in its proper position. By putting the tube (C) some way beyond the back of the tongue, and then squirting the contents of B through C, I avoided leaving a nauseous flavour in the dog's mouth."

My own contrivance was intended as a substitute for a spoon, in using which more or less of the medicine is generally spilt; and for the bottle, out of which some people give medicine direct, but with great danger of the dog crunching the bottle and lacerating his mouth with pieces of the glass. It consists of a glass bottle, very strongly made, and of about 3oz. (six tablespoonfuls) capacity, the mouth being just wide enough to be easily covered with the finger. The bottom is drawn out by the glass-blower, and the end formed into a rounded nozzle. Over this is stretched and tied a piece of indiarubber tubing, into the extreme end of which is inserted a bone

tube of about $1\frac{1}{2}$ in. long. The bottle is graduated and correctly marked to show measurements of teaspoonfuls and tablespoonfuls, so that in case of a number of patients requiring to be drenched—say, with a tablespoonful each—six can have their allotted dose given without re-measurement or re-filling of the bottle.

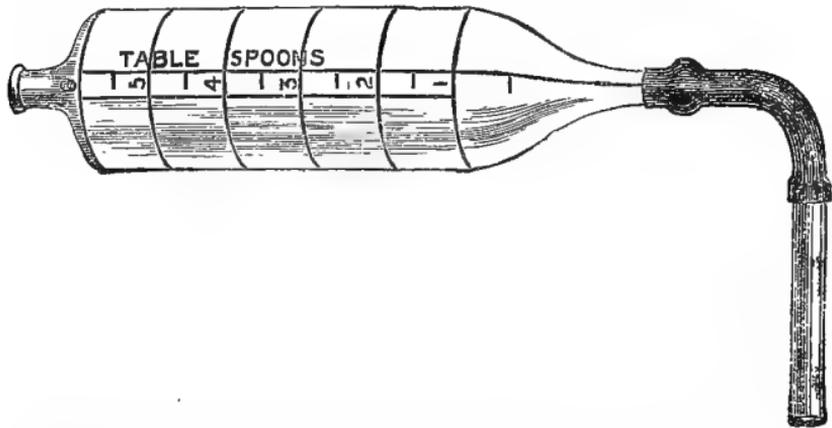


FIG. 2. DALZIEL'S MEASURE AND DRENCHER FOR GIVING MEDICINES TO DOGS.

In filling the bottle, the flexible tube is doubled up to prevent escape of the fluid, whilst the requisite quantity is poured in at the top. The forefinger of the right hand is then placed on the mouth, and this completely controls the flow of liquid through the tube. The end of the tube with the bone in it is then inserted well back in the dog's mouth, and the operator having full command

over the contents of the drencher, by raising his forefinger from the mouth of the bottle, lets the medicine run fast or slow, as he sees the dog swallow, until the full dose has been given. This is better suited to giving thin, flowing liquids than the mucilaginous drench referred to, or even castor oil, which runs very slowly.

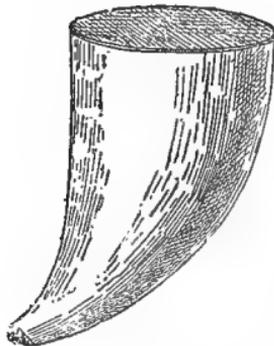


FIG. 3. MEDICINE HORN.

Another simple yet effective way of giving liquid medicine to a dog is by means of the appliance shown at Fig. 3. As will be seen it consists of a cow's horn from which the top and bottom have been sawn. A finger is kept over the small opening while the dose is poured in the larger one, into which afterwards a cork is fitted. The horn can then be stood in any convenient spot until the dog is

ready. With such an appliance there is no risk of broken glass as with the ordinary bottle, and if but the methods before detailed for the actual administration of the medicine are followed, not the least difficulty will be experienced.

Clysters.—Occasionally it is necessary to administer medicines *per rectum*. When this is the case, the simplest instrument is the indiarubber ball and pipe; these are of various sizes, and inexpensive.

Injections.—These are given by means of syringes of sizes suited to the particular case; there are male and female syringes, and bone are preferable to glass ones, as there is danger of injury from breakage of the latter.

Graduated Scale of Medicines.—There are many medicines prescribed for dogs that may not be enumerated in this book, and as it is desirable that the dose should be known, the following graduated scale may be taken: The dose for our largest dogs of eighteen months old and upwards may be taken as the same as for a man. A chemist, therefore, can always inform the dog-owner the proper dose of any drug. Taking, then, the mastiff or St. Bernard as requiring a dose we may call one part; middle-sized dogs may be given from half to three-quarters; terriers of from 20lb. to 30lb., a quarter; and toy dogs from a twelfth to an eighth part. In regard to age: The mature dog, one part; a year old, three-quarters; six to nine months, half; and a pup of from four to six weeks, one-eighth. The dose must further be graduated by considerations of the constitution and strength of the dog.

DISINFECTANTS.—The value of disinfectants as health-preservers is becoming more and more appreciated, and their value in the kennel can scarcely be overrated. Of course, it is all-important a kennel should be well drained and kept clean, but still, to have it perfectly free from putrescent effluvia and to destroy specific contagion, disinfectants must be resorted to.

It would be tedious, and it is quite unnecessary, to enumerate all the various disinfectants. I will, therefore, briefly refer to a few which I consider most suitable for the kennel, omitting several excellent in themselves, but too dangerous to be trusted in the hands of many who have the cleansing of kennels.

One thing of importance in the use of disinfectants must be noted: It is wasteful, and defeats the object of their use when thrown down in quantities irregularly; the equal distribution of them over the whole surface of the kennel at regular intervals is both the cheapest and most effectual way of keeping disease at bay.

Carbolic Acid has been for many years popular. Calvert's and M'Dougal's are the best two makes, and care must always be taken to use them properly diluted. Instructions for their use are to be found upon the bottles.

Chloride of Lime is one of the best kennel disinfectants; it should not be mixed with a little water and thrown down in a half solid form, but when the kennel is of considerable size, get an old petroleum barrel, put 7lb. into it and fill up with water; stir it well, and apply the clear liquid with a rose watering-can. Of course, the strength must be kept up by adding fresh chloride of lime from time to time.

Condy's Fluid.—Without doubt this is alike one of the safest and most useful of kennel requisites, for, apart from its disinfectant properties, its value in cases of wounds, bites, etc., can hardly be over-estimated. It is non-poisonous.

Izal.—This is one of the most popular of all disinfectants, and one that can be recommended with confidence. It is a coal-tar product, and for its discovery we are indebted to Messrs. Newton, Chambers & Co., Thorncliffe, Sheffield. It is also a capital insecticide.

Jeyes' Fluid is another excellent disinfectant, well suited to kennel use. It should be employed as directed. Like the preceding it is a most useful insecticide.

Sanitas is the name given to a disinfectant obtained by the atmospheric oxidation of turpentine, and containing peroxide of hydrogen and camphoric acid. It is manufactured by the Sanitas Company, London, and is a thoroughly efficient disinfectant.

Sulphurous Acid Gas.—Where there has been distemper or other contagious disease lingering in a kennel for some time, this may be used with advantage. It consists simply in burning the flowers of sulphur. Take a common frying-pan, or some such iron vessel, on it place the sulphur, which must be set fire to and burnt, the vessel being placed on bricks in the centre of the kennel floor, and all apertures having been closed, the fumes will penetrate to every crevice. The dogs must not be returned to the kennel until it has been thoroughly freed from the gas by ventilation. This requires to be used with great care, the fumes being very poisonous.

Superheated Steam.—Where mange, distemper or other contagious disease has visited a portable kennel, it would be well to have such subjected to the Washington-Lyon process. Its cost is trifling and the results are eminently satisfactory.

EXERCISE.—This has an important bearing on the dog's health. There are few more naturally active animals than the dog, and it is barbarous to chain or shut him up in a kennel for weeks together. Never chain a puppy if you wish him to grow into symmetrical form; he will pull himself out of all true shape. The chaining of watch dogs is sometimes a necessity, but even these should be allowed freedom several times a day.

Dogs which are required to be conditioned for either show or work will necessarily need more exercise than the average house or yard dog. Again, the kind of exercise will vary considerably with the breed, for what would be health-giving to active dogs like collies, terriers, and the like, would be most distressing, say, to the average bulldog or pug kept purely as companions. For all that, every dog should, if possible, receive daily exercise; and if such were the case the obese monstrosities one so frequently sees would be less often met with. Greyhounds, sporting field dogs, and whippets should have special exercise to fit them for the particular work required of them. For either road-exercise at the outset is the best if it is judiciously given, as such tends to harden the feet. Toy dogs are invariably under-exercised and over-fed, and these, combined with in-and-in-breeding, are doubtless largely responsible for the high rate of mortality which prevails among certain breeds. To sum up: Injudicious exercise is even more harmful than insufficient exercise, and is often responsible for digestive troubles, to say nothing of apoplectic fits, etc. No dog, for instance, should be exercised just after a full meal. He should in fact be treated on much the same lines as a human being in that respect. No sane person would think of running a race or taking any violent exercise after a good dinner, yet there are many owners who are inconsiderate enough to think that there is no harm in giving such exercise to their canine charges. The dog should be allowed ample time for a meal to digest, and two hours would be none too long an interval to elapse between a full meal and active exercise. At all times the exercise should be regular and suited to the age, breed, constitution, and condition of the dog.

FEEDING.—The importance of judicious feeding cannot be overrated; overfeeding and gross feeding derange the system, causing surfeit, etc. Insufficient and poor food produce rickets in puppies, emaciation, and other diseases, and directly incite to bad habits—fowl-killing, garbage-eating, filching and stealing, exposing the dog to poison and other physical dangers—and tend to destroy the dog's moral character. Hard-and-fast rules in feeding are

dangerous: age, individual constitution, existing state of health and condition, also the demands on the system in exercise or work, and, in the case of bitches, in giving support to their young, have all to be carefully considered; but given common-sense and an ordinary knowledge of the qualities of foods on the part of the feeder, nothing need be lost. At one time, to put the fact in the words of the proverb, people kept "no more dogs than they had bones for"; for the house dog was expected to live on the scraps and remnants of the house food, and the various sporting dogs had their horse-flesh, tallow-greaves, and meal provided and cooked at the kennels.

Feed with great regularity, and when the dog or puppy leaves its food, remove the dish till next meal time, for if left standing the food may become sour.

Biscuits.—There are now a great number of manufacturers of special foods for dogs, chiefly in the form of biscuits, which are exceedingly convenient, save much cooking, and in many cases are unquestionably excellent. In the first edition of this little work, I said that after many years' trial I was convinced that the Meat Fibrine Cakes, as a staple dog food, could not be excelled; after another twenty years' experience, I can repeat the opinion respecting these biscuits with greater force, for the manufacturers have kept the quality and suitability of the Fibrine Cakes up to the requirements of the day; and this I say without intending to disparage any of the other varieties of biscuits of which I have had less experience. Fish biscuits are much advertised, and used by many, some of whom, men of large experience, speak in the highest terms of them. Dogs will eat fish biscuits readily, and even working bounds are said to thrive upon them.

Meal.—Good oatmeal and barley-meal, in small quantities, are both useful foods for dogs when well cooked, while of the hound-meal class Rodnim is certainly one of the best.

Horse-flesh is excellent when sound, but town purchasers should beware of getting it supplied salted, or from animals slaughtered for glanders or other disease that may reproduce itself. Again, not a little of the horse-flesh upon the market has been obtained from worn-out animals, the nutrient value of whose flesh is worthless.

Butchers' Offal, in which are included paunches, sheep's heads, and all the odds and ends cut off for the waste-basket, may be utilised with economy and advantage to the dog. Whatever of flesh meat is used should be cooked. It is especially necessary to well

boil sheep's heads and the viscera, as these may contain the cysts of certain tapeworms, which must be taken up by the dog in order to complete their cycle of life.

Broth from the scraps named should be used to cook the meals in. It should be boiled for at least twenty minutes, and poured in a boiling state over previously broken biscuits, which should then be covered over till cold enough to use.

Lactol.—Under this name Messrs. A. F. Sherley & Co. (Borough High Street) have brought out a most valuable aid to puppy-rearing. As its name suggests, it is a milk preparation, and may be employed from weaning time upwards. Cow's milk is notoriously a poor substitute for that of the bitch, and as this food very closely approaches the latter it should prove of the greatest value to the dog-breeder. It may be had in tins with full directions as to its use.

Malt-Milk Food.—With this food Spratt's Patent have still further added to their fame in catering for the needs of the breeder and the dog-fancier. It is a most nutritious and easily assimilated food for puppies from the very trying times that they begin to lap until weaning and after. It may also be utilised for bottle-feeding in those extreme cases where a foster-mother cannot for the moment be procured.

Household Scraps.—Scraps and bones from the table in many households furnish ample food for the dog kept, and, so that the allowance is not too rich in meat, nothing can be better.

Vegetables.—Cooked green vegetables should be given in small quantities regularly to adult dogs; potatoes in large proportion prove injurious.

Bones.—These are almost a necessity to the dog in puppyhood; large ones to gnaw assist in the irruption of the teeth. For older dogs, those that can be broken up assist in digestion; they also tend to keep the teeth clean.

Melox Food.—To Messrs. W. G. Clarke & Sons, of Limehouse E., whose Buffalo Biscuits are exceedingly well known, dog fanciers are indebted for the introduction of this appetising food. It is quite one of the best change-foods upon the market, and may be given alike to puppies and adults with the greatest benefit. For a dainty feeder it is one of the most tempting of all foods. Another point in its favour is that it is a bone and muscle-forming food, and rearers of stock and those who exhibit will alike find it excellent for getting it into first-class condition.

Cow Flesh.—It is not uncommon in country districts to find the flesh of cows which have died upon farms utilised for the feeding of dogs. Greater discretion should, however, be exercised than is usually the case; for anthrax can be, and tuberculosis possibly may be, conveyed to dogs through the medium of such food.

Water.—This should be pure and fresh, and should always be within the dog's reach. The practice, however, of putting a lump of roll sulphur (brimstone) in it is useless, for it is insoluble in such.

Number of Meals.—The frequency of meals has been a disputed point. From advocating one meal a day I am a convert to two dry biscuits in the morning, and the soft food previously referred to, late in the afternoon or evening.

Puppies.—These require special feeding. It is an error of modern dog men to wean puppies too soon—they should run with the bitch till six weeks old, being at the same time fed. Soft food must alone be given till they are some months old. From leaving the dam feed seven or eight times a day, reducing the number of meals gradually till a year old, when two will be sufficient, except in the case of large breeds, which should have three till eighteen months old.

GROOMING.—This is one of the details of kennel management which is often overlooked, though it should form a part of the daily routine. Not only does it tend to keep at bay the numerous external parasites of the dog, but it also produces a healthy action of the skin. As to the appliance used this will depend upon the variety of dog kept. Smooth dogs need only rubbing with a bit of rough towelling or a swab of straw; rougher coated ones need brushing, and long coated ones require a comb and brush. Old hair, which, in such as collies and St. Bernards, sticks in dead locks among the new, should be carefully removed. How to groom a dog does not seem to be generally understood. It is usual to start with the shoulder and fore legs, and gradually extend to the loins and back, finishing with the thighs, stifles, etc. By way of imparting a finishing touch to hounds and the like a wash-leather or one of Dinneford's Hound gloves may be used. Washing is not often needed, and when it is Sherley's Shampoo will be found safer and more effectual than many ordinary soaps, being a capital insecticide. With those breeds in which the frill or mane is a prominent feature, as in the Pomeranian, it is usual first to groom in the orthodox way, and then to finish "against the wool."

HOUSING.—Nowadays, practically everyone who can afford to keep a dog can afford to house it properly, as kennels to suit all purses have, of recent years, been placed upon the market by enterprising manufacturers. The days of the improvised kennel from tub or barrel are now happily passed, and dogs, like their masters, are housed upon more rational lines than those which obtained some twenty or thirty years ago, when any rude structure, so long as it was fairly rain-proof, was considered good enough for the average dog.

In the housing of all dogs, there are one or two main points to keep steadily in view if an immunity from disease is to be enjoyed in the kennel. Primarily there is the aspect, a point which by our forefathers was apparently seldom considered. It is, however, all

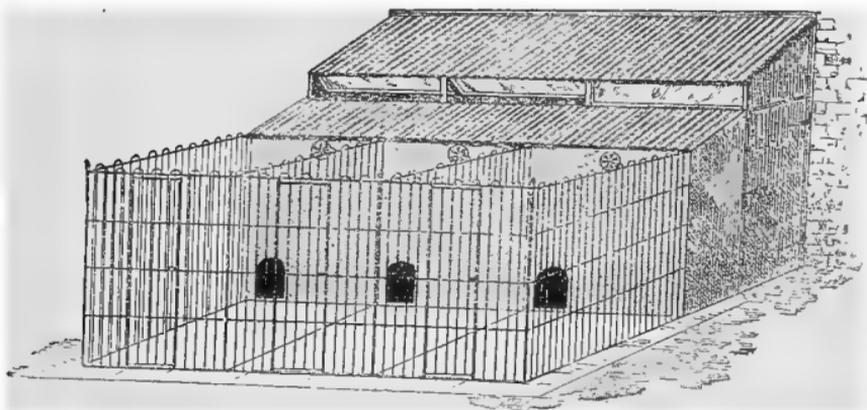


FIG. 4. RANGE OF KENNELS FOR TERRIERS.

important when one comes to think how differently constituted are the various breeds of dogs, and that whereas some breeds would thrive if kennelled almost anywhere—sporting field dogs, for instance—providing they were properly fed and exercised; others, like bull-terriers, white English terriers, greyhounds, etc., which are not provided naturally with a thick coat, would suffer considerably. This fact, then, must first be recognised—that an aspect which would be suitable for one breed would perhaps be fatal to another.

Taken all round, it will be found that a south or south-west aspect will be found the most suitable one to select; but even that will not avail if the situation be not dry, for nothing tends so much to propagate disease as damp. Sunshine, fresh air (but freedom from draughts), good drainage, and proper ventilation, are equally

important factors, and unless such are to be found, no one can long keep dogs in health. It was commonly thought at one time by those who had the care of dogs, that any odd place in the garden was good enough for a kennel; but modern teaching has done much to destroy that erroneous impression, and fanciers of to-day are fully alive to the advantages of a good kennel.

A suitable locality having been decided upon, and the drains made, the form of kennel may next receive consideration. Where a south or south-west wall exists, and it is desirous of erecting a permanent structure, there are no better buildings than the ranges of lean-to kennels and yards made by such firms as Spratts, Boulton and Paul, Barnard, Bishop, and Barnard, and a few others. Such a range is shown at Fig. 4, and may be said to be fairly typical of those sold by the firms named. As will be seen, it consists of three houses and yards, with a passage along the back. The yards are fitted with iron fencing, and 2ft. of corrugated iron are placed at the sides. The range illustrated (Fig. 4) is for terriers, but such can be built to suit any variety of dog. The floor of such a range should be of some non-absorbent material, and should slope in the direction of the drain, which must be properly trapped. Such a range is well ventilated from the top, warm, and very easily cleaned; while one of the principal advantages it possesses is that there is no need for a chain and a collar, and thus in the case of a show dog there is no risk of the coat suffering from the constant rubbing.

Further improvements on the old style of kennel available that may be enumerated are reversible water-troughs, so that they can be filled from the outside, and disposed at such a height that they are not likely to be fouled; and folding day and night sleeping-benches. The top floor of this bench is made to fold up, and thus the bedding material is kept not only neater but also cleaner and drier. The lower bench only is occupied during the day. The only objection to these sleeping-benches is that some are made with battens, and the dogs are liable to get their feet between. In the most modern benches, however, the battens are replaced by boards freely perforated. Usually it will be found advantageous to take out the straw on each fine day and expose it to the air and sun, but taking great care that it is never returned to the bench wet. There is, by some kennel-men, an objection raised to the corrugated roofs, on the ground that they are cold in winter and hot in summer. This may be got over by having an inside wooden lining, or by having a thatched roof provided.

It would be a decided advantage if the owner of such a range of kennels as that illustrated, possessed an enclosed field or paddock

containing one or two trees, as not only would this make a good exercising ground, but also provide shady quarters for the dogs in the hottest summer weather.

So far these remarks have been chiefly confined to the establish-

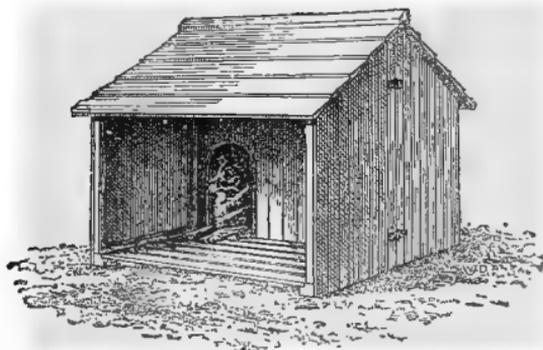


FIG. 5. THE VERO SHAW KENNEL IN POSITION.

ment of kennels for those fairly well-to-do and who can afford to spend £30 or so at the outset. It will now be well to note how the one-dog man can best be accommodated. As a matter of fact, he has

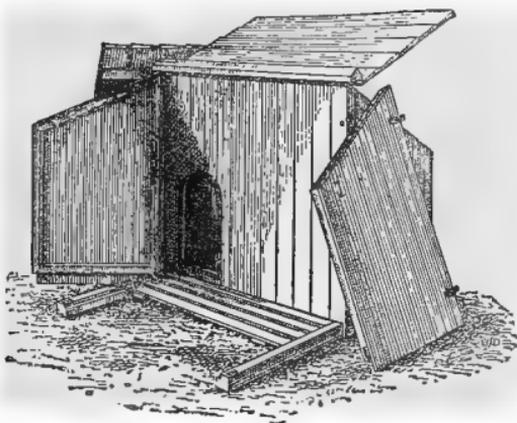


FIG. 6. THE VERO SHAW KENNEL, SHOWING SECTIONS.

been exceedingly well catered for of recent years, the many improvements in kennel construction all being intended to meet his requirements. Indeed the now very popular portable kennel was chiefly designed for the one-dog man.

Portable kennels have much to recommend them, as, apart from the facility with which they can be taken down and erected on fresh ground, they are far more easily cleansed and disinfected than the old style of kennel. They are, of course, readily packed for transmission by rail, and the man, therefore, who has a good dog he is taking with him for sporting purposes, can also ensure that the dog has clean, dry quarters to sleep in. Another excellent feature of these kennels is that provision is made for securing the dog a dry bed even in the wettest weather. This is done by means of a folding inside partition or screen, which is simplicity itself; then, again, the sliding bench is a most useful addition to those portable kennels, as it can be utilised by the dog for lying upon outside when it would be dangerous for him to have nothing but the bare ground. Some firms even go a step farther and provide an outside covered bench, so that from sun and rain he is alike protected.

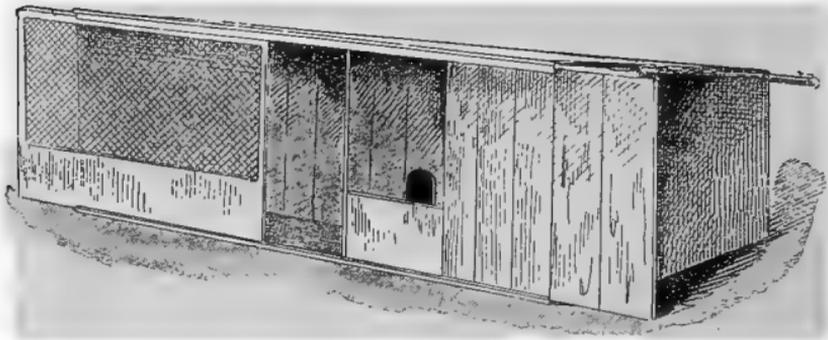


FIG. 7. PORTABLE PUPPY RUN.

A very good form of portable kennel, known as the Vero Shaw, is illustrated at Figs. 5 and 6, and is made by Barnard, Bishop and Barnard, Norwich. It is so constructed as to give the dog a maximum of comfort and at the same time to afford every facility for cleansing. A sliding bench is fitted under the kennel, and protection to the dog from wind and rain is afforded by a movable top and side-wings.

Amongst other firms who have made a speciality of such portable kennels, mention may be made of Boulton and Paul, Norwich; Spratt's Patent, Bermondsey; Calway, Sharpness, Gloucestershire; and Frazer, Norwich.

Then there is to be catered for the man who desires to keep, say, a brood bitch or two, but who has too much respect for either his

pups or his garden to allow them to wander where they please, picking up all sorts of indigestible substances. For such Messrs. Boulton and Paul have specially designed a puppy-house and run (Fig. 7). In the latter the puppies will be able to obtain just that little exercise which at the beginning of their lives is necessary, as well as sun and fresh air without draught.

Yet another class of dog-owner is he or she who has a dog which by reason of its constitution is unfitted for being placed outdoors; or again, one that it is desired to keep indoors for the purpose of

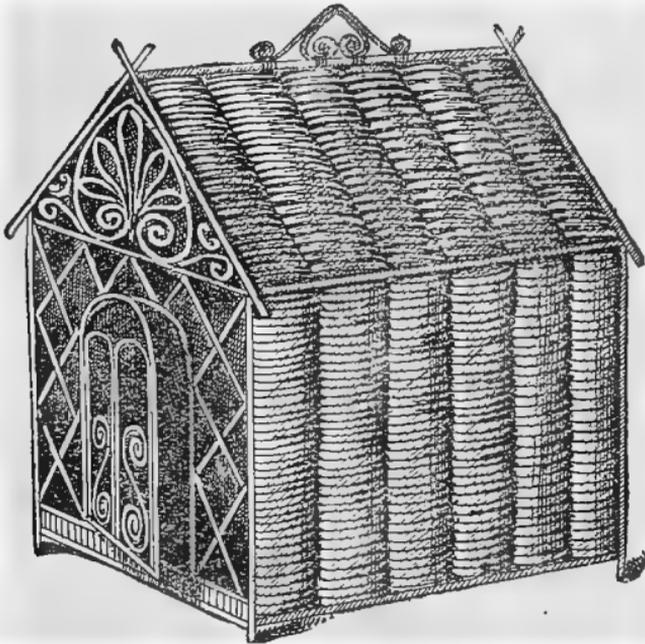


FIG. 8. BASKET KENNEL.

protecting the house. For such dogs, usually small, there are nothing better than the ornamental baskets, or basket kennels, which are frequently seen (Fig. 8). In any of these hay or straw can be used; but neither of these materials would be suitable in the case of a Yorkshire Terrier or even a Clydesdale, as they would be sure to get intimately mixed with the long, silky coat, to the latter's certain loss. Such varieties should be bedded upon a soft cushion.

It is hardly necessary to say that, however dogs are housed, the

kennel or basket should be periodically cleansed with something destructive to flea-life, for, contrary to the general belief, the flea passes the larval existence in the cracks of the floor and the chinks of the basket, and not upon the dog. Indeed, the perfect insect stage is the only one in which the pest is parasitic on the dog.

DISEASES AND ACCIDENTS.

A.

ABORTION.—Strictly speaking, abortion means the expulsion of the foetus before it is sufficiently matured for independent life; but in the lower animals the term is generally applied to premature parturition as well. Abortion is comparatively rare in dogs, but premature whelping, especially just a week or so before the pups are due, is by no means uncommon. The causes of abortion and premature parturition are various. A low diet, when the system requires extra support for the growth of the unborn pups and the secretion of milk for them afterwards; a plethoric state of the body from over-feeding and want of exercise; very severe exercise; jumping from a height or over fences; and, what is too common, blows or kicks on the abdomen, are all likely to cause it. It may also be brought on by drinking foul water, eating putrid food or anything likely to cause inflammation of the bowels, violent diarrhoea, and consequent straining. Young bitches bred from before the system is matured, and old, worn-out ones, are most likely to abort. Preventive measures consist in general attention to health, alike in regard to the food and water given, the sanitary condition of the kennel, the permitting of regular, but not violent, exercise, and in selecting only for breeding purposes bitches that are matured and in vigorous health. The in-whelp bitch should not be benched upon a raised stage, and racing about with other dogs should be avoided. When a bitch has had her pups before the full time, she should not be again bred from until at least one period of oestrus has passed.

ABSCESS.—An abscess is an accumulation of pus or matter in a newly-formed capsule, or wall; it may be the result of a blow or other accident, or be caused by inflammation, local or general. After

pupping it sometimes happens that one of the teats gets dammed up, and this gives rise to local inflammation, ending in abscess. When an abscess is forming, there is unusual heat of the parts, and at first a hard lump, which, as the matter forms, becomes softer, and fluctuates under pressure. If the matter should form very slowly, it will be advisable to hasten the process by hot fomentations, which, if used at all, should be used continuously for a considerable time, afterwards covering the parts to prevent reaction from the cold air. A poultice is useful if it can be kept to the part, and the cleanest and best will be a piece of spongio-pilin—which can be had from any chemist—saturated with warm water, and applied the waterproof side outwards. The abscess is ripe for opening when the underpart is soft and moves readily under pressure of the finger. To open it take the lancet between finger and thumb, and, plunging it well into the centre, make a clean cut downwards, so as to ensure good drainage; press the matter out, bathe with warm water, and keep clean. Apply a canvas-faced muzzle to prevent the animal licking it. In cases where the abscess is deeply seated, the veterinary surgeon should alone use the knife. The diet throughout should be light and nutritious. In many cases, medicine may be dispensed with, except a mild purgative when the matter is fermenting, in which case a dose of the following is recommended :

Mild Purge.—Take syrup of buckthorn, 3 parts; syrup of white poppies, 1 part; castor oil, 2 parts. Dose—a tablespoonful for a dog about 20lb. weight. The bottle must be well shaken before the dose is measured.

As a rule, dogs when convalescent recover quickly, but if after an abscess the animal is much reduced and the appetite impaired, one of the following pills, given twice a day, will have a beneficial effect :

Tonic Pills.—Take quinine, 12gr.; sulphate of iron, 18gr.; extract of gentian, 24gr.; powdered ginger, 18gr.; make into twelve pills. These will be found most useful in debility after distemper and other lowering diseases, as well as in all cases of emaciation and want of blood, as shown by the paleness of the gums, etc. To save repetition, they will in future be referred to as the *Tonic Pills*.

An abscess may form internally from a blow or wound, or in lung disease. In the latter case the matter would be discharged by the nose, and also coughed up; while in the case of the uterus the discharge would be through the vagina. Other internal organs may be the seat of abscesses, but none of these cases can be treated by the amateur, and should be entrusted to the veterinary surgeon.

ACCIDENTS.—These will be found fully dealt with under **BITES, BROKEN BONES, BRUISES, BURNS AND SCALDS, CHOKING,**

CONCUSSION OF THE BRAIN, DISLOCATIONS, PRICKS, SPRAINS, THORNS, AND WOUNDS.

AMAUROSIS (Gutta Serena ; Glass-Eye).—This is loss of sight, partial or entire, and may arise from one of several causes. As a general rule, it is due to a blow in the vicinity of the eye, which has the effect of paralysing the optic nerve. It may, however, be due to a derangement of the nervous system, such as that produced by exhaustion from suckling. Bitches will also sometimes exhibit it during gestation ; whilst excess of light is also a cause. The eye is unnaturally clear and glistening, the pupil expanded and fixed, and that the dog is partially or entirely blind is seen by his stepping high and with needless care when nothing is in his way and running against things which are. If when one feints a blow the eye does not move, total blindness may be assumed.

In treating for amaurosis, attend to the general health. If the cause can be traced, remove it ; while to assist a cure a blister may be applied behind the ear, and a discharge kept up for a time, strengthening food and medicine being given. In cases of blistering, the dog's hind legs should be hobbled. It is always better, however, when such a delicate organ as the eye is the seat of disease, to consult a qualified veterinarian. When the disease is due to a deranged nervous system, 3 to 10 drops of tincture of *nux vomica*, in water, twice a day after food, is useful.

ANÆMIA (Poverty of Blood) is evidenced by paleness of the mucous membranes, weak and slow pulse and heart-beat, lack of energy, depression, and lassitude. As the disease progresses, the eye sinks, becoming dull, the gait is staggering, the breathing becomes laboured and wheezy, and the dog gradually sinks.

The causes are poor food, exhaustive demands on stud dogs, excessive secretion of milk, and allowing bitches to suckle puppies too long. Anæmia may also be the result of some other disease impoverishing the system, and it is not infrequently a consequence of the dog harbouring worms. Give in small quantities and frequently the most nourishing foods—milk, flesh, broths, etc.—*pepsin porci* to assist digestion, and wine of iron or syrup of phosphates as a tonic. At the same time see that the dog is warmly housed and that he gets plenty of sunlight and fresh air.

ANTHRAX is more particularly a disease of cattle, known in the vernacular as “black quarter,” “black leg,” “quarter ill,” “joint ill,” “hasty,” “puck,” “shoot of blood,” etc., from which young and particularly fast thriving stock die without giving, in

most cases, any premonitory symptoms. Dogs partaking of the flesh of animals that have died of anthrax become the subject of the disease, therefore owners should be extremely careful that the carcasses offered for feeding purposes are not of animals which have succumbed to this disease. Anthrax in dogs affects the mouth, throat, and digestive organs, and produces intense fever; vomiting and purging take place, the matter ejected being mixed with blood. Treatment is useless, and should not be attempted, for fear of inoculation, as the disease is communicable to the human subject.

ANUS, POLYPUS IN THE.—See POLYPL

APOPLEXY.—See FITS.

ASTHMA.—A common and distressing complaint, which is frequently the result of indulgence in a too plentiful and too rich diet, combined with luxurious idleness; hence we find its victims chiefly among lap-dogs and other house pets, which are especially liable to it when getting old. The grossness of body which induces and fosters asthma also frequently causes at the same time a kind of scurfy mange, making the coat look rough and dirty, and giving it a harsh, dry feel. Asthma is evidenced by distressing paroxysms of coughing, with considerable difficulty of breathing—these symptoms occurring frequently. The first object is to relieve the animal from these painful attacks, and this is best accomplished by the use of the following medicine:

Anti-spasmodic Drops.—Take equal parts compound spirit of sulphuric ether, known as Hoffman's anodyne, and tincture of opium (laudanum), mix, and keep in a well-stoppered bottle in a cool place. Dose for a dog 20lb. to 30lb. a small teaspoonful given in about a tablespoonful of milk, gruel, or other liquid. Or the following will be found effective: chloride of ammonium, 2dr.; ipecacuanha wine, 1dr.; iodide of potassium, 12gr.; bicarbonate of potassium, 1dr.; syrup of squills, 1dr. Water to 6oz. Dose, a dessert-spoonful to a tablespoonful three times a day. 10 to 20 drops of chlorodyne will also give relief.

Though, as hinted, the above will give relief, they will not cure, and to remove one at least of the predisposing causes the dog must have frequent doses of a brisk aperient; either a dose every morning of the buckthorn and castor oil mixture (*Mild Purge*); or the third of an ordinary black draught; or, what will be still better in many cases, a compound podophyllin pill every night. In addition to this treatment, he should be induced or compelled to take such daily exercise as will make him readily eat coarser food. His meals

should be given rather often, and in small quantities. In some cases it may be requisite to apply a quick blister to the front and sides of the chest, and strong liquid ammonia will be found an efficient and cheap one.

Veterinarians distinguish between congestive and spasmodic asthma; but for the purposes of the amateur it is better to deal with it as one disease, the distinction being too fine a one for most non-professionals to discriminate. The main and readily distinguishable difference is the more constant exhibition of symptoms in the former, the breathing always being laboured, and producing a wheezing sound, the spasmodic cough violently affecting the dog at intervals.

Much relief may be afforded asthmatical dogs by confining them in a close box kennel and filling it with the smoke of Stramonium (Thorn Apple). This may be done twice a day with advantage, and care should always be taken with such patients not to subject them to any sudden change of temperature, whether from heat to cold, or the reverse. If the disease has become confirmed or chronic, the chance of complete cure is very remote; but the regular use of the following pills will have considerable effect in counteracting the liability to severe paroxysms:

Cough Pills.—Take powdered ipecacuanha, 6gr. ; powdered opium, 6gr. ; compound squill pill, 24gr. ; powdered gum ammoniacum, 24gr. ; powdered liquorice, 24gr. ; powder for compound rhubarb pill, 12gr. Mix, and make into twenty-four pills. Dose for a 20lb. to 30lb. dog, one pill night and morning. As these pills have been found to have a wonderful effect in giving relief in all affections of the respiratory organs, and will be wanted again, they will be referred to as the *Cough Pills*.

B.

BALANITIS is applied to an inflammatory condition of the mucous membrane of the prepuce, giving rise to discharge. See PENIS, DISCHARGE FROM.

BALDNESS.—In smooth-coated toy dogs this condition is often seen—in toy black-and-tan terriers to wit, when it is often due to in-and-in breeding. It may, however, be the result of deficient nutritive functions and debility. Tonics should be given, and the bare places dressed with the following ointment: Tincture of cantharides, 2dr. ; vaseline, 3oz.

BILIARY CALCULI.—See CALCULI.

BITES.—When a dog has been bitten by another, wash the wound freely with tepid water, and press out any blood that will freely come, so that the extent of the injury may be seen. Most bites leave punctured wounds, and a good application is Friar's Balsam. Or the wound may be dressed with a lotion composed of 1 part carbolic acid and 20 parts water, adding a little glycerine to the acid before mixing with the water. A saturated solution of boracic acid is also useful. A few drops poured into the part is enough, unless there is a tear, in which case it may be necessary to bandage or to draw together with a few stitches of silk thread. If the bite has been inflicted by a strange dog, the circumstances should be inquired into. *See* RABIES.

BLADDER, INFLAMMATION OF.—This is evidenced by great pain on the application of pressure over the region of the bladder; the urine is passed in small quantities at frequent intervals, and evidently with considerable pain. Inflammation of the bladder is frequently the result of a blow; it may be produced by prolonged exposure to cold and wet, and is not infrequently the result of the unwarrantable administration of cantharides, turpentine, and other drugs, by the ignorant; it is also sometimes due to stricture of the urethra (the urinary passage), or calculi (stone). The treatment consists in first giving a brisk purgative; nothing in this case is better than half of an ordinary black draught; but if this does not act, it will be well to assist it with clysters of lukewarm soap and water or thin gruel, or even a hot bath. The acute symptoms having passed, give 3gr. to 5gr. of benzoic acid in pill form three times a day. If the urine is not freely passed, the catheter should be used in the manner detailed below. When the bowels have been opened, give a dose every six hours of the following:

Fever Mixture.—Take powdered nitre, 1dr.; sweet spirit of nitre, $\frac{1}{2}$ oz.; Mindererus' spirit, $1\frac{1}{2}$ oz.; wine of antimony, 1dr.; tincture of digitalis, $\frac{1}{2}$ dr.; water 4oz. Mix. Dose for a dog 20lb. to 30lb. weight, one tablespoonful every four hours in a little gruel.

The patient will experience relief if the parts are bathed continuously with a warm infusion of poppy-heads, or warm water alone, care being taken that he is not afterwards exposed to cold. The dog's diet should be light and nourishing.

BLADDER, PARALYSIS OF.—This affection is shown by the constant efforts of the dog to urinate and inability to do so, the water coming away in dribbles. It may arise from stone in the bladder. A common cause is over-distension of the bladder caused

by keeping dogs where they will not urinate. Some dogs will not do so when shut up in a room, or when on the chain; hence the necessity, too often neglected, of taking dogs off the benches at exhibitions at regular intervals. This compulsory retention of urine produces spasm of the neck of the bladder, and paralysis—loss of the necessary muscular power—follows. It may also be the result of injury to the spine, or of debilitating disease. The effect of continued hot fomentations should be tried, and if these fail, the urine should be drawn off by means of a catheter. Passing a catheter is a very simple matter. The dog should be placed upon his back, and the prepuce pressed back, so as to bring the penis into view; the catheter should then be dressed with a little olive oil or vaseline and passed gently into the opening at the point of the penis. This will introduce it into the bladder, when the piece of wire with which the instrument is provided should be withdrawn. Should the urine not flow freely, the dog can be stood upon its legs, keeping the catheter in position. If a catheter is not at hand, pressure with both hands through the abdominal walls in the region of the bladder, will empty it of its contents. If paralysis of the hind legs is present, an assistant should raise the body from the ground, by means of the tail, whilst the operator is pressing the sides.

During convalescence give barley-water to drink, and soft nourishing food—porridge and milk, broth and bread, etc.

BLAIN is a name given to a vesicular swelling of the tongue along the sides and underneath. It comes on suddenly, is most frequent in spring and summer, and appears to be epidemic, many cases occurring in the same neighbourhood at the same time; it has not been shown to be contagious. Horses and cattle are even more subject to it than dogs, and, although it is not a fatal disease, it is a very troublesome one.

The symptoms appear without warning and apparently without cause. The first thing generally observed is a considerable increase in the flow of saliva, which dribbles from the mouth. The breath is foetid, and on examination the tongue will be found considerably swollen, while, if the disease has lasted any time, there will be observed large livid vesicles, which rupture, leaving ulcers; these ultimately assume a gangrenous form, and discharge foetid matter tinged with blood.

If observed in its early stage, give a dose of *Mild Aperient* or black draught every morning for four or five days. If the vesicles are large, make an incision with a lancet, and sponge the tongue with 1 part of saturated solution of chlorinated soda to 10 parts of tepid water, or with a dessert-spoonful of Condry's fluid in a pint of

water, or with a saturated solution of boracic acid. If the ulcers assume a very unhealthy form, they may be touched with a point of caustic, but this requires the utmost care, or it will spread over the surrounding surface, causing great and unnecessary pain. After the aperient medicine, tonics should be given. For a dog 30lb. to 50lb. weight give one of the following pills twice a day : Pure sulphate of iron, 1dr. ; extract of camomile, 1½dr. Mix, and divide into twenty-four pills. Whilst blain exists, the food should be entirely soft—oatmeal porridge, broth thickened with stale bread, etc.

BLINDNESS may be partial or complete, temporary or permanent. Partial loss of sight is one of the common sequels to distemper. See CATARACT, OPHTHALMIA, AMAUROSIS, and DISTEMPER.

BLOOD, POVERTY OF.—See ANÆMIA.

BLOODY URINE.—See HÆMATURIA.

BLOTCH, OR SURFEIT.—When dogs are affected with blotch, inflamed patches are observed on various parts of the body ; these discharge a thin mattery fluid, which eventually forms a scab, and mats the hair together. In a few days the hair falls off, leaving bare patches moist from the exuded fluid, and an intolerable itching is present, causing continual scratching or rubbing. If the disease be neglected, these scabs rapidly extend and coalesce till the dog becomes almost bare of hair, and presents a loathsome and disgusting appearance. There is constant exudation of matter forming fresh scabs, the skin becomes thickened and wrinkled, the dog rubs or scratches himself till he bleeds, he gets no rest, his appetite fails, and he often sinks under the disease.

Blotch is often aggravated by want of thorough cleanliness, the dirt mixing with the exuded watery matter, and causing increased irritation of the skin. It is of most frequent occurrence and severest in its attacks in overcrowded kennels, where the sanitary arrangements are bad, where injudicious or insufficient feeding prevails, and where there is a want of proper cleanliness.

Damp and cold kennels I have found fruitful of blotch, and indeed anything that interferes with the general health. Weakening the digestive organs appears to produce it, and so does gorging a dog, as is often done in forcing them into condition for show.

The treatment of this form of skin disease will be somewhat dependent on the state of the animal. If in good condition the dog should receive a brisk purgative, and the *Compound Podophyllin Pills*

will be found most suitable. The aim should be, however, to produce a healthier state of the blood, to which end give the following : 3gr. to 5gr. of sulphate of iron, with 3 to 10 drops of liquor arsenicalis. It will be necessary to keep the bowels freely opened during the existence of the disease. If the dog is much emaciated, he must have the *Mild Purge*, and receive good nourishing diet in the form of broth, etc. As an outward application, the following lotion will be found extremely useful in allaying the irritation and assisting in recovery :

Lotion for Blotch.—Take carbolic acid and glycerine (British Pharmacopœia), loz. ; laudanum, 2oz. ; water, 1½ pints ; carbonate of potash, 2dr. It should be applied over the whole surface of the skin affected twice a day, and the dog be carefully washed every few days with soap and warm water, containing a teaspoonful of carbonate of soda to every quart of water, and afterwards very carefully dried ; this will much facilitate a cure. Another useful formula is boracic acid, loz. ; laudanum, loz. ; whale oil, 14oz. ; but it is a dirty and disagreeable thing to use. White naphthol ointment is also good, but, being poisonous, a canvas-faced muzzle must be placed upon the dog.

Of course the kennel must be examined, any defective sanitary arrangements altered, and thorough cleanliness insisted on. The dog's bedding should be changed at least every other day, and the proper use of disinfectants in and about the kennel is of great service.

I have often found glycerine alone cure blotch when very freely rubbed into the skin twice a day, and nothing can be simpler, safer, or cleaner. All cases, however, will not yield to it, and it should be tried in combination with 2 or 3 per cent. of pure carbolic acid. This may be used alone, or, where a large surface of skin is affected, diluted with an equal bulk of water. Dressings of olive oil or vaseline are useful when the skin is hot and wrinkled. See also ECZEMA.

BOILS are not very common on the dog ; when they do appear, a poultice of some kind should, if practicable, be kept constantly applied, in order to bring the boil quickly to a head. It should then be opened with a lancet, the matter well squeezed out, the part well washed with tepid water, and then dressed twice daily with the following ointment, which for convenience will be referred to as *Carbolic Ointment* : Turner's Cerate (*Ceratum calaminæ*), loz. ; precipitated chalk, glycerine, and carbolic acid, of each 2dr. ; mix. In the case of boils or any other eruption the state of the dog's health must be considered. A cooling aperient drench, such as the following, given every other day for a week or so, will usually prove

beneficial: Epsom salts, 1dr. ; bicarbonate of potash, 10gr. ; sweet spirit of nitre, 10 drops ; water, $\frac{3}{4}$ oz. ; mix.

BONE, INFLAMMATION OF THE.—*See* OSTITIS.

BONES, BROKEN.—It can be ascertained if a bone of the leg is broken by taking hold of the limb above the supposed fracture and moving the lower portion against it, when a grating or crackling of the broken ends against each other will be felt or heard. The treatment consists in adjusting the fractured parts to their natural form, and applying splints to keep the parts set. Splints may be made of strips of gutta percha, softened in warm water, and moulded to fit the limb ; or pieces of thin wood may be cut the required size, and well padded with wadding. A good and light bandage for fractures is made by soaking a bandage, made of muslin, in gum tragacanth. The splints can be kept in place by binding evenly with light calico bandages, which previous to application have been smeared with Venice turpentine and Burgundy pitch, in equal parts, whilst hot. If much swelling occur, it will be necessary to slacken the bandages, and in most cases it will be requisite to muzzle the dog to prevent him tearing off the splints. Perfect rest will be required, and the general health should be attended to. The time it will take for the bones to unite is uncertain. An excellent and very convenient description of splints for fractures is made by Mr. Linton, chemist, Princes Street, Edinburgh. In use it has to be first softened in warm water, when it can be pressed around the fractured part, and made to take its exact form ; it soon hardens, and is kept on until the bones are again joined and consolidation of the tissues is complete. The amateur should only attempt to deal with simple fractures. Comminuted fractures, where the bone is broken into several pieces ; and compound fractures, wherein the soft parts are torn and the ends of the broken bones exposed, should be left to the veterinary surgeon.

BOWELS, INFLAMMATION OF (Enteritis; Peritonitis).—The severity and very dangerous character of this disease in the dog are such that perhaps the very best advice that can be given to the amateur who finds his valued dog attacked by it, is to send for a qualified veterinary surgeon without delay. The owner may, however, be possessed of sufficient self-confidence as to wish to try his own skill in treating the disease ; or the dog may not be considered of sufficient value to incur the expense of employing a professional man, although there may be every desire to save the animal's life. If I can help in any such commendable endeavour

without encouraging useless and ignorant experimenting at the cost of torture to the dog, I shall feel that I have been of some little service.

Whatever course is determined on, whether home treatment or the calling in of professional aid, the decision should not be taken till the symptoms have been carefully and minutely observed, and the greatest attention must be paid to them, else there is every fear of the amateur confounding the disease with and treating it as colic, which, although strongly resembling inflammation in some of its symptoms, differs widely in others, and requires totally different treatment. Colic, if neglected or wrongly treated, may, and frequently does, end in inflammation of the bowels; but it is in itself a distinct ailment; and the same remark equally applies to constipation, or obstruction of the bowels.

As inflammation of the bowels, or enteritis, is one of the most fatal diseases to which the dog is liable—frequently carrying him off very quickly—no half measures will do for it; but, having ascertained clearly from the prevailing symptoms that the disease is actually present, remedial measures must be adopted with promptitude and energy. The main causes of the disease are irregular or improper diet; irritation caused by the dog having swallowed some hard indigestible substance; and exposure to cold and wet. Sometimes, however, it is the result of ill-usage, such as a kick. Inflammation of the bowels may be distinguished from colic in being more gradual in its approach, and it is always ushered in by general feverishness; the nose is hot and dry, the eyes are red, and the whole countenance is expressive of great anxiety; shivering fits occur, the belly is hard and distended, the surface hot to the touch, and the urine is generally scanty and highly coloured. As in colic, when standing, the back is arched, the feet are drawn in towards each other, and the tail is tightly tucked between the legs; or the dog may steal into a quiet corner, stretch his legs out before and behind, and crouch with his belly on the ground, probably finding temporary relief by bringing it in contact with the cold floor or ground; at the same time the dog may be observed to frequently turn an anxious face towards his flanks. Another safe and pretty certain way of distinguishing between enteritis and simply obstruction or colic, is by pressing the hand along the belly. In the latter diseases, especially in colic, the rubbing gives relief, whereas in inflammation it evidently causes acute pain.

I may here mention the fact that enteritis is very commonly a complication of that "scourge of the kennel," distemper, and this fact alone sufficiently shows the folly of trusting to any single medicine—pill, powder, or potion—or any so-called specific whatever

for the cure of that disease. The treatment proper in the disease under consideration consists in getting the bowels relieved as speedily as possible by the mildest means that can be used, constipation being generally present. For this purpose the use of clysters every fifteen minutes, as recommended in OBSTRUCTION OF THE BOWELS, should be resorted to, and the injections must be used gently and with as little annoyance to the patient as possible. When the clysters begin to take effect, the evacuation of the bowels should be assisted by a dose of castor oil. Many of the best writers on dogs recommend giving calomel and opium combined, and it may appear presumptuous in me to offer a contrary opinion; but Experience is the best teacher. Instead of calomel, I have in several cases used the following with excellent effect: true James's powder, 2gr.; powdered opium, $\frac{1}{2}$ gr.; in one powder. Give to a 20lb. dog one of these powders every two hours till three have been administered.

To allay the pain, give 5gr. to 10gr. of chloral, with 5 to 30 drops of tincture of opium; also apply hot flannels to the abdomen.

If the dog should get over the attack, with signs of returning health great weakness will be evident, and this must be met by good nursing and a generous, but easily assimilated, diet. Beef-tea, thickened with bread, cornflour, or arrowroot, will answer well. The diet must be so varied as to keep the bowels open without the use of medicine. When well on the road to health, progress will be accelerated by giving the *Tonic Pills* twice a day; or the following may be substituted:

Concentrated Tonic Mixture.—Take of concentrated decoction of yellow cinchona bark and compound tincture of cinchona bark loz. each; mix. Dose for a 20lb. dog, half a teaspoonful twice a day in water.

BOWELS, OBSTRUCTION OF (Constipation, or Costiveness).—Dogs are peculiarly liable to costiveness, and, as Youatt states, "it is a disease when it becomes habitual"; but a very little care and attention on the part of the owner will prevent it. In the tendency to costiveness of course individual animals differ, and should be treated accordingly. Although bones are excellent and almost necessary to a dog's health, an excess of them is to be avoided. The same may be said of an excess of any kind of dry food, or of keeping the dog constantly to one diet; indeed, want of exercise and the absence of the necessary variety in the food are the principal causes of constipation.

Whether looked upon as a disease in itself, or as a symptom and

attendant on other diseases, constipation is always troublesome and often becomes dangerous. The fæces accumulate and get pressed into hardened lumps, the belly is distended and hard, and colic pains occur, driving the dog almost frantic and causing him to run about blindly, stumbling over different obstacles that happen to be in his way, and to give utterance every now and then to sharp howls of pain. And here I would warn the owner against resorting to the common practice in constipation of giving strong purgatives, such as Epsom salts, jalap, calomel, aloes, etc., the tendency of which is to render the evil worse by forcing the fæces into a still smaller compass, whereby they become more impacted and hardened than before. When the dog is in great pain, the proper course is to administer a dose of the *Anti-spasmodic Drops*. Clysters of thin oatmeal gruel, or soap and water lukewarm, and containing about 1oz. of castor oil in each $\frac{1}{2}$ pint, must be used continuously till the desired object has been attained. This end will be greatly facilitated by first introducing the finger, oiled, or a small bone spoon, into the rectum, and removing as many of the hard fæces as can be reached. It is necessary that everything should be done with the greatest gentleness; for rough handling is likely to alarm the patient and cause him to do himself irreparable injury. When the lower bowels have been emptied, follow up the treatment by giving the dog a strong dose of castor oil and some warm broth or gruel. The use of purgatives must not be resorted to to prevent a recurrence of the disease. The system of management must be altered, the dog must have daily exercise, the food must be varied, and embrace a portion of boiled, chopped up green vegetables at least every second or third day. For a week or so after the attack rather sloppy food should be given, such as well boiled porridge and milk or broth.

Foreign Bodies in the Intestines.—This is another cause of obstruction in the bowels to which dogs are peculiarly liable. Pieces of bone are swallowed of such size and substance that they pass through the digestive organs very slightly diminished, and getting into the smaller intestines, cannot pass farther, so that fæces accumulate and harden until, if not relieved, inflammation is set up. Sometimes stones are swallowed and cause obstruction, and this will at once demonstrate the danger of throwing stones for dogs to retrieve, for, in their eagerness, they are apt to swallow them, especially if small. Wool or rabbit fur swallowed is likely to ball together with other matter and block the passage, and a case once came under my observation of a bull bitch suffering from obstruction of the intestines from

a ball of straw which she had swallowed bit by bit, from having her meat, boiled paunch, thrown down to her in pieces among her bedding.

Intussusception is the telescoping of one portion of the intestines that has been contracted by spasm within another part retaining its natural diameter, and is another not uncommon cause of obstruction which is apt to take place during spasmodic colic. Intussusception cannot be determined by symptoms, but is discovered on *post-mortem* examination. The obstruction consequent upon it sets up inflammation, ending in death. Dogs should not be allowed to remain costive more than two days without the means for their relief already described being resorted to. It is always safe and generally advisable in such cases to give a full dose of olive, linseed, or castor oil, or a mixture of them.

Worms are another cause of obstruction in the intestines, especially in pups. Round Worms get coiled into balls, set up local irritation, and interfere with the natural action of the bowels. This sort of obstruction will, however, be more fully treated under WORMS.

BRAIN, CONCUSSION OF THE.—See CONCUSSION OF THE BRAIN.

BRAIN, INFLAMMATION OF THE (Meningitis)
—The meninges, as the membranes enveloping the brain are called, are liable to inflammation. In this affection there is great drowsiness, with sudden spasmodic movements of the muscles of the head and chest during sleep. The disease is often preceded by fits. In this, as in other affections of the brain, there is a disposition to walk in circles, and always to the one side, and the sight is so affected that the poor dog runs against obstacles. No treatment by the amateur is of avail.

BRAIN, WATER ON THE (Hydrocephalus).—Professor Woodroffe Hill, F.R.C.V.S., in his exhaustive work on dog diseases, makes the following pertinent remarks: "Hydrocephalus, or water on the brain, is by no means an infrequent canine affection. It is invariably congenital, and is more particularly seen in high-bred dogs and especially where the in-and-in system of breeding has been adopted. Several instances have come under my own observation attributable, in my opinion, to the latter cause. In one or two cases absolute idiocy existed, the animals performing absurd motions, and

alike regardless of petting or scolding. They were diminutive black-and-tan toys, and, if I may be allowed the expression 'bred to death,' destitute of hair on the ears and skull, the latter unsightly and large, the eyes painfully prominent and expressionless, the body deficient in symmetry, and the limbs distorted. And some of the defects named were considered by the creatures' owners as indications of the purity of the strain; and animals of this type are kept—regardless of entreaties to destroy such insults to Nature—for purposes of breeding. Fortunately, however, Nature rarely sanctions issue from such parents."

In addition to the symptoms above named, paralysis is very frequently present, usually in the hind limbs, which, in locomotion, are dragged. There is also often a great disposition to sleep, but it is generally disturbed by fitful starts and suppressed moans, and the eyelids during that period are only partially closed.

I have no remarks to offer on the treatment of canine hydrocephalus, beyond observing that the measures adopted in human practice—compression, puncturing, and the various medicinal agents—may be tried, and possibly with success, in those cases where exceptional reasons for saving the animal's life and removing the unnatural effects of the disease exist.

BREEDING, TO PREVENT.—To prevent a bitch from breeding after she has gone astray, wash out the womb with a strong solution of alum and water, using the ordinary syringe with the female point adjusted. The sooner this is done after the act of coition, the better. It will often prove successful, especially if the bitch is in the early stages of œstrum. A fairly strong solution of Condry's Fluid, with 5gr. of sulphate of zinc to each ounce, has also been successfully employed.

BRONCHITIS may be described as inflammation of the bronchial tubes, or windpipes, which convey air to the lungs. When the inflammation is confined to the upper portion of the windpipe, or larynx, it is termed LARYNGITIS, which *see*.

Exposure to damp and cold, being kennelled where foul and irritating emanations are breathed, and neglect of common colds, are the chief causes.

When the larger air-pipes alone are affected, the dog at first suffers from a short, dry, intermittent cough, which, in a few days becomes more frequent, and mucous matter is discharged from the nose and also coughed out; but when the smaller bronchia are attacked, there is pretty constant wheezing; the cough is more severe; frothy matter, often tinged with blood, is expectorated; the

breath is hot; the mouth and nose are dry and hot; the eyes are red and inflamed; the tongue is parched; the pulse is weak and considerably increased; the discharge from the nose gradually becomes thick and copious, and there is often violent sneezing.

The patient should be placed in a tolerably warm room where there is a fire, and if a kettle with a long spout be kept boiling so that the steam is distributed through the apartment, it will prove very beneficial to the dog. The fireplace will also ensure ventilation, which is always important. In the first instance give to a 20lb. dog 3gr. of true James's powder, and $\frac{1}{4}$ oz. of castor oil as a mild laxative. For food, give broth or porridge.

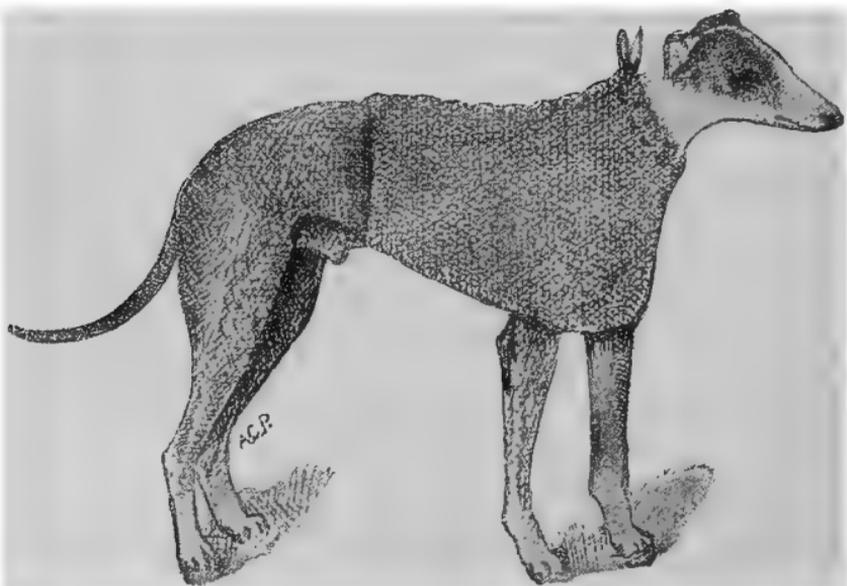


FIG. 9. COAT FOR SICK DOG.

Where there is an accumulation of phlegm, and the animal endeavours to dislodge it, give a dessertspoonful to a tablespoonful of ipecacuanha wine, to act as an emetic. This will greatly relieve the patient. If the cough is troublesome, give from a dessertspoonful to a tablespoonful of the following mixture twice a day:—Liquor morphiæ mur., 2dr.; spirit of ether sulph. co., 2dr.; tincture of camphor co., 3dr.; ipecacuanha wine, 1dr.; water to 3oz.. Or 3gr. to 5gr. of benzoic acid will relieve the cough. Apply hot linseed poultices to the chest and sides, and always place a coat upon the dog (Fig. 9).

The following medicine, in the form of a thin electuary, should then be administered to the patient every three hours :

Electuary for Bronchitis and Sore Throat.—Take chlorate of potash, 3dr. ; wine of ipecacuanha, 3dr. ; tincture of opium, 2dr. ; powdered liquorice root, $\frac{1}{2}$ oz. ; powdered gum acacia, $\frac{3}{4}$ oz. ; honey, 1oz. ; and vinegar of squills, $\frac{1}{2}$ oz. Mix, and give to a dog 20lb. weight a teaspoonful every three or four hours. See that the ingredients are well mixed, as they will have a tendency to separate, and in giving the medicine place it well back on the tongue.

It is sometimes advisable to blister the throat and front of the chest, and in most cases a good rubbing with a strong stimulative liniment will be of service. Vinegar and mustard may be used, or the following : Spirits of turpentine, $1\frac{1}{2}$ oz. ; oil of origanum, 1oz. ; tincture of cantharides, $\frac{1}{2}$ oz. ; spirit of hartshorn, 1oz. ; rape oil, 2oz. ; mixed.

Bronchitis often assumes a chronic form, especially in old dogs, when there is a constant husky cough, bringing on retching and discharge of phlegm. In such cases the breathing is short and thick and the animal incapable of much exertion. Nothing can be done towards a cure, but alleviation may be obtained by administering when the cough is unusually bad a little oxymel of squills and thick mucilage of acacia in equal parts. A dessert-spoonful to a tablespoonful may be given several times a day.

BRONCHOCELE.—An enlargement of the thyroid glands, that is, the principal cartilage of the larynx. See GOITRE.

BRUISES.—When there is much swelling, bathe for an hour with warm water, and having well dried the parts, rub in the following :

Liniment for Sprains, Bruises, etc.—Take equal parts of spirit of turpentine, liquid ammonia (not the strongest, but the spirit of hartshorn of the shops), laudanum, and rape oil ; mix to form a liniment.

If the skin be broken, touch the wounds with tincture of benzoin (Friar's balsam), and rub the liniment all round, but not into the broken skin.

BURNS AND SCALDS.—Dogs allowed to run at large without their owner's supervision encounter many dangers, and are apt to get into mischief—I might say into hot water—and although owners may reasonably expect dogs to be punished when on trespass, that is no justification for the cruel and malicious to scald or burn the poor beast, who is not to blame when, following his instinct, he

seeks the slaughter-house. Of course, a burn or scald may be the result of pure accident, and oftenest happens to that class technically termed "cinder-worriers." The best application to either burn or scald is the preparation known as Carron oil, which is made by mixing equal parts of linseed oil and lime water. It should be applied freely, and as soon after the accident as possible. As a useful remedy it should be kept in every house, but especially in every country house. In such cases the dog should be kept quiet, receive plain food, and be given a mild aperient. A burn or scald, if severe, often gives a violent shock to the system, and symptoms of illness arising from it must be observed and treated according to circumstances. Carron oil is best applied direct to the wound alone, and then immediately thickly covered with cotton-wool to exclude the air from the bladders formed. The dressing should be repeated when necessary, care being taken that no hairs or other irritating substances are left on the sore places.

G.

CALCULI.—The dog is more frequently the subject of Calculi (Stone) than is generally supposed. Their locality varies; they may exist in the biliary ducts, the bladder, the kidneys, or in the urethra (the passage of the penis).

In Biliary calculi, those stones situated in the biliary ducts, providing they are sufficiently small to pass the duct are not of great moment—in fact, upon post-mortem one often discovers their existence, while during life no inconvenience or pain was noticed—but should these stones be too large to pass the ducts, they are very painful and a most fruitful cause of jaundice. The bile, which in health passes through these ducts, becomes completely impeded in its progress, and is re-absorbed by the blood-vessels entering the general system, and jaundice is established. The symptoms of biliary calculi when not completely blocking the ducts, are excessive sickness and constipation, with pain in the abdomen. The treatment should consist in allaying the pain, when the stone will frequently pass in a natural way. To accomplish this object give 5 to 30 drops of tincture of opium, every four hours, in a little water, and a soap and water enema night and morning to relieve the bowels, opium having a tendency to constipate.

Cystic calculi is the name given to stones found in the bladder; it is generally supposed that their existence is extremely rare, but such is certainly not the case. A single large stone is not frequently seen, but a number of small ones, especially in old dogs, is not at all

uncommon. In the former cases nothing short of an operation can possibly effect a cure; but when one takes into consideration the necessity of keeping a patient in one position after the operation, it will be patent to most, that in canine practice, the removal of the stone is seldom, if ever, attended with success. I have seen a few attempts at the operation, but all, without exception, have been dire failures.

Small calculi will frequently pass from the bladder into the urinary passage (urethra), and if small enough, out of the body through the penis; but often these stones will become fixed in the urethra and the animal is unable to pass its water. The bladder becomes distended, and if not relieved, rupture of the organ results. When one finds a dog cannot pass its water, a catheter should be procured, a little olive oil or vaseline rubbed upon it, and the instrument inserted at the tip of the penis. Of course the animal must be placed upon its back. Insert the catheter very gently, and gradually pass it into the bladder. If there is a small calculus in the urethra the passage of the catheter will be obstructed, and when this is so, no extreme force must be used, or a very extensive injury may result. A little gentle and prolonged pressure may return the stone into the bladder, and so allow the urine to pass. If the stone cannot be returned in this attempt, inject into the passage of the penis a little olive or salad oil, and repeat the operation with the catheter.

Calculi sometimes exist in the kidneys and may pass into the bladder, thence through the urinary passage, and so out of the body; but at other times they become too large to leave the organ and cause intense pain and subsequent death. The symptoms are first, stiffness across the loins accompanied by pain when an attempt is made to move; the urine is passed in small quantities, and is frequently, indeed often, tinged with blood. In these cases it is a matter of relieving the pain, with the hope that the stone is small enough to gain an exit by the penis. To relieve the pain give 5 to 30 drops of tincture of opium about every four hours, and apply hot flannels to the loins. A dose of oil to relieve the bowels is beneficial, as any straining in passing the fæces would increase the pain. It is well to leave these cases to the veterinary surgeon.

CALLOSITIES.—Places bare of hair from rubbing or chafing, lying on bare boards, etc., are often seen on the haunches of large, smooth-coated dogs; while the skin is thickened (indurated), and almost horny. Continued applications of glycerine, vaseline, or boracic acid ointment night and morning will soften and tend to remove these lumps, which, although an eyesore, do no harm.

CANCER.—This is a disease which can only be with certainty distinguished and safely treated by the professional man. Fortunately, however, it is not of very frequent occurrence in the dog, and many authorities doubt the existence of true cancer in the dog.

CANINE MADNESS.—*See* RABIES.

CANKERED MOUTH.—*See* MOUTH, CANKER OF

CANKER OF THE EAR.—*See* EAR, CANKER OF.

CATARACT.—Cataract consists of the presence in the interior of the eyeball of a whitish opaque spot, which gradually enlarges and very often ends in blindness. This opaque spot is situate on the crystalline lens. It frequently follows ophthalmia, but it may be the result of inflammation or of a wound or blow. It is commonest in aged dogs, and is then an evidence of failing health, and the probable breaking up of the system. Nothing short of an operation is of any avail.

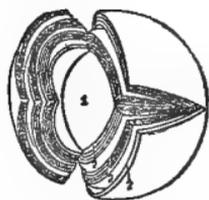


FIG. 10. CRYSTALLINE LENS, SHOWING THE LAYERS 1, 2, 2,

Fig. 10 is the crystalline lens and is the seat of cataract. It is made up of concentric laminae, and when hardened, by immersion in alcohol, it can be peeled in the same way as the layers of an onion can be removed. It is composed of a capsule and lens: if the cataract is situated upon the lens, it is known as a lenticular cataract, but if confined to the capsule it is known as capsular cataract. Both structures may however be involved, when it is known as capsulo lenticular. The hardest portion of the lens is that most centrally placed.

CATARRH, OR COLD IN THE HEAD.—Dogs that live in freedom, although much exposed to changes of temperature and weather, are not so liable to attacks of catarrh as the more delicately reared, in whom a sudden change from the close atmosphere of the room to the open air, or exposure to a drenching shower, frequently produces cold. The first symptoms are shivering and evident languor, succeeded by a hot, dry nose, with a thin discharge at first, but which gradually thickens. If the disease proceed, a hot skin, dulness about the eyes, with other evidences of fever, follow, according to the severity of the case. There is more or less discharge from the nose, sometimes accompanied with sneezing; and if severe, and the bronchial tube be affected, a cough will be the result. It is pretty well understood, when applied to ourselves, that a cold

uncared for is most likely to lead to serious illness; and it is no less true of the dog. *See also* OZÆNA.

In puppies the symptoms of common cold may be mistaken for those of distemper; and in older dogs, if unchecked and uncared for, it is likely to lead to bronchitis, inflammation of the lungs, or other dangerous disease. It is, therefore, very necessary to pay attention to the first appearance of a deviation from health in this direction, mindful of the old proverb that "a stitch in time saves nine," such as a coat placed upon the dog as previously advised under BRONCHITIS. Some hardy animals will need no further care than an extra warm bed and a warm supper; but others will require more attention. If, conjointly with other symptoms mentioned, there be a scantiness of urine and costive bowels, give a dose of aperient medicine, followed by a few doses of *Fever Mixture*; or tincture of camphor co. 15 to 60 drops; tincture of gentian, 20 to 60 drops; spirits of aether co. $\frac{1}{2}$ dr. to 2dr. in water three times a day. Remove any discharge from the eyes with warm water. If they are inflamed, bathe with the following lotion: Boracic acid, powdered, 1scr.; distilled water to 6oz. To allow the animal to breathe freely the nose must be bathed; this will tend to prevent accumulations of mucus. During convalescence the following tonic is useful: Easton's syrup, $\frac{1}{2}$ oz., water to 6oz. Dose, a dessertspoonful to a tablespoonful twice a day after food. Unless the cold has engendered some more dangerous complaint, this treatment will be all that is required. If the cough be severe, resort at once to the *Cough Pills*, which invariably relieve. *See* COUGH.

Coryza is the name given to a common cold when confined to the nose and eyes, and characterised by a running at the nose and watery eyes. I have found the following plan quickly cure it: Take a large sponge, wring it out of warm water, sprinkle it freely with vinegar of squills, and hold it to the dog's nose, so that he inhales the fumes. Or half fill an upright jar or jug of suitable size with bran, saturate it with hot water, and sprinkle over and stir into the bran the following: A tablespoonful of ordinary vinegar, a teaspoonful of laudanum, and six drops of glycerine and carbolic acid (British Pharmacopœia). Mix, and hold the dog's nose over it. This quantity to a double handful of bran in a quart or three-pint jar is suitable for a 20lb. dog.

CHEST-FOUNDER.—*See* KENNEL-LAMENESS.

CHOKING.—This accident is apt to occur with greedy animals that bolt their food. A bone, a piece of gristly meat, or other hard substance, is bolted, and sticks fast in its passage to the stomach.

I always adopt the plan of reserving bones until after the dogs have fed, for if given with the other food they are at once picked out, and the smaller ones are, when the dog is hungry, apt to be swallowed unmasticated, and produce choking.

Frequently by manipulating the throat outside with the fingers the obstruction can be worked down the gullet; or if it can be felt in the upper part of the throat, it may be removed by the throat forceps, which most veterinary surgeons keep by them. Woodroffe Hill recommends, when the substance is too low for extraction, and manipulating with the fingers externally fails, to endeavour gently to force it down with a piece of bent whalebone, having a piece of sponge tied to the end of it, and dipped in oil. In using this extra care must be taken that the sponge is so firmly attached to the whalebone that it cannot slip off, for if swallowed it might effectually block up one of the smaller intestines; therefore cut nicks in the whalebone, into which tie the piece of sponge. To prevent the piece of sponge becoming lodged in the œsophagus a piece of thread should be inserted through it, and held in the hand as well as the whalebone, so that should it slip from the point of the whalebone, it may be recovered by pulling the string. I give these instructions as they may be useful; but relief by hand is usually the only possible aid, and in most cases the dog would be dead before the instrument could be got ready. Fortunately cases of choking are very rare. As soreness, if not actually laceration, is almost sure to be caused, the dog should for some days afterwards be restricted to soft food.

CHOREA.—This most distressing complaint arises from some derangement of the nervous system, and generally exists as a sequene of distemper, when it is known among kennel men as “the twitch.” A disease in many respects resembling and often mistaken for Chorea, or St. Vitus’s Dance may, however, arise from other causes producing a disturbing effect on the nervous system, such as a severe injury or blow on the head, the irritation caused by worms, or long continued impaired digestion. This is not true chorea, which can only follow distemper.

The symptom indicating chorea is a peculiar involuntary convulsive twitching of the muscles. These spasmodic movements or jerkings may be either partial or general, but usually partial. One or both hind legs are affected; or the twitching may extend to the muscles of the fore legs, neck, and shoulders, in which case the head is bobbed up and down in a silly, helpless manner. Sometimes the eyelids and muscles of the face are affected; but whatever part of the body is attacked, the peculiar twitching or jerking is always unmistakable. When the hindquarters are the seat of the disease, the

dog will sometimes suddenly drop one of the limbs from the hip joint, apparently from sudden loss of power or command over the guiding muscles. The weakness is strongly shown when the dog attempts to jump on to a chair or the lap, which he fails to do, and generally falls helplessly on his side, "all of a heap." Few, if any dogs severely afflicted with chorea get completely cured.

When the attack is but slight, the dog may live for years, and prove a useful animal, as, except in severe cases, it does not seem greatly to impair the general health. The constant twitching is, however, so annoying to most people, that few would care to keep a dog thus afflicted.

Although dogs carefully and properly treated in distemper are less likely to suffer from this disease, yet it occurs in the best managed kennels, and so I must proceed to consider its treatment. The first thing to be done is to attend to the general health, and especially to see that the bowels are properly acting; and it is better, if their action require correction, to endeavour to accomplish that object by a careful regulation of diet, than to resort to physic. Indeed, all through chorea the food must be of a nature easily digested, and given with regularity, if any course of medicinal treatment is to be successful. The remedies recommended in chorea are arsenic, and nux vomica and its preparations, though the former I do not recommend.

The following pills I have found very successful. As the ingredients require very great accuracy in weighing, and very careful mixing, the making of them must be left to a properly qualified dispensing chemist, and the box containing the pills should be kept strictly in the master's possession, for fear of accidents:

Pills for Chorea.—Take strychnine, 1gr. ; quinine, 18gr. ; extract of belladonna, 6gr. ; extract of gentian, 1dr. ; powder for compound rhubarb pill, 1dr. ; mix very carefully, and divide into forty-eight pills. Dose for a dog 20lb. weight—one pill twice a day with his food.

It is necessary in chorea to continue the use of these remedies for a considerable time—at least a month in most cases—to produce any satisfactory result, or even to give them a fair trial; and, as before said, the dog must be carefully fed, well lodged, and properly exercised when he has sufficient power to use his limbs. In the case of dogs reared in towns, a change to the country for some weeks would be beneficial. The electric battery has proved of great benefit in many cases, and I advise a trial of it.

CLAWS, INFLAMMATION AT THE ROOTS OF.—

Dogs used to the chase, or hunting in scrubby heather, or running

much over hard, uneven roads, suffer from sore toes; the parts around the roots of the claws are swollen, inflamed, and tender, making the dog lame, and, indeed, almost unable to get about; there is redness between the toes, and sweating or thin serous discharge therefrom.

Such cases are often very difficult to cure. First give a dose of aperient medicine, and keep the dog up, giving him plenty of soft bedding, and a light diet. Foment the part night and morning with warm water, and bathe freely with this lotion: Calomel, 2scr.; lime water, 12oz.; mix. Shake the bottle well when using it, which should be done four or five times a day. If the foregoing fail, try Goulard's Extract of Lead, 2dr.; tincture of arnica, $\frac{1}{2}$ oz.; distilled water, 1 pint; mix and apply freely four or five times a day. If the case is a very bad one, wrap the foot in a piece of lint saturated with the lotion, and pull over it a chamois leather boot, which the dog can be prevented from gnawing and pulling off by use of a muzzle over the mouth-part of which a piece of canvas has been sewn.

CLAWS, OVERGROWN.—Lap-dogs and house pets which have little or no exercise out of doors, where they can dig and scrape the ground, and so wear the claws down, suffer from an overgrowth of them. The nail curls round, and, if not cut in time, it grows into the sole of the foot, causing soreness and lameness. The ends of the claws should be cut off with a pair of sharp, strong nippers.

In cases which have been neglected, the process of removal should be gradual, a small portion being taken off every few days or so until the claws are of the normal length. If the sole has been penetrated, it will most likely fester, and should be freely bathed in warm water, poulticed, and the *Carbolic Ointment* afterwards applied. To prevent the dog from tearing the poultices off, the canvas-faced muzzle should be used.

COLD IN THE HEAD.—See CATARRH.

COLIC.—Nearly all domestic animals are subject to attacks of colic, and the dog is no exception to it. Puppies are especially liable, but it attacks dogs of all ages, and, if not promptly attended to and properly treated, is very liable to end in inflammation of the bowels—a most dangerous disease, which, in some of its features, resembles colic. One very important point of distinction is, that whereas inflammation comes on gradually, with feverishness, hot, dry nose, etc., as premonitory symptoms, colic attacks suddenly, and a dog eating well and seemingly in perfect health is

seized with spasm, causing such pain that he gives vent to a low moan, which, as the paroxysms of pain increase in frequency and severity, changes to a prolonged howl. In colic, too, the nose and mouth are cool, and there is no offensive breath. As in inflammation, the attitude is peculiar and unmistakable; the back is arched, the feet are drawn in towards each other, and the tail is tightly tucked between the legs. In colic, the belly is sometimes distended considerably with gas, and the disease is then known as flatulent colic. The causes are, exposure to wet and cold, getting dogs, especially house dogs, to swim in cold inclement weather, the presence of worms in the intestines, and the giving of improper food, such as sugar and other sweet things, the last being the commonest. Puppies just after weaning are very liable to colic, especially if they have small lumps of meat, or other solid food, thrown to them, which they cannot well chew, but greedily bolt; or if they have a portion of one meal left in the dish till the next meal is added, because the stale portion becomes sour, and the fermentation is carried on in the stomach.

Colic is sure to yield to prompt and proper measures, and the treatment is simple and safe. As soon as observed, give the sufferer a dose of the *Anti-spasmodic Drops*, and if this does not afford relief, then give 5 to 30 drops of tincture of opium, with 5gr. to 10gr. of chloral. In *flatulent colic*, known by the distended belly sounding like a drum when tapped with the end of the finger, from 10 to 30 drops of spirit of sal volatile may be advantageously added to the dose of *Anti-spasmodic Drops*; or the following draught may be substituted, and repeated in an hour if the dog is not relieved: carbonate of soda, 15gr. aromatic spirit of ammonia, 20 drops; essence of ginger, 5 drops; laudanum, 10 drops; and peppermint water, 2 tablespoonfuls—a dose for a 20lb. dog. In spasmodic colic the following is useful: carbonate of soda 5gr. to 15gr.; aromatic spirit of ammonia 10 to 20 drops; tincture of ginger 5 to 10 drops in water every four hours. After the attack has subsided, give the dog a gentle aperient such as the *Mild Purge*, keep on a laxative diet, and for a few days give only gentle exercise. If worms are the cause, then a vermifuge should be administered after the painful symptoms have subsided.

CONCUSSION OF THE BRAIN.—This often occurs in canine practice, and is due to accidents. In most cases the dog becomes unconscious, and the breathing is heavy or usually nearly imperceptible. Gradually consciousness returns, but often a stiffness of the limbs and an uncertain gait remain for a time. The treatment should consist in the administration of stimulants, but

great care must be taken not to attempt forcing liquid upon an unconscious animal, or choking will be the inevitable result. Brandy can be injected under the skin (subcutaneously). Ice when procurable should be applied to the head and spinal cord, and ammonia to the nostrils. If there is a fracture of the skull, an operation will become necessary. A part of the bone may be pressing upon the brain, when it would have to be raised, and so relieve the pressure.

CONSTIPATION.—See BOWELS, OBSTRUCTION OF.

CONVULSIONS.—See FITS, TEETHING.

CORYZA.—See CATARRH.

COSTIVENESS.—See BOWELS, OBSTRUCTION OF.

COUGH.—Strictly speaking cough is merely a symptom of disease and not a disease in itself. To decide what particular disease is indicated by the cough, the concomitant symptoms and circumstances, as described under the special diseases which are usually preceded or accompanied by cough, must be taken into account, and the treatment called for in each case followed. Coughs vary as much in character as do the diseases of which they are in many cases the most pronounced indication. Thus, in common cold the cough is slight and humid; in bronchitis, hard, dry, and frequent; and in inflammation of the lungs, short and suppressed, doubtless from the pain caused by the effort. When the throat is sore, the cough is hoarse and generally accompanied by more or less difficulty in swallowing; in asthma, the cough may be described as wheezy, and is often followed by retching or vomiting. Cough in distemper has a peculiar husky, hollow sound. Cough may be produced by a bit of bone or other substance sticking in the throat and causing irritation, in which case it is the natural effort to get relief, and ceases with the removal of the irritating cause. As cough is almost invariably connected with some derangement of the respiratory organs, or air-passages, its warning should never be neglected, and an early resort to the use of the *Cough Pills* will be sure to relieve, will frequently cure, and can, under no circumstances, do any harm.

Cough Mixtures.—1 part paregoric elixir, with 3 parts of the syrup or the oxymel of squills. A teaspoonful is a dose for a 20lb. dog. Liquor morphine mur., 1dr.; spirits of camphor co., 2dr.; ipecacuanha wine, 1dr.; glycerine $\frac{1}{2}$ oz., water to 3oz. Dose, a teaspoonful to a dessertspoonful three times a day.

If the cough is due to a sore throat, 5gr. to 10gr. of chlorate of potash three or four times a day, will relieve it, as also will a piece

of spongio-pilin soaked in hot water, and applied to the throat, keeping the same in position by means of a bandage.

CRADLE.—This appliance is sometimes advocated to prevent the dog from tearing off surgical bandages, licking poisonous applications, etc., but it is never successful.

CRAMP.—This term is often indiscriminately applied by sportsmen to spasm from whatever cause; but cramp of the limbs from exposure to cold and wet often occurs, and it will quickly yield to brisk rubbing and warmth. If nothing else is handy, rub with a little spirit and water or a rough dry cloth. Dogs used in hunting or retrieving from water—especially if the shooting is done from a punt—are very liable to it, the hindquarters being most frequently affected, and in such cases a good brisk liniment, such as the following, should be carried in the boat:

Stimulating Liniment.—Compound camphor liniment, 3oz.; olive oil, spirit of turpentine, and spirit of hartshorn, of each loz.; mix. A hot bath is also very effective, especially if the dog is afterwards gently rubbed; care must, however, be taken to dry the animal.

CROOKED LIMBS.—See RICKETS.

CUTS AND TEARS.—See WOUNDS.

CYSTIC CALCULI.—See CALCULI.

D.

DEAFNESS.—A very considerable number of dogs suffer from deafness. In many the disease is congenital, but I do not know that it is hereditary; and I am quite at a loss to explain why congenital deafness is so much oftener seen in white dogs, or those with a preponderance of white, than in those of any other colour. Bulldogs, bull terriers, and white English terriers seem to be peculiarly liable to this defect. Deafness is also frequently caused by accumulations of wax; this can be removed by syringing the ear daily with 1 part of spirits of wine, and 20 parts of warm water, afterwards drying the ear thoroughly, by means of a piece of wool rolled upon a probe or pointed piece of stick. Several fresh pieces of wool will be necessary. Canker is also a fruitful cause of deafness.

I know of no treatment for congenital deafness likely to be of any use except when it is caused by a morbid growth capable of being removed. Among other causes producing deafness, blows may be mentioned; also lugging at the ear—a most brutal mode of punishment

often resorted to by keepers and those having the care of sporting field dogs—and the lodgment of water in the ear cavity. In the latter case, pouring in a little pure oil of sweet almonds may give relief; and in the other cases the treatment recommended for internal canker may be beneficially followed with, in addition, the application of a blister behind the ears. Whilst the dog is under treatment, cooling aperient medicine should be given, and a light diet, with green vegetables, adopted. Dogs born deaf seem to have their other senses quickened; they are generally remarkably sharp at interpreting signs given by the master, and anyone rearing a deaf dog should adopt a system of signs and keep to them.

DEBILITY AND WASTING.—It sometimes happens that a dog is observed to gradually become weak, and to waste in flesh without any apparent cause. In such cases give a dose of the *Podophyllin Pills* every second or third night till three doses have been administered; 10 to 60 drops of Easton's Syrup, in water, twice or three times a day, after food, will also be productive of good. Add to the diet some raw lean meat three times a day, with a dose of *pepsin porci* sprinkled over each portion, and carefully look for any symptoms of divergence from health which may indicate the cause of the trouble.

DESTRUCTION OF DOGS.—It is often necessary to destroy dogs that have become so crippled or injured as to make cure very doubtful; and in most litters of puppies there are some so puny or so wanting in the characteristics of the breed that they ought not to be reared. In the latter case it is most humane to destroy such as are not wanted as soon after they are born as possible; but even when a *mésalliance* has taken place, one at least of the puppies should be left with the dam, unless one or more foster pups of pure blood can be substituted. For destroying young puppies there is no more convenient or less painful method than drowning; while for mature dogs a teaspoonful of Scheele's prussic acid will cause instantaneous death. In giving it, the mouth of the dog should be held open and upwards, and the acid poured well back on the tongue. The very greatest care is however necessary in dealing with a drug of such potency; and it would be highly dangerous to life if any of it were spilled over a cut or wound. At the Dogs' Home, Battersea Park, London, where large numbers of dogs have to be destroyed, a lethal chamber, the suggestion of Dr. Richardson, is used. In this chamber a number of dogs are placed, and death is soon produced, unconsciousness to pain being immediate.

DEW CLAWS, once regarded in fanciers' circles as the inheritance of a few favoured breeds, are now generally voted as useless appendages whose removal is desirable. They should be taken off when the pups are with the dam, and this can be easily done with a pair of strong scissors. If left till the dog is older, they are liable to bleed profusely, and the pain, of course, is greater. In such a case, the wound produced by the excision should be at once well saturated with Friar's balsam. If it is thought well to remove the nail only, that can be done by pulling it out with a pair of nippers.

DIABETES is characterised by an abnormal flow of urine, caused by derangement of some of the assimilative organs; when long established it produces great emaciation and weakness. The treatment consists in giving first a few doses of a mild purgative, such as the *Podophyllin Pills*. To allay the thirst which is always present in diabetes give twice a day 5 to 30 drops of phosphoric acid, largely diluted with water, and to strengthen the system 2gr. to 5gr. of sulphate of iron twice a day in water. If the excessive flow of urine continues after this treatment, resort must be had to opium, iodine, alum, oak-bark, or its preparations. The following bolus may prove useful in such cases:

Astringent Bolus for Diabetes.—Take gallic acid, 1dr.; powdered alum, 1dr.; powdered opium, 12gr.; gum sufficient to form a mass; divide into twenty-four pills. Dose for a 20lb. dog, one twice a day. Where the animal is weak and the appetite impaired, 1gr. of quinine may be added to each pill.

DIARRHŒA.—This disease is of very frequent occurrence, and more particularly in young puppies and in old and overfed dogs. It generally exists as a result of indigestion brought on by improper feeding. The practice of leaving stale food from one meal to another is a common cause of diarrhœa, which may be classed as *acute* and *chronic*. In the acute form there is much looseness of the bowels, frequently accompanied or preceded by copious vomiting of acrid, offensive matter; while the evacuations are loose, watery, and offensive. If not checked, it soon produces excessive weakness, and, especially in puppies, is the cause of great mortality. In the chronic state the disease is slower in its progress and longer in its duration. It may be set up by a diseased liver and excess of bile; or it may be the result of inflammation of the bowels. A by no means uncommon cause is the abuse of calomel and other mercurials, these being "specifics" with many persons for all dog diseases. Diarrhœa often finishes up the work of distemper, and this is so in most cases where, as too frequently happens, mercurials have been

relied on as a cure for that disease. Worms are also a common cause of diarrhœa, and when these exist the nature of the discharge is variable, frequent and small in quantity, sometimes lumpy, followed by gelatinous, glairy matter, and often frothy and covered with small air-bubbles. Exhalations from accumulations of filth, especially in low-lying, damp, badly drained and badly ventilated kennels, also cause diarrhœa.

In treating diarrhœa it is often of considerable advantage to give a mild purge, to remove the irritating cause. Castor oil is very suitable; and if there is evidence of much pain attending the disease, a dose of laudanum may be added. 10gr. to 60gr. of carbonate of bismuth, given dry, twice or thrice a day upon the tongue, is also very useful. So is: prepared chalk, $\frac{1}{2}$ oz.; chlorodyne, 1dr.; solution of gum tragacanth, 1oz.; water to 8oz. Of the latter a dessertspoonful to a tablespoonful should be given three or four times a day. If the case is not particularly severe, but obstinate, then give $\frac{1}{2}$ oz. to 1oz. three times a day of—tincture of rhubarb, 1oz.; tincture of opium, 2dr.; peppermint water, to 6oz. Another remedy in diarrhœa which very rarely fails to check it if the patient at the same time receives proper attention in other respects, is:

Astringent Anodyne Mixture for Diarrhœa.—Take prepared chalk, 3dr.; aromatic confection (powder), 2dr.; powdered gum acacia, 1dr.; tincture of opium (laudanum), 1oz.; oil of cassia, 6 or 8 drops; tincture of catechu, 3dr.; spirit of sal volatile, 2dr.; water sufficient to make 8oz. The powders must be rubbed very finely in a mortar, the oil of cassia with them; the water must be gradually added, and the whole should form a smooth mixture. The tinctures should be added in the bottle. Of this mixture the dose will be from a half to two teaspoonfuls for puppies, and one tablespoonful for 20lb. dogs, given every three or four hours, as long as the purging continues. The bottle must be well shaken before measuring the dose.

For convenience of form, the following mixture may, under some circumstances, be preferred, as it keeps well and is in less compass:

Astringent Anodyne Drops.—Take spirit of camphor, 2dr.; laudanum, $\frac{1}{2}$ oz.; spirit of sal volatile, 2dr.; tincture of catechu, 1oz., mix. Dose, from 20 drops to a teaspoonful in water every three or four hours, if required.

If the diarrhœa is very persistent, and accompanied by blood, inject twice a day into the rectum 2gr. to 5gr. of sulphate of copper with 15 to 60 drops of tincture of opium, in 4oz. of water. If this does not check it, then give $\frac{1}{2}$ gr. to 1gr. of sulphate of copper, increasing the dose to 1gr. with $\frac{1}{2}$ gr. to 1gr. of powdered opium.

The diet must be very carefully regulated all through the disease. All milk given should be slightly thickened with arrowroot. Such light and easily-digested food as well-boiled oatmeal, rice, or arrowroot should be given, with milk or beef-tea; and if the patient refuse to feed, a little should be given with a spoon or a drencher every two or three hours. When the dog is very weak, add a little port wine to the food; instead of plain water, give rice or barley-water to drink. In the case of bitches suckling, the diet must be changed, a dose of castor oil given, and the *Astringent Anodyne Mixture* in small doses.

It is most important that rigorous cleanliness should be observed. All discharges should be immediately removed, and the animal kept clean by sponging with lukewarm water if necessary, while disinfectants should be sprinkled about. The patient should also be kept warm, and left as quiet and undisturbed as possible.

DIPHTHERIA.—Dogs, it is held by some veterinarians, are liable to this alarming and fatal disease. A case is on record where the disease was communicated to a dog which had the remains of food given to it that had been partaken of by a child suffering from diphtheria. I have no advice to offer as to treatment in such cases. The slightest suspicion of diphtheria suggests isolation, redoubled attention to sanitary measures, and the immediate calling in of a veterinary surgeon. It seems reasonable that if man can communicate this disease to the dog, on the other hand the dog may be a medium for carrying the contagion from place to place; and it has often occurred to me that great danger lurks in the practice of allowing ownerless dogs to prowl about the streets, picking up their living in the gutters and from refuse-heaps. May they not in this way carry the contagion of many virulent diseases?

DISLOCATIONS.—Displacements of the joints are not uncommon, the hip being most often dislocated, but they also occur with the shoulder, knee, stifle, elbow, and toes. Some dislocations are accompanied by fracture, adding greatly to the difficulty of treatment; and even in simple dislocations the reduction of them should be entrusted to a veterinary surgeon, whose knowledge of anatomy and experience in operations of the kind would enable him to perform it more readily, and with the least possible pain to the dog; indeed, dogs under such operations have now, as a rule, anæsthetics administered. Where professional aid cannot be obtained, the person proposing to reduce the luxation should first examine and determine in what direction the bone is parted from its socket; for instance, in dislocation of the hip, the head of the thigh-bone is generally carried

upwards and backwards, so much so that the direction is apparent to the eye, as the injured side is thereby made higher, and it can be also readily felt. The assistant should hold the dog round the loins steady in one position, whilst the operator, taking hold of the dislocated limb above the stifle-joint, must retract the thigh bone downwards and forwards. The same principle must guide similar operations for the reduction of dislocation of other joints. It will be evident that rest will be needed, and much exercise cannot be safely allowed for some time. There is always a disposition to repetition of dislocation.

DISTEMPER.—This is *the* malady of dogs most general and fatal, and with the exception of rabies the most dreaded. When first discovered in France, from which country we imported it, it was and is still named distemper, yet it has always appeared to me that the name is unhappily chosen, as being too indefinite for correct application to a disease marked by such varying phases. The term is used very loosely; and if a horse has the "strangles," a pig the "measles," or the cattle are suffering, no matter from what—foot-and-mouth disease, pleuro-pneumonia, or rinderpest, this convenient word is forced into service, and made to do duty for all. Distemper is also known as the "dog-ill"; the Scotch term for it, "snifters," is to a certain extent better, as graphically conveying to the mind one important feature of the disease, namely, the snifing noise—half cough, half sneeze—made by the dog in his efforts to get rid of the matter which accumulates in the nostrils; but that term is too limited to adequately describe a disease which has been well called "the scourge of the kennel," and which assumes so many forms and complications that it has been well called the Protean malady.

The exact date when this disease first appeared in England is not certain, but probably it was introduced about the beginning of the last century, or the end of the seventeenth. Gervase Markham, who, early in the seventeenth century, wrote copiously about dogs, horses, and their diseases, does not mention it by name, or describe it; and Nicholas Cox, in "The Gentleman's Recreations," published 1677, is also silent about it, although he refers to madness, swelling in the throat, mange, formica, etc., the last being what we now call canker of the ear. That the disease was recognised on the Continent before it was in this country is evident from the fact that it is referred to by French writers of sporting books at a period earlier than any of our own writers have noticed it, and considering how contagious it is, the presumption is that it was brought from France through imported dogs. However that may be, it is now a firmly established disease among us, and one that up to recent years

had not received the amount of scientific attention its importance deserved. Nearly every gamekeeper and kennelman believes himself possessed of an unfailing cure for it; but those who know most of its versatile character and dangerous complications are the most cautious in prognosticating a cure, and the most careful in watching the altering symptoms, and varying their treatment to meet the individual case.

Distemper, when first observed, appeared as an occasional epidemic; and no doubt it still, to a considerable extent, sustains that character, raging in certain districts whilst other parts of the country are comparatively free. But I do not think it is now so markedly epidemic as formerly; in fact, it may be said to be general and perennial, always existing more or less all over the country; and this is to be accounted for by the vastly increased intercourse between dogs from great distances brought together by the numerous shows held. It is well known that distemper breaks out in numbers of kennels after some shows, especially those that are prolonged, and where puppy classes are encouraged; in fact, each one of these shows, as at present regulated, may be described as a centre from which disease is disseminated to all quarters. The spread of distemper is also now well provided for by the immense traffic in dogs, these animals by hundreds, if not thousands, changing hands every week, being sent to and fro between all parts of the country, and often in railway dog boxes constructed apparently so as best to insure the healthy occupant becoming infected with the ailment of his diseased predecessor, while that end is further secured by the dirty state in which the boxes are frequently kept. Occasionally, too, distemper is imported by ferrets suffering from the disease.

Young dogs—those in their puppyhood, that is to say, under twelve months old—are most subject to distemper; but the disease attacks dogs of mature age. As a general rule, one attack gives immunity from a subsequent one, yet there are instances of dogs suffering a second time, and Blaine says even a third time. A good many instances have come under my own observation confirmatory of this view, and it is the more necessary to notice it because the popular belief is that a dog never has distemper more than once.

It is a very common opinion that certain breeds of dogs are peculiarly liable to this disease, but it is not the special inheritance of any one or two varieties: the whole domesticated race of dogs suffer from it. Fatality under distemper is not a question of breed, but of constitution, as that has been affected by a more or less artificial life, and a forced and unnatural system of breeding. It is the highly-bred dog, not the mongrel, that is apt to suffer most severely; and this would be far more manifest were it not for the contrast in

care and attention, in housing, feeding, etc., between the two. No doubt in-and-in breeding, and breeding for certain artificial or fancy points, generation after generation, weaken the constitution, and make dogs more likely to succumb to distemper. The dainty-feeding pup, the pot-bellied, and the ricketty are the sort that most frequently die, and that irrespective of breed.

Equally common is the impression that it is an absolute necessity of dog life that each animal should suffer from this disease. But it is not so; many never pass through the trying ordeal. Still, it is quite a wise thing to inquire before buying a young dog whether he has been "through distemper."

Causes of Distemper.—These may be said to divide themselves into the immediate and remote, the evident and the obscure; but then it must never be forgotten that "the eye sees only that which it brings with it the power of seeing"; and a cause self-evident to the veterinary pathologist would by no means be apparent to the casual observer. The disease has now been so long established in our kennels that there appears to be an hereditary tendency in some strains to it; but this predisposition must be encouraged by some generating cause, although so slight that it would not affect another in which the disease was not inherent. Badly drained and ill-ventilated kennels, and especially if added to these conditions there is a want of thorough cleanliness, are the natural homes of distemper. Exposure to damp and cold, bad or injudicious feeding, whether poor food or excess of it, predispose to it, as it often follows on common colds and derangement of the digestive and other organs, the immediate result of such treatment. Contagion is, however, the *only* cause. Distemper being a specific disease it cannot originate spontaneously; it is due to a specific virus. Spontaneous origin, no matter to what applied, is, to say the least, doubtful.

I leave the above standing in this edition, because it fairly represents the state of knowledge and belief concerning distemper when this book was first published thirty years ago. Indeed, I might say that the errors in it are given with an unwillingness of consent, and an evident strong bias in favour of some specific "generating cause," although the nature of that cause was unknown to me. My mistake was the mistake of the time—the veil had not been lifted, which, now removed, reveals to us the true and only cause of distemper.

At the time I wrote, and since, veterinarians of eminence wrote to the same effect. Professor Law says, "change of climate, teething, and contagion are the causes." Professor J. Woodroffe Hill says, "contagion, badly-drained and ill-ventilated kennels, exposure to damp and cold, insufficient feeding, poor food, over-feeding (particu-

larly with flesh), and too little exercise"—also "oftentimes it is undoubtedly self-generating." Moore, M. R. C. V. S. (Homœopathist), says, "undoubtedly contagious. . . The most frequently exciting causes are exposure to damp and cold, and whatever produces debility of the system, such as rickets, mange, catarrh, etc." I might quote many other writers to the same effect. Let us consider seriatim the causes to which distemper has been attributed.

Self-generation or Spontaneous Origin.—The idea of the spontaneous origin of disease is dead to the scientific mind—it was never more than a euphemism of Dr. Johnson's blunt expression "ignorance; sheer ignorance, sir," for it comes natural to man to let himself down easy when he does not sit sure. Out of nothing, nothing comes, is a truism, and when we speak of spontaneous origin, whether of a plant or a disease, we really mean that so far the cause is undiscovered by us. The number of diseases under that category are rapidly becoming fewer, and will ultimately disappear before the advancing light of Science; and most fortunately so, for when the cause of disease is known, its prevention is much easier than its cure when established.

Contagion.—This is the sole cause of distemper. But it is necessary that we should have a clear idea of what we mean by contagion. I am not sure that the most wide-spread notion of contagion is not expressed in the two words "bad smells," some going a step farther and holding a general opinion that bad smells create, or are associated with, contagion. But this is not so; the dirty, ill-drained, ill-ventilated kennel tends to lower the vitality of its inmates, and, as a consequence, their power of resisting any disease by which they may be attacked, and at the same time it affords good harbourage for the preservation of the germs of various diseases. So in respect to cold and damp; exposure to these produce evil results, but not the specific disease we call distemper.

Again, teething although causing some amount of fever and derangement of functional organs, has no other connection with distemper than the accident of their frequent and simultaneous presence; and the same remark applies to the assumption of intestinal worms as a cause. We have to realise that contagion is something actually in being, though outside the ken of our unaided senses, and not a mere figure of speech representing the unknown. To our aid has come the science of bacteriology, and to its foremost students, M. Pasteur and Dr. Koch, with their increasing number of followers, we are indebted for the knowledge that such diseases as rabies, anthrax, diphtheria, distemper, etc., are each due to the presence of a distinct bacterium, or microbe; and by contagion we mean the transmission of these from a diseased to a healthy body, whether direct or by means of an intermediary. I do not know

whether the microbe of distemper has been so minutely observed as to be individualised by form and size, but it has been isolated, and the late Sir Everett Millais cultivated it artificially, so that puppies can be infected as easily as by inoculating them with discharged matter from a diseased dog; and we may look with confidence to a time near at hand, when an attenuated virus of distemper so cultivated may be used to produce a mild attack in puppies which will shield them from contracting the disease in the natural way, and preserve them from the disastrous and highly fatal effects of this scourge of our kennels.

Preventive Measures.—There is no specific preventive at present; the true prophylactic we look for in the system of inoculation with attenuated virus, just referred to; and the aim of the breeder should be to have pups fortified against its attacks by a robust constitution. This is to be attained by breeding only from healthy parents, of proper age, and not too closely related. From the birth mother and pups should be well fed and nourished, and kept under proper sanitary conditions. The dog, being a carnivorous animal, more or less meat seems almost a necessity of health to him; but in the artificial life he leads, much less than his inclinations would dictate is required, and excessive feeding would be more likely to predispose to distemper than to prevent it.

Vaccination has been tried as a preventive of distemper, but has proved of doubtful worth.

Dog shows are the most prolific of all sources for the spread of distemper, and as these are ostensibly held for the improvement and cultivation of pure breeds, it behoves those who organise and manage them to take every possible precaution against the propagation of this destructive malady. The disinfection of the benches, etc., after each show, which has been adopted for the last few years, has not proved sufficient. Exhibitors should be required to declare the dog exhibited free from distemper, and that for a given time he has not been in contact with a diseased dog. It seems probable that visitors to shows having dogs at home suffering from distemper, may carry the contagion with them and if the supposition is correct, it is difficult to prevent the evil in any other way than by impressing on the minds of all the danger of so doing, and that is necessarily a difficult and slow process. One prolific cause of distribution of the distemper germs at shows is to a great extent under control of the management. Instead of employing attendants got together at random, and such as are connected with dogs kept under questionable sanitary conditions, a staff should be carefully selected, and these men should wear uniforms of washable material, and be each confined to one section of the exhibition.

The preventive measures for the home kennels are avoidance of contact between diseased dogs and your own. Before introducing a new tenant to your kennels, place it in quarantine for three weeks. When one or more dogs are seized with distemper, isolate them from the healthy ones. If one person has to attend to all, let the patients be visited last; use washable overclothes, change the boots, and disinfect the hands with Sanitas, Jeyes, or Izal on leaving the diseased dogs.

General Symptoms.—The symptoms in distemper present very considerable variation, according to the particular local complications which are developed; they are also dependent on the severity of the attack, and the rapidity with which the disease progresses. As a rule, the first observable symptoms are great lassitude and dulness shown in the eyes, in a disinclination to play or exercise, in a decided preference for warmth, the dog creeping into the warmest corner or crouching before the fire, and in the general languor that appears to benumb the dog's energies like the incubus of a nightmare; so that the hitherto lively dog, instead of jumping with delight at his master's call, merely replies with a spiritless wag of the tail and a dismal woe-begone look. Loss of appetite is an invariable symptom, and feverishness succeeds, as shown by the hot, dry nose, accompanied by alternate fits of heat and shivering; considerable thirst is frequently present, the bowels are generally deranged—sometimes relaxed, sometimes constipated—the urine is scanty and highly coloured, the coat usually rough and staring, retching and vomiting often occur, a thin, watery discharge from the nose and eyes sets in, accompanied by a scarlet hue of the membranes, and the eyes appear unusually sensitive to light. A short, dry husky cough and sniffling or sneezing occur, especially when the animal is brought into the open air. The discharge from eyes and nose (sometimes the first sign of the disease observed by the owner) gradually becomes more purulent, sticking in the nostrils and glueing the eyelids together, especially in the morning, causing the dog much annoyance in that way, but still more by obstructing respiration, when his constant efforts to clear the nostrils produce that peculiar noise which has earned for the disease the popular name of "snifters." In many cases the eye is seriously affected. A small white speck may be observed, which gradually widens and deepens until an ulcer is formed; and although the eye may protrude, and the whole appearance give the impression that the sight is lost, yet as the disease subsides the eye gradually returns to its natural condition. The symptoms are not in every case so clearly marked, and the disease may have gone on for a few days, or a week, unnoticed, or it may have been mistaken for a common cold. There is, however, one invariable

and unmistakable feature of distemper, which distinguishes it from any of the diseases with which it might otherwise be confounded, and that is the very rapid loss of flesh and strength which takes place—a strong, fat dog being in many cases reduced in a week or so to a mere skeleton, scarcely able to move about. Such are the general symptoms of an ordinary attack of distemper in its earlier stages, some or all of which may be observed in a more or less marked degree. In a mild attack, and even in severer ones, with proper treatment, these untoward conditions gradually abate, and restoration to health takes place. On the other hand, even with the best of care and the most judicious treatment, there are cases in which dangerous complications of disease in the head, chest, or bowels arise, requiring the utmost attention, prompt measures, and skilful management. In all cases of distemper a flannel coat should be placed upon the animal.

Abdominal Distemper.—When the bowels are the subject of serious attack; that is, if violent diarrhoea or dysentery supervene, or if “the yellows” make their appearance (for slight derangement of the liver is almost invariable) this is often aggravated, if not produced, by the abuse of powerful and unsuitable drugs. When these have been resorted to, as is too often the case, by people ignorant of their nature and properties, and given by the rule of thumb, the poor dog’s case is indeed perilous, for in the midst of the battle with the most dangerous and insidious enemy to canine life, another foe appears to finish up the work of death well begun. In such cases, violent diarrhoea—the evacuations consisting of a thin watery matter, undigested food, or black pitchy fæces mixed with blood—generally comes on when the disease has lasted a week or ten days, and, unless checked by proper treatment in its earlier stages, almost invariably proves fatal. The best treatment in such cases has been given under DIARRHOEA and DYSENTERY. If the dog has been constipated previous to the attack of distemper, and no heed has been taken of his condition, it is very likely to result in the “yellows.” This condition is denoted by the yellow appearance of the eyes, gums, lips, etc., and in severe cases of the whole skin—more particularly observable on the inner surface of the ears, inside the thighs, and on the belly—the urine is strongly tinged with yellow and the discharge from the bowels is unnatural in colour and offensive. Fuller treatment is given under the head of JAUNDICE.

Chest Distemper.—In all cases the respiratory organs are more or less affected, and the disease seems to extend to all the mucous membranes; and when the more important organs of respiration—the lungs, etc.—are attacked, it is called chest distemper. In

these cases the breathing is quicker and becomes painful, the cough is deeper in sound, harsher, and evidently more painful, and the pulse is raised very much from the normal, 100 to 101F., to from 105F. to 106F. The dog should in this case be kept warm, and have a comfortable bed, but not stifled with clothing or by the atmosphere of an unventilated room, for pure fresh air is an absolute necessity to recovery. If the throat is sore, which the hoarse, husky bark will show, relief may be given by the electuary prescribed for BRONCHITIS, and by blistering the throat or applying poultices. Large hot poultices to the sides, frequently changed so as to keep up the heat, prove beneficial, and the general treatment afterwards alluded to, and that prescribed under BRONCHITIS, or INFLAMMATION OF THE LUNGS, should be adopted.

Head Distemper.—When the head is the seat of the local disease in distemper, it is sometimes ushered in by what is known as a “distemper fit,” and is a sure sign of congestion or inflammation of the brain or its membranes; this is also shown by the greatly increased heat of the whole head, and the bloodshot appearance of the eyes, which in such cases are painfully sensitive to light. If the inflammation be not reduced, a succession of fits generally follows, in one of which the dog dies.

The teeth being generally furred, they should be cleansed by a piece of tow which has been dipped in a weak solution of Condy’s Fluid. The eyes should be sponged with the following lotion: boracic acid, 1scr.; distilled water to 6oz. The following mixture is useful: salicine, 2dr.; tincture of gentian, $\frac{1}{2}$ oz.; water to 6oz. The salicine must be dissolved in hot water, and a teaspoonful to a tablespoonful given three times a day.

Concentrated Cooling Lotion.—Take powdered sal ammoniac, 4oz.; boiling water, $\frac{1}{2}$ pint; strong acetic acid, $\frac{1}{2}$ pint; methylated spirit, 4oz. Dissolve as much as possible of the sal ammoniac in the boiling water by rubbing in a mortar, and the residue with the acetic acid, adding the spirit to the stock bottle when the solution is cold. In using this a large wineglassful must be mixed with a pint of cold water, and it is important that it should be unremittingly applied to the head by a cloth for several hours, care being taken to keep it out of the eyes.

When fits are frequent or severe, 6gr. of bromide of potassium given to a dog of 20lb. will often afford relief; but it is seldom that the dog recovers from attacks of this nature.

Simple Distemper.—In mild attacks, or what may be called “simple distemper,” hygienic measures, good nursing, and careful dieting are often all-sufficient to see the patient through. The

following, however, is a capital mixture: tincture of cinchona co., 1oz. ; liquor cinchonae flav., $\frac{1}{2}$ dr. ; aromatic spirits of ammonia, $\frac{1}{2}$ oz. ; water to 8oz. Dose, a dessertspoonful to a tablespoonful. It is often however, of benefit, even in the mildest attacks, to give a mild dose of aperient medicine. When the matter from the eyes and nose is at all thick and sticky, resort should be had to the steaming recommended for CORYZA.

Pustular Eruption in Distemper.—The skin in distemper, especially inside the thighs, on the chest, and on the belly, is often covered with a pustular eruption, discharging a thin matterly substance tinged with blood, and this forms into scabs. As the pustules break, the exuded matter should be carefully wiped off with a soft rag or sponge, dipped in tepid water containing a small quantity of Condyl's Fluid. This eruption of pimples is often a favourable sign, but, on the other hand, it appears at a stage of the disease when the dog has become greatly weakened; and, whilst giving the distemper mixture to aid in throwing out this poison from the system, the patient should also have tonics and as much strengthening food as the stomach will bear. This phase of the disease is oftenest seen when the liver and bowels have been attacked.

Sequels of Distemper.—Occasionally during the attack of distemper, but generally as a sequel to it, either paralysis or chorea, called "the twitches," or "the trembles," appears. These require special treatment, and are referred to under their respective headings.

Having attempted as plainly as possible to describe the various symptoms of this disease, and the complications which often attend it, I will now endeavour to point out what experience has taught me to be the most successful treatment. To enumerate the popular cures for this disease would occupy much space for little profit. Mercury, in one form or another, figures largely in the list, particularly calomel and Ethiop's mineral; the former is a very dangerous drug, and the cause of great mortality among dogs and the latter an almost inert preparation. Emetics, too, are widely popular and grossly abused; but nearly every locality has its own specific. In addition, we have those wonderful nostrums, never known to fail, which are palmed on and purchased by a too credulous public. It should not be necessary to tell anyone who has watched the progress of this disease in his own dog, that an infallible specific for distemper, with its varied and dangerous forms, is not likely to be speedily met with.

The dog-owner who has puppies growing up should always be on the look-out for distemper, and, on its first symptoms, address

himself to its treatment, for in this, as in other things, a stitch in time saves nine. As the disease appears, the dog must be taken in hand, and his comfort seen to. In many cases a mild emetic of ipecacuanha wine or antimonial wine may be given, for these are often beneficial when judiciously used, although detrimental when abused, as emetics often are. The bowels, as well as the stomach, should be emptied, and for this purpose we must be guided in our choice of drugs by the constitutional strength, age, and general state of the dog. For very delicate animals a laxative of olive oil or linseed oil answers best, while stronger ones may have castor oil or the *Mild Purge*; but when the dog is strong enough, as is the case with many breeds, I have not found anything so suitable as

Compound Podophyllin Pills.—Take podophyllin, 6gr. ; compound extract of colocynth, 30gr. ; powdered rhubarb, 48gr. ; extract of henbane, 36gr. ; mix and divide into twenty-four pills. The dose for a 20lb. puppy is one pill, and it is advisable to give warm broth after the pill to assist in its action.

As soon as the bowels have been freely acted on, begin with the following mixture, giving a dose of it regularly every four or six hours as long as any feverish or inflammatory symptoms exist :

Distemper Mixture.—Take chlorate of potash, 2dr. ; Mindererus' spirit, 1oz. ; sweet spirit of nitre, 2dr. ; tincture of henbane, 2dr. ; water, 2½oz. Dissolve the potash in the water, and add the other ingredients. The dose for a 20lb. puppy of six months old is a tablespoonful, and it should be given in some additional water. In cases of fits, when the head seems affected and there is partial blindness, or twitchings of the limbs, etc., add the following to the *Distemper Mixture*, and do not alter the dose: Tincture of aconite, 18 drops; solution of strychnia (British Pharmacopœia), 18 drops. Gradually increase the dose of these two drugs in the mixture, until in a week three times the above dose is given.

No remedy will do away with the necessity for unremitting care and attention on the part of the attendant—in fact, good, sensible management and nursing are more than half the battle. The patient should be in a warm, dry, and well-ventilated place where plenty of fresh air is admitted without draught. A bed of hay is very suitable under these circumstances, as it is warm and soft and easily changed without disturbing the patient much, rest being very essential. The most scrupulous cleanliness is of the utmost importance, and must be strictly attended to; all discharges should be at once removed, and the extremities and any sores or eruptions on the body, belly, or thighs should be lightly sponged with warm water containing a little Condy's Fluid or other disinfectant. The

place where the dog is lodged should also be kept sweet by the use of disinfectants.

The water given to drink should be first boiled and allowed to get cold; the diet must be light and nourishing, and the dog drenched with liquid food if he refuse to eat. Well boiled oatmeal and milk, or strong beef-tea, or, if the dog be purged, boiled wheaten flour or arrowroot, with milk and port wine, form a suitable diet, as it is first of all important to keep up the patient's strength. Much solid food is not advisable, and, indeed, a distemper patient will seldom take it. I have found great benefit from giving pups at short intervals small quantities of chopped up raw lean meat, beef or mutton, and when very low indeed a little weak brandy and water, followed by the meat; or Brand's solid Extract of Meat given as a pill, where the appetite is gone and there is great weakness, will rouse the patient and induce him to take more food, by which his strength is kept up. Tonics may also be given alternately with the *Distemper Mixture*.

Simple Tonic.—Disulphate of quinine, 12gr.; tincture of gentian and syrup of orange, each ʒi.; diluted sulphuric acid, 10 drops; mixed, and a teaspoonful given to 20lb. pups. *Easton's* syrup is a good tonic after distemper (10 to 60 drops twice a day, in water, after food).

Even after the more violent symptoms have abated and the disease appears to have passed off, it is still necessary to use caution. Many a valuable dog has been lost by taking him out to exercise too soon after distemper, a very slight exertion sometimes causing a relapse, which in many cases proves fatal, the whole strength of the dog having been wasted in contending with the first attack. The owner, therefore, must not be in a hurry, patience and nourishing diet, with the daily use of the *Tonic Pills*, which should now be had recourse to, will bring their own reward. The increase in the food should be gradual, and, in addition to the *Tonic Pills*, cod-liver oil is of great benefit in restoring the dog to health and strength; but any special weakness inherited from distemper must be specially dealt with.

DIZZINESS.—See VERTIGO.

DOCKING.—Though by no stretch of the imagination this can be called a disease, yet it not infrequently happens that puppies suffer not a little from the operation being clumsily performed. In the majority of cases docking is quite unnecessary and is merely done in deference to the dictates of a stupid Fashion. A very common impression prevails that the only correct way of docking a dog is

by biting off the tail. Nothing could be more erroneous or more disgusting. If docking is performed at all, it should be by means of a pair of sharp scissors, and within a week or a little more of the birth of the pups.

DROPSY.—This is an unnatural accumulation of water in different parts of the body, as in water on the brain, dropsy of the chest, dropsy of the skin, and dropsy of the belly; and it is the last-named to which the dog is most liable. Dropsy is generally, if not always, the result of some other debilitating disease, and especially of inflammatory disorders; but it may also be brought on by unsuitable diet, or by the abuse of drastic purgatives. With the development of shows a new danger has sprung up, as dogs are too often kept on their benches to the suppression of the discharge of the excretions, which is a recognised cause of inducing dropsy. Dropsy of the belly need not in the bitch be mistaken for pregnancy, for in the latter the teats enlarge with the belly, which is altogether firmer, and does not droop until just before whelping, while the puppies can be felt through the abdominal walls. In dropsy the belly is more pendulous and baggy, the back is arched, and the water moves readily under pressure; the dropsical animal, too, is generally poor in flesh and harsh in coat. The medicines principally employed in dropsy are iodine, iron, and other mineral tonics, with digitalis and diuretics; 5 to 15 drops of benzoate of ammonium, or 1 to 3 drops of oil of juniper, with 5 to 20 drops of tincture of nuxvomica, in water, three times a day, are also useful in treating the disease which, however, is always best left to a veterinary surgeon.

DYSENTERY is a serious disease. It is due to inflammation of the mucous membrane of the bowel, and is accompanied by ulceration and hæmorrhage (bleeding). The most fruitful causes are obstinate diarrhœa, the action of irritant poisons, the inhalation of foul air, and in hot climates the result of excessive heat and eating putrid meat. The primary symptoms are, hot nose and dry mouth, loss of appetite, usually more or less pain, as shown by restlessness and crying out on pressure being applied. At this stage, constipation and sickness are often present. Afterwards the bowels operate and the evacuations are most disagreeable, and tinged with blood; or blood may be passed alone. If ulceration has taken place, pus (matter) may also be voided, the animal rapidly sinks, and the fæces and other discharge come away involuntarily.

The first object in treating these cases should be to allay the pain when present. This can be accomplished by administering 10 to 60 drops of tincture of opium. To check the diarrhœa give

2 drops of creasotum, made into a pill with crumbs of bread, three times a day; or 5gr. to 15gr. of tannic acid with 1gr. of powdered opium twice a day. Into the rectum should be injected from 2gr. to 5gr. of sulphate of copper with 15 to 60 drops of tincture of opium, in 4oz. of water. If this does not check the dysentery, then give $\frac{1}{2}$ gr. to $\frac{1}{4}$ gr. of sulphate of copper, increasing to 1gr., with $\frac{1}{2}$ gr. to 1gr. of powdered opium.

The food should consist of beef-tea, with the white of egg, and weak milk and water thickened with arrowroot. The animal must be kept warm, and the anus and hair about the part thoroughly cleansed, while the sanitary arrangements must be as perfect as possible.

DYSPEPSIA.—See INDIGESTION.

E.

EAR, CANKER OF.—This disease is usually divided into “internal canker” and “external canker.” Internal canker consists of inflammation of the lining membrane of the passage to the ear, which runs on to ulceration and suppuration; when of long standing a blackish offensive discharge takes place and accumulates in the passage, and on examination the interior of the ear will be found to be red and inflamed. The dog thus suffering may be observed frequently scratching his ear with his paw, holding his head on one side and giving it a violent shake, as though to empty something out of the ear; and the pain and irritation arising from the disease cause him to rub and shake his head constantly and violently, whereby the flaps of the ears get bruised, ulcerations form, and the tips become obstinately sore. The inflammation existing in the interior lining membrane extends itself to the outside through the constant shaking and scratching, and external canker is also established. It is not an uncommon belief that canker of the ear is confined to water dogs. This error arises no doubt from the fact that water spaniels and others of that class, from their exposure, are most likely to get water lodged in their ears, the shaking and pawing to get rid of which frequently sets up the inflammation, ending in canker. The tears and scratches received from briars and thorns in working close coverts, if not attended to, may also set up external canker of the ear. The insinuation of wet and dirt, and the accumulation of hardened wax in the ear-passage, are no doubt causes, and are especially likely to produce baneful results where a

bad system of kennel management co-exists. But in the interests of my canine friends I would ask whether there is not another frequent and needless cause?—whether men do not often produce it who, instead of correcting their dogs by the legitimate means of the voice and the whip, resort to the cruel practice of “lugging?”

External canker often exists as a consequence of inflammation, ulceration, or suppuration of the internal passage. There is a kind of mangy affection of the ears which is altogether different, but which may easily be confounded with it; in these cases the edges of the ears become dry, hot, and scaly, and the hair falls off, but this is in many cases really mange, and must be so treated. There are cases where the whole of the external ear becomes swollen and tender, and the flap thickened and filled with fluid between the skin and the cartilage gristle. In such cases it is not unusual to lance them and press out the matter formed; but a far more successful method is to insert a tape seton in the inside of the ear from above downwards to the flap. The tape should be moved now and again to allow the fluid to escape, and the ear should be frequently washed with warm water so that the openings made by the seton do not become blocked. When the discharge ceases, the tape can be cut out, and the wounds dressed night and morning with boracic acid ointment or white naphthol ointment.

In the general treatment of canker of the ear the first thing is to remove any exciting cause that may exist, such as dirt or hardened wax, and this can be best done by carefully washing, and if need be, syringing the ears with lukewarm water; and, in the case of hardened wax, pouring in a few drops of almond or olive oil. The bathing will in itself assuage the pain and irritation, and all the parts that can be got at should be afterwards carefully dried with a soft cloth. There are many applications recommended for canker of the ear, and endless nostrums advertised to cure it in a single day; all, or nearly all, are preparations of lead, zinc, or silver.

Silver and Zinc Lotions.—A solution of nitrate of silver is recommended by many; the strength should be from 4gr. to 6gr. of the nitrate of silver to 1oz. of water. Or a sulphate of zinc lotion may be made as follows: Take sulphate of zinc, 12gr.; wine of opium, 1dr.; water sufficient to make 1½oz. of lotion.

I prefer the following preparation to anything I have tried:

Lead Liniment.—Take Goulard's Extract of Lead, 1oz.; glycerine and carbolic acid, ¼oz.; finest olive oil, 4½oz. Mix the first two named, and add the oil gradually, rubbing together in a mortar. The bottle must be well shaken before the liniment is used.

All of these preparations are used in a similar manner—namely, by placing the dog's head flat on a form, or on the knee of the person

who holds him, and then pouring a little into the ear-passage, holding the dog in the same position for a minute or two, until the liquid finds its way into the seat of the disease. The preparation should also be applied freely to all the external sores. If there be no dark and offensive discharge from the ear, the carbolic acid and glycerine may be omitted from the lead liniment; and I may here observe that I mean that article to be of the strength ordered in the British Pharmacopœia, viz., 1 part pure carbolic acid in 5 parts pure glycerine.

Another treatment for internal canker is to syringe the ear once a day, or night and morning, according to the severity of the case, with 1 part of spirit of wine and 20 parts of lukewarm water. Allow the dog to shake his head afterwards to remove the superfluous fluid, then dry the ear thoroughly with cotton-wool, rolled upon the end of a probe or pointed stick. Several pieces of wool will be necessary. When the ear is perfectly dry, introduce into the cavity finely powdered boracic acid, seeing that it reaches the bottom. In some cases that do not yield to this treatment, powdered iodoform can be used in place of the boracic acid. If any of the sores outside look "angry," scrape with a knife a little bluestone into fine powder and dust them with it; or, after bathing and drying nicely, touch them with a point of lunar caustic. It will be of advantage, in treating canker of the ear, to give the dog a purgative, and in many severe and stubborn cases the administration of the *Fever Mixture* for a few days after the purgative will be of great benefit. The diet must be light, and consist partly of boiled green vegetables.

Many of the best writers on dog diseases recommend a cap to be worn by the dog in external canker of the ear to prevent the flapping and consequent irritation and injury to the tips of the ear from the violent shaking of the head, but so far as my experience goes, I am of opinion that it does more harm than good. But those who wish to try a cap (Fig. 11) can readily make one with a piece of canvas of sufficient length to reach round the dog's head, having two pieces of tape running through a hem at each side lengthwise, wherewith to draw the cap tight round the dog's neck behind the ears, and again, just above the eyes, tying them underneath.



FIG. 11. EAR-CAP FOR INJURED DOG. draw the cap tight round the dog's neck behind the ears, and again, just above the eyes, tying them underneath.

EAR, PARASITIC CANKER OF.—In the summer of 1891, Mr. A. J. Sewell, M.R.C.V.S., called my attention to a parasite he had found in the ear of a dog suffering from canker, and he subsequently published a description of it in the *Kennel Gazette*, with drawings accurately representing the creature as I saw it under his microscope. Mr. Sewell named the parasite *Psoroptes auricularis canis*, and it was undoubtedly an independent and original discovery on his part. The parasite would, however, appear to have been previously known, and is not a *Psoropt* but a *Symbiot*—two creatures it is sufficient for the purpose of this book to say are remarkably alike. They differ from the mites of mange in not burrowing or tunnelling galleries under the skin, but live in colonies on the surface, and the skin lining the passage into the ear being thin and soft, they, by their bites, cause great irritation, and produce the dryish brown discharge which most dog-owners must have observed in cases of canker. Mr. Sewell describes these parasites as “running about the skin and along the hairs in the ear, at a fairly rapid rate.” They do not live on the skin of the body, or even extend their wanderings to the flap of the ear. Mr. Sewell’s prescription for the destruction of these parasites is: Ointment of nitrate of mercury (strong citron ointment), 1dr.; oil of sweet almonds, 1oz.; mixed—to be applied with a camel-hair pencil, or a few drops poured into the ear. The mild citron ointment of the chemist is much the same. Whichever is selected, it should be used when freshly made.

EAR, POLYPUS IN THE.—Polypi sometimes occur in the lining membrane of the external meatus, and their removal is always best left to the veterinary surgeon.

EAR, WAX HARDENING IN THE.—In this case warm water injections are often useful; afterwards the ear should be carefully dried, the dog’s head laid flat on one side, and a little oil of sweet almonds poured into the cavity. This should be done daily until the wax is softened and discharged. Or the ear may be syringed with 1 part spirits of wine and 20 parts lukewarm water. Afterwards dry it with cotton-wool rolled round a probe or piece of pointed stick.

ECZEMA (Red Mange).—Eczema differs from mange in being non-contagious; it is constitutional, and is not caused by parasites, as is mange proper. It may be general or local, and consists of an eruption of minute vesicles; these discharge an acrid fluid, and often coalesce. The skin has a scarlet appearance, often becomes wrinkled, and is frequently completely denuded of hair, while there

is excessive heat or inflammation. The redness of skin often appears suddenly and unexpectedly, and when the dog is supposed to be well. The causes are various, and my experience is that all dogs are alike liable to it, although Hill and other writers say that sporting dogs are particularly subject to it. It may arise from chafing, cold and wet, irritation due to parasites, or the use of unsuitable applications to the skin. By far the greater number of cases are, however, referable to constitutional disturbances—indigestion, and disorders of the liver, bowels, kidneys, etc. In such cases the elements of the food are not assimilated, the whole internal system suffers, and Nature uses the skin to throw off the objectionable matter; hence the eruptions which follow.

Whatever, then, causes disorder of the stomach, liver, or bowels, may produce these eczematous forms of skin disease. Improper and overfeeding are common causes, but I believe the commonest of all to be worms. These parasites disturb the functional organs and prevent their assimilation of the food.

To produce a healthier state of the blood, the following mixture may be given with advantage: Epsom salts, 1oz.; liquor arsenicalis, 1dr.; tincture of ginger, 2dr.; water to 6oz. Dose, a dessert-spoonful to a tablespoonful night and morning after food. To allay the irritation, dress the animal all over with olive oil, 1 pint; and oil of tar, 2oz.; while, if the disease is obstinate, add 4oz. of sulphur. Wash off and repeat if necessary at the end of a week.

Bitches during, or just after the constitutional excitement of oestrus, or heat, often suffer from eczema. There may be an inherited tendency to the disease, but that is simply a likeness in constitution. Eczema is not, properly speaking, an hereditary disease; and in almost every case it may be traced to one of the direct causes named. *See* BLOTCH.

ENTERITIS.—*See* BOWELS, INFLAMMATION OF.

EPILEPSY.—Most of our domestic animals are subject to this, and among stock owners in general it is known as the “falling sickness.” Dogs are peculiarly liable to it. Epilepsy is characterised by sudden loss of sensation, a violent convulsive action of the muscles of both the body and limbs, champing of the jaws, and emission of froth from the mouth. As the tongue is apt to get cut by the involuntary action of the jaws, not infrequently the froth gets tinged with blood; this adds to the fears of those ignorant of the nature of the disease, and from unfounded alarm that the dog may be mad many a poor animal is destroyed. *See* FITS.

ERYTHEMA.—Dogs occasionally become the subject of this disease, which is superficial inflammation of the skin. Usually it is not, however, a serious matter, though at times very obstinate. The skin peels, and leaves the part tender and sore. The mouth is frequently the seat of the disease (boarhounds are particularly liable), and the skin finally becomes wrinkled. A purgative should be administered and the parts bathed with a saturated solution of boracic acid lotion (it is non-poisonous); or a little bran water is useful, and to this may be added a pinch of bicarbonate of soda.

EYEBALL, PROTRUSION OF.—It sometimes occurs in fighting that the eyeball is forced out of its socket, and the lid, contracting, prevents its return. A veterinary surgeon should at once be sent for, and in the meantime the eye should be bathed with lukewarm water; this will tend to keep the muscles relaxed, and facilitate the returning of the eyeball.

EYE, DISEASES OF.—Accidents to the eye are not uncommon, such as scratches by a cat, or injuries from a blow or in fighting. In such cases the first thing to do is to bathe the injured organ with warm water for half-an-hour or so to reduce the swelling and inflammation which follow. A good eye lotion is made with: Boracic acid, 1sc.; distilled water, to 6oz. If the injury is great, a veterinary surgeon should be allowed to deal with it, but otherwise the constant application of 1dr. of Goulard's Extract of Lead, $\frac{1}{2}$ oz. of wine of opium, and $\frac{1}{2}$ pint of distilled water, two or three times a day, will probably be sufficient. See AMAUROSIS, CATARACT, OPHTHALMIA, HAW, ENLARGEMENT OF, AND IRITIS.

CLOUDINESS AND WHITE SPECKS.—These follow inflammation, and seem to be dependent also on general health. Ulcers also sometimes form and leave a round whitish spot. This should be treated by applying with a feather or camel-hair pencil a solution of nitrate of silver, 3gr. to 6gr. dissolved in 1oz. of distilled water, twice a day. Another useful preparation is composed of yellow oxide of mercury, 1gr.; lard or vaseline, 1dr.; a small piece of the ointment should be inserted in the eye night and morning. Also give the *Tonic Pills*.

EYELASHES, TURNED IN.—This occasionally occurs, and the eyelash may grow right across the pupil, interfering alike with the dog's comfort and his vision. In ordinary cases simply snipping with the scissors is effectual; but in some instances excision and cauterisation of the part are necessary.

EYELIDS, INVERSION OF THE LOWER LID OF.

—When this is met with in dogs, it causes serious trouble, ophthalmia, etc. An operation is the only means of cure. A piece of skin is removed below the eye, and a small muscle, which is responsible for the turning in of the eye, is severed. The small wound should not be sutured, but allowed to heal under a scab, which will also help to pull the eyelid outwards and slightly downwards, relieving the condition naturally. This operation should be performed by a veterinary surgeon, as in unskilful hands serious mischief might arise.

F.

FALSE JOINT.—Where a limb is improperly set, or the animal is in an unhealthy condition, false joint is found. It is the non-union of the bone by the usual osseous deposits. Instead of this there is a fibrous connection, and the union of the bones, or portion of them, is much as if they had been united by a piece of india-rubber; the two pieces of bone can be readily moved, and the limb cannot support any weight. An operation is often attempted to set up inflammation of the part, and induce osseous or bony deposits, but from my experience, it is *not* very successful.

FATNESS, EXCESSIVE.—A certain amount of fat is not only a sign of health, but also desirable, as it is the store of fuel that Nature lays up to meet future exigencies; but an excess of fat constitutes a morbid and diseased state of the body. Some dogs are prone to put on fat even when on a comparatively meagre diet, and certain breeds—pugs and most varieties of spaniels—more than others. The causes are confinement and want of exercise, together with an over-abundance of food, or food of a quality too rich in fat-producing materials.

A common effect of excessive fat is to set up skin disease, with discharge therefrom, which is Nature's means of ridding the system of the superfluous matter. Or the fat accumulates round vital organs, interfering with the animal's respiration, making the breathing laboured, wheezy, and asthmatical, painful to the sufferer, which blows and pants on the slightest extra exertion, and most distressing to the owner. In bitches not allowed to breed, fat accumulates round the kidneys and ovaries; the heart also becomes surrounded with fat, and what is called fatty infiltration or fatty degeneration ensues, which may cause sudden death.

The treatment consists in altering the diet. Give gradually poorer food, and less of it, and at the same time by degrees increase

the exercise, so that the consumption of fat may for the time being exceed the supply in the food. In some cases, however, the predisposition or acquired habit of body is too strong for these measures, in which case a brisk purgative may be given twice a week, and, in addition, a dog 20lb. weight may have 2gr. of iodide of potassium twice a day, in water, just after meals. Bitches should occasionally be allowed to breed and to rear at least one or two puppies.

FATTY DEGENERATION OF THE HEART.—See HEART, FATTY DEGENERATION OF.

FEET, SORE.—Dogs that travel much on hard, dry roads, as Dalmatians often do, and sporting dogs hunting over rough ground, short stubble, or stumpy heather, are apt to get the spongy, elastic pads of the feet contused and worn thin. The treatment depends on the extent of the injury. If merely tender, and slightly inflamed, bathe with cold water, and afterwards apply freely the following :

Lotion for Sore Feet.—Tincture of arnica and tincture of matico of each $\frac{1}{2}$ oz. ; tincture of opium, 1oz. ; acetic acid, $\frac{1}{2}$ oz. ; water, enough to fill a wine-bottle.

Another good plan is to steep the feet for ten minutes night and morning, in Jeyes' Fluid (1 part of Jeyes' to 40 parts of water), or in a saturated solution of boracic acid.

If the case is severe, first apply a poultice of half bran and half boiled turnips. Sometimes the inflammation is great, and the feet become swollen, hot, and painful, so that the dog cannot stand, and the general health suffers. Feverishness and loss of appetite reduce his strength, matter forms in the feet, or the soles slough off. In such cases linseed meal should be added to the other ingredients of the poultice, and a little olive oil poured over its surface. The dog should have a mild aperient, a dose of *Fever Mixture* three or four times a day, and be kept on a light diet. It may be necessary, for the more speedy relief of the dog, to let the matter out with the lancet, and in all respects these cases should be treated as ulcers. Dogs long confined should not be at once run much on hard roads or worked on rough ground, but their feet gradually hardened by daily increased exercise.

FISTULA IN ANUS.—This is not an uncommon disease in pampered, overfed dogs. Usually it presents itself as an opening in the side of the anus, and extends inwards up to the gut, when, of course, it can be seen ; but in other cases there is no external opening. The causes are constipation, when the hardened fæces abrade the surface in their expulsion ; or neglected piles, resulting in

ulceration ; or it may arise from a wound inflicted on the part. The symptoms of internal fistula are : the dog drags himself along the ground—though that is also done when worms exist in the intestines—and the voided matter is very offensive, and often covered or marked with blood and matter. The treatment should be left to the veterinary surgeon, who will lay the sinus open and apply remedies to set up healthy action and close it up.

FITS.—These are of common occurrence, especially in puppies. Fortunately those that are of a dangerous and fatal character are the rarest. They often cause needless alarm ; but the dog suffering from a fit of whatever kind is not an object to be frightened at, he is rather to be commiserated with and helped, and this requires freedom from the common fear that a dog in a fit is mad, for which there is no just reason. Fits are of many kinds—apoplectic, distemper, epileptic, teething, suckling, and those due to worms. Other causes of excitement are known to produce fits.

Apoplectic Fits are caused by pressure on the brain from distended blood-vessels or effusion of blood. The subjects of attack are generally those dogs that are kept in idleness and over-fed, and the attack may be the immediate result of the animal over-loading the stomach with food difficult of digestion. The symptoms are loud, laboured breathing ; the dog lies motionless on its side in a state of insensibility—there is no frothing at the mouth or champing of the jaws, but the eyes are fixed and often bloodshot. Such cases are usually fatal, and death is frequently instantaneous. Prompt bleeding is the most likely means of saving the patient ; and then, as soon as sufficiently recovered, a strong purge should be given, or clysters administered. Should these means prove successful, it will be necessary to use extreme care to prevent a recurrence of the fit. The dog's diet must be carefully regulated, sufficient healthful exercise allowed, or compelled, if need be, and occasional doses of cooling medicine given. Apoplexy in the dog is not often seen in practice.

Distemper Fits are caused by congestion or inflammation of the brain, and often prove fatal.

Epileptic Fits are of very common occurrence, and generally happen when the dog is at exercise—sometimes in the case of pointers they are seized when on the point, doubtless from the undue excitement produced. When the dog is attacked, he is first observed to tremble on his legs, and on trying to run on he staggers and falls down on his side, frequently uttering a low moan. Struggling to

his feet he attempts to move, only to repeat the fall, when he lies stupefied and insensible. The legs and the whole muscular system are violently convulsed, the dog froths at the mouth, the head is violently moved, often knocked against the ground, the jaws are champed together, and sometimes the tongue gets lacerated between the teeth, and the froth from his mouth becomes tinged with blood; the breathing during the fit is laboured and irregular. The fit generally lasts several minutes. When the convulsions have subsided, the dog raises his head, opens his eyes with a look of surprise, and very shortly runs about as if nothing had happened.

The treatment during an epileptic fit is to gently carry the dog to a dry place where there is some soft material so that he cannot hurt himself in his struggles. As soon after as possible give him a dose of the *Anti-spasmodic Drops*, and leave him quiet in a warm, comfortable kennel. Endeavour to ascertain the cause of the fit. If from over-feeding, reduce the diet and give gentle exercise, and, if need be, repeated doses of cooling medicine. 3gr. of bromide of potash for a 20lb. dog twice a day in water for a week will prove beneficial to dogs predisposed to epilepsy.

Suckling Fits are produced by exhaustion consequent on the bitch having too many pups left on her. She lies or falls down, breathing heavily, becomes insensible, and is frequently much convulsed. Remove all the pups but one or two, let the mother have a generous diet, and if much reduced give the *Concentrated Tonic Mixture* for a few weeks, or the *Tonic Pills*.

Teething Fits often occur during the cutting of the first teeth, but more frequently when the permanent ones are being erupted. Lancing the gums is sometimes resorted to, but as a rule a little opening medicine is all that is needed. Convulsions are frequently present in these fits, as also in those due to worms.

Fits due to Worms.—When these parasites are the producing cause, that fact may often be ascertained by examining the fæces voided during or just after the fit, as some of them will probably be seen. Or the presence of worms may be determined by the symptoms given under that head.

FLATULENCY is not very common in adult dogs, but oftener met with in puppies. It is unmistakable evidence of indigestion. For immediate relief the treatment should consist in giving to a 20lb. dog half a teaspoonful of carbonate of magnesia in a little milk; or give a dose of castor oil, and follow with 5gr. to 15gr. of carbonate of bismuth three times a day dry upon the tongue. For permanent cure, correct the indigestion. See INDIGESTION.

FLEAS.—*See* PARASITES, EXTERNAL.

FOLLICULAR MANGE.—*See* MANGE.

FOUNDER OF THE CHEST.—*See* KENNEL LAMENESS.

FRACTURES.—*See* BONES, BROKEN.

G.

GASTRITIS.—*See* STOMACH, INFLAMMATION OF.

GASTRO-ENTERITIS.—A highly contagious disease that first made its appearance here in 1899, when it assumed an epidemic form. So many and sudden were the deaths that for a while poison was suspected. Puzzling, too, were the symptoms, as many of these were common to ordinary Gastritis—inability to retain food, vomiting, diarrhoea, ulcers at the back of the throat, foetid breath, staring coat, &c.—and suspects were treated for that disease. It was not until post-mortems were made that the true state of affairs was revealed. Any dog suspected of the disease should be at once isolated from kennel companions, and kept warm and quiet until a veterinary surgeon can be summoned. Usually, however, death puts an end to the sufferer before any treatment can be adopted. 5gr. to 20gr. of carbonate of bismuth, with 3 to 6 drops of diluted hydrocyanic acid in water, three times a day, may allay the stomach irritability. These should be placed in a bottle and well shaken. A teaspoonful of Brand's Beef Jelly every hour and a half should be tried. Usually there is an entire loss of appetite and rapid wasting. The disease is thought to be of microbic origin.

GATHERINGS.—*See* ABSCESS AND BOILS.

GLASS EYE.—*See* AMAUROSIS.

GLOSSITIS.—*See* TONGUE, INFLAMMATION OF.

GOITRE, or BRONCHOCELE.—This term is applied to a swelling or lump that appears on the front part of the neck, known as the thyroid gland. It is soft and elastic to the touch, and appears to give no pain except when it increases to such a size as to interfere with the breathing. It is especially a disease of old dogs, although it occurs in ill-fed and scrofulous puppies. The treatment consists in applying the following ointment daily till the swelling disappears: iodide of potassium, 1dr.; lard, 7dr.; mix. Cod-liver oil—a teaspoonful to a 20lb. dog daily for a month or two; or iodide of potassium, in doses of 2gr. in water, and in addition a dose of Chemical Food three times a day, are also beneficial. If abscesses form they must be lanced. Dogs suffering from goitre should be extra well fed.

GUTTA SERENA.—*See* AMAUROSIS.

H.

HÆMATURIA (Bloody Urine).—This condition is met with in dogs, and is the result of calculi situated in the bladder, kidneys, or urethra. These foreign bodies cause irritation and inflammation, and also injure the mucous membrane, producing abrasions and superficial bleeding, the blood being passed with the urine. A blow across the back may also cause it. Upon pressing the dog's loins pain is evinced, and there is also a certain amount of irritation caused by passing the urine. Blood is sometimes mixed with the latter, or it may be passed independently of it. Give 10 to 60 drops of liquid extract of ergot every four hours, and if the urinary passage is the seat of the injury, inject a weak solution of Condy's Fluid. The food should consist for a time of Bovril or beef-tea, with egg and milk to drink. Under no circumstances administer a diuretic.

HÆMORRHOIDS.—*See* PILES.

HARVEST BUGS.—*See* PARASITES, EXTERNAL.

HAW, ENLARGEMENT OF.—The haw, or third eyelid, as it is sometimes called, is a fold of membrane situated at the inner corner of the eye, and capable of expansion, and is used to sweep across the globe of the eye to cleanse it from flies, dirt, or other foreign bodies that have been blown in. This membrane, from constitutional causes, blows, or irritation due to extraneous matter lodged in the eye, sometimes becomes inflamed and enlarged, interfering with the sight and preventing the eyelids from closing.

The treatment consists in applying astringent lotions, lunar caustic, or in cutting off the excrescent growth, according to the circumstances of the case.

HEART, FATTY DEGENERATION OF.—This is perhaps the most frequent form of heart disease found in the dog; it is, however, seldom diagnosed during life.

The cause may arise from a general malnutrition of the system, or from senile decay (decay due to old age). The organ is not always wholly involved. When only a part is affected, it is due to some obstruction causing local malnutrition. The symptoms during life are not very pronounced, though the animal may show unusual fatigue upon slight exertion, and the pulse is irregular.

HEART, RUPTURE OF.—This has been noted by some writers, but the cases quoted are few.

HEART, VALVULAR DISEASE OF.—This is a very fatal form of heart disease. The pulse is very perceptibly irregular and feeble. Upon post-mortem examination the valves will be found thickened, and may present upon their surfaces granulations, which feel under the finger like minute particles of sand. Treatment is of no avail; but to prevent sudden death, all undue excitement should be avoided.

HEAT, PERIOD OF.—See **ESTRUM**.

HEPATITIS (Inflammation of the Liver).—See **JAUNDICE**.

HERNIA, UMBILICAL.—See **NAVEL HERNIA**.

HICCOUGH arises from indigestion, and often annoys house pets that are given improper food, such as sweets, etc. A wineglassful of lime water in a tumblerful of milk to drink, and for a 20lb. dog 10gr. of bicarbonate of soda, and 10 drops of sal volatile in a tablespoonful of milk, will usually prove effectual.

HOME SICKNESS.—See **NOSTOMANIA**.

HUSK.—Dogs are subject to a dry, husky cough, associated with derangement of the stomach, and worms are often the originating cause. The symptoms are dry, hot nose, disagreeable breath, inflamed eye, and increased discharge from nose, with more or less general fever; the dog after coughing retches, bringing up portions of frothy mucus. The treatment consists in keeping the dog free from damp and cold, feeding on warm, easily digested food, and the administration of a dose of salad oil every third morning, and the following two sets of pills, two a day of each, given alternately:

Pills for Husky Cough.—Powdered opium, 6gr.; tartarised antimony, 1gr.; compound squill pill, 1dr.; mix and divide into twenty-four pills, and give one to a 20lb. dog twice a day.

Tonic Stomachic Pills.—Pure sulphate of iron, 12gr.; dried bicarbonate of soda, 24gr.; extract of camomile, 24gr.; mix and divide into twelve pills. One of these is a dose for a 20lb. dog. Not infrequently worms in the stomach will cause husk; if so, a dose of areca-nut should be given, or a full dose of ipecacuanha wine to cause vomiting.

HYDROCEPHALUS.—See **BRAIN, WATER ON THE**.

HYDROPHOBIA.—See **RABIES**.

I.

INDIGESTION (Dyspepsia).—In this disease the food taken into the stomach is not digested or made fit for the nourishment of the body, showing that the stomach, from some cause or other, has altogether or partially lost its power of performing its most important office. This state of things is brought about in various ways, such as by want of exercise, improper food, or the giving of food irregularly. An over-plentiful meal after a too prolonged fast will bring it on; but the cause or causes must be of some standing to produce a serious attack. The symptoms of indigestion are a vitiated appetite, the dog turning up his nose at wholesome food, or eating it mincingly and slobbering it about, and giving a preference to filth and garbage. Flatulence is often an accompaniment of indigestion. There is generally considerable thirst, and the disorder is often attended with vomiting. When of long standing, the gums become inflamed (they should be bathed frequently with a weak solution of Condyl's Fluid) and the breath is foul and offensive.

Indigestion is the cause of many other forms of disease, which surely follow neglected cases—derangement of the bowels is almost inseparable from it. Attacks of diarrhœa occur, sometimes alternating with fits of constipation; or confirmed constipation may exist. Sometimes the dog becomes excessively fat, and suffers from asthma and asthmatic cough. As a secondary symptom skin disease, in one form or other, often occurs. During the attack the dog's temper is generally fitful and snappish. In treating for indigestion the most important thing is to remove the probable cause or causes. Give a sufficiency *only* of plain, wholesome food, and keep within the dog's reach a supply of clean, fresh water. Remedies must be administered according to existing circumstances—diarrhœa, for instance, being treated as recommended under that head. The main object, however, must not be lost sight of—namely, to give tone to the stomach and bring that organ back to a proper discharge of its functions. To this end give to a 20lb. dog a compound rhubarb pill every night for a week. When the bowels have been freely acted upon, give the following twice a day until health is restored:

Stomachic Bolus.—Take powdered rhubarb, 1scr.; powdered ginger, 1scr.; extract of gentian, 4scr. Mix, and divide into twenty-four pills. Dose for a 20lb. dog, one twice a day.

If there is much flatulence, give dry upon the tongue, 5gr. to 15gr. of carbonate of bismuth, three times a day; or bicarbonate of soda 5gr. to 30gr.; tincture of nux vomica 5 to 20 drops; tincture of ginger 10 to 60 drops in water twice a day. Add a little lime water

to the milk that is given to drink. By treating the patient thus and paying strict attention to his dietary and exercise, the disease will soon yield.

INFLAMMATION OF THE LUNGS.—See LUNGS, INFLAMMATION OF.

INFLUENZA.—This is an epidemic resembling common cold, but more severe in its effects, and contagious. The causes are supposed to be atmospheric cold, and damp weather in spring and autumn, which are the usual seasons of its appearance.

The treatment should be similar to that recommended under COLD. The dog will however require still greater care exercised in keeping him warm and in a well-ventilated place, as well as in being supported with easily-digested food, such as strong broth, beef-tea, boiled milk, bread, etc. In the early stages, Hoffman's anodyne or compound spirit of sulphuric ether, given in milk three times a day, is generally beneficial. Dose for a 20lb. dog, 15 drops. Any discharge from the nose should be encouraged by warm fomentations and making the dog inhale the vapour from vinegar of squills sprinkled on a hot, wet sponge or cloth. If the throat is swollen and sore, slightly blister with vinegar and mustard. In convalescence give cod liver oil and syrup of iodide of iron.

INTUSSUSCEPTION.—See BOWELS, OBSTRUCTION OF.

INVERSION OF THE UTERUS.—See UTERUS, INVERSION OF.

INVERSION OF THE VAGINA.—See UTERUS, INVERSION OF.

IRIS, INFLAMMATION OF.—See IRITIS.

IRITIS, or INFLAMMATION OF THE IRIS, is sometimes seen in dogs. The iris is the membrane that gives the colour to the eye, in the centre of which is the pupil. The disease is usually the result of deep-seated inflammation, or it is caused by direct violence. The symptoms are contraction of the pupil (which does not possess the same power as usual of contracting and dilating to regulate the amount of light to be admitted) tears flow over the lid, the light is avoided, and the eye is blood-shot. If the inflammation increases, the usual termination of prolonged inflammation takes place—namely, suppuration (the formation of matter), and the loss of sight is complete.

In adopting treatment, the first step is to place the dog in a

darkened kennel, to apply hot fomentations continually to the eye, and to introduce sulphate of atropine into the organ. Discs of sulphate of atropine can be obtained at the chemist's, with full instructions for their use.

J.

JAUNDICE, or THE "YELLOWS," AND INFLAMMATION OF THE LIVER (Hepatitis).—To be strictly accurate these should be treated as distinct diseases; but to the ordinary dog-owner the division would be of little or no use, the causes and general treatment being alike. Inflammation of the liver exists in two forms—the acute and the chronic. The former is the rarer, and makes its appearance more suddenly; the latter often occurs as a sequel of the acute. The causes of the disease are various, but in most cases they are traceable to improper feeding, combined with want of exercise, which accounts for the number of such cases in house and pet dogs. In sporting dogs it is often brought on by continued exposure to wet, immersion in water during cold, inclement weather, lodgment in damp kennels, and by over-fatigue. One very common cause is the repeated resort to powerful emetics, which many people use as if they possessed a charm over dog diseases. I believe an occasional cause of liver complaint may be found in a too forcing system of training adopted by some greyhound trainers and others. On the whole, however, improper feeding must be credited with the greatest share in the evil.

The liver in a healthy state secretes a yellow fluid, called the gall; this is collected in the gall-bladder, and is intended to mix with the chyle and complete the work of digestion. When obstruction of the gall-bladder takes place, the gall is diverted from its natural purpose, becomes reabsorbed by the blood-vessels, and so enters the general system, giving a bright saffron colour to various parts, notably to the eyes, lips, inside of the ears, inside of the arms and thighs, and in some cases to the whole skin; hence the name of "The Yellows."

Jaundice is of very frequent occurrence, and, as has been before observed, often exists as a complication of distemper; and when this is the case it is most difficult to manage, on account of the already reduced strength of the dog (*see* DISTEMPER). The treatment must to some extent be governed by the circumstances of each case.

The invariable yellow colour of the parts mentioned as a symptom in this disease is one which the least careful observer cannot fail to notice ; but before this occurs there are other symptoms which should not be overlooked. In the earlier stages the dog's appetite fails ; he suffers considerable thirst, which increases as the disease progresses ; there is fever, with alternate fits of heat and shivering ; vomiting may occur, and the matter ejected is generally slimy and of a yellowish colour ; the urine is passed in small quantities, and is a deep yellow colour ; the bowels are generally constipated, and the excrement is of a pale clay colour. In chronic cases the belly is enlarged, and flatulence often exists ; while on the right side a swelling may be felt. In severe cases the dog rapidly loses flesh and soon becomes a mere skeleton ; the coat is rough and staring, and often comes off in patches. All writers I have consulted on the subject recommend mercury in the treatment of jaundice, so I here give particulars of its dose, and the mode of administering it, for the benefit of my readers, although I do not myself use it.

Mercurial Treatment of Jaundice.—Calomel 2gr. to 4gr., with 1gr. of opium every six hours, is a not uncommon prescription. Mr. Meyrick prescribes the following : “Blue pill 3gr., opium 1gr., to be given every five or six hours. If diarrhoea be produced by this treatment, the quantity of opium must be increased, and the mercury, if necessary, reduced to 2gr.”

I prefer to use the *Compound Podophyllin Pills*. If the bowels be not freely opened after administering the first pill a dose of salts and senna (black draught) should be given : on the other hand, if diarrhoea exists it must be checked. In conjunction with the pills the following mixture should be tried :

Mixture for Jaundice.—Take bromide of potassium, 1dr. ; taraxacum (dandelion) juice, 3oz. ; mix, and give a teaspoonful three times a day in water or gruel. This dose is for a dog about 20lb weight. Benefit is also derived from the administration of 30gr. to 60gr. of sulphate of potassium in water. The dose may be repeated in twenty-four hours, but must not be continued long enough to cause excessive purging.

If the attack should occur during distemper, the *Distemper Mixture* may be used instead of the above. When, as in chronic inflammation, the liver is enlarged, the *Liniment for Sprains* may be well rubbed round the region of the diseased organ, or a strong mustard plaster applied. Another method of affording relief is to take a piece of flannel, dip it in hot water, wring the water out, pour some spirit of turpentine over the material, and apply to the affected part. It is very important that the bowels should be freely relieved at the outset, and if the means advised above prove unsuccessful,

then it would be well to resort to clysters of soap and warm water. Throughout the attack the diet is an important matter; it must be light and nourishing, and in a sloppy form. Boiled wheaten flour, with beef-tea or mutton-broth, make a suitable diet. The dog should also be kept warm, dry, and comfortable, and disturbed as little as possible.

JOINTS, ENLARGED.—All large joints are not diseased; in fact, in selecting pups in the nest big-jointed ones are to be preferred. Enlarged joints, from the want of the hard, earthy materials in the bone, which makes them yielding, so that they cannot support the weight of the body, and consequently give way, producing deformity, are, however, often met with. The cause is generally bad food and the lack of good water, fresh air, and sunshine. See RICKETS.

K.

KENNEL LAMENESS, OR CHEST-FOUNDER.—

This is a rheumatic affection of the forequarters, and particularly of the muscles connecting the shoulder-blade with the trunk. It is caused by exposure to wet and cold, and generally by the dog being kept in damp or draughty kennels. The symptoms are stiffness and soreness of one or both shoulders. This is most noticeable when the dog is running down hill, or when jumping, as of course then practically the whole of the weight of the body is on these parts. Left to himself, the dog shows an indisposition to move, and experiences pain if the hand is passed over his shoulders; indeed, even when an attempt is made to touch him, he shrinks from the hand with a snarl or anticipatory cry of pain. In long-standing cases, power of movement of the forequarters is almost lost, and many are incurable.

The treatment most advisable is to give a warm bath, and after thoroughly drying, rub the parts well with a liniment composed of equal parts spirit of turpentine, spirit of hartshorn, and laudanum. If that should fail to give relief, the following should be tried:

Liniment for Rheumatism.—Take liniment of aconite, 1 part; compound camphor liniment, 2 parts; mix, and rub into the affected parts continuously for half an hour at a time, using considerable friction.

The rheumatic liniment is an expensive preparation, and it is also a powerful poison, so that great care must be used with it. The

dog's coat should be wiped dry after applying it, and it is advisable that he should wear a canvas-faced muzzle. The bowels should be freely acted on, and the *Compound Podophyllin Pills* will be the best aperient. The following mixture should also be given :

Mixture for Rheumatism.—Take iodide of potassium, $\frac{1}{2}$ dr. ; sweet spirit of nitre, $\frac{1}{2}$ oz. ; water, $3\frac{1}{2}$ oz. Give one to two dessertspoonfuls for a dose twice a day.

Even more useful than the mixture recommended, is salicylate of sodium in 10gr. to 30gr. doses, in water, three times a day. If this fail, then try 5gr. to 15gr. of benzoic acid in pill form, twice a day.

The food should be sloppy and nourishing, and the dog be kept in a warm, dry place, free from draught.

KIDNEYS, INFLAMMATION OF (Nephritis).—

This is a disease of a very dangerous nature, but fortunately not very often met with in the dog. It is known by the presence of intense fever, great pains across the loins, a peculiar straddling gait, and the ineffectual or only partially effectual efforts to pass urine, the quantity voided being scanty and sometimes mixed with blood. The disease may arise from the presence of stone, or it may be caused by blows or sprains in the lumbar region ; or, again, it may be the result of administering over-doses of turpentine, cantharides, or other powerful excitants of the urinary organs. The treatment of such cases should properly be handed over to the qualified veterinarian. I can only suggest as likely to give relief, continuous bathing of the whole surrounding parts with warm water, the application of hot poultices to the loins, relieving the bowels by means of clysters, reducing the attendant fever by daily doses (5gr. for a 20lb. dog) of Dover's powder, and the constant use of the *Fever Mixture*.

L.

LABOUR, PREMATURE.—This is occasionally due to over-exertion, leaping from a high place, injuries, and the abuse of purgatives ; it also occurs as the result of diseased organs. When it does occur, the bitch should be placed in a comfortable room, kept perfectly quiet, and for some days fed on broth or porridge. By way of medicine repeated doses (one every four or five hours) of opium should be given if the animal is in pain. *See also* PARTURITION.

LACTEAL TUMOURS.—Every dog-owner must know what a common thing it is to see a bitch with an enlargement of one of her teats, or the structures adjoining them. Now, not only is such

very unsightly, but when grown to a considerable size, as it will do, it is very liable to injury.

The immediate cause is the damming up of one of the milk-ducts; the teat is "blind," as it is called in dairy parlance—that is, the flow of milk through it is obstructed by some malformation. Far oftener, however, the milk itself is the cause; that is to say, it is not drained off sufficiently, when it hardens, acts as a foreign body, and still further as an irritant, because of its chemical decomposition. The effect of this is that more or less inflammation of the milk-gland is produced, a hard lump forms and increases gradually, and, once begun, the evil develops more and more at each returning period after oestrus, when pupping has or should have taken place.

From the numerous questions I have received on the subject, it does not appear to be generally known by those who keep dogs that some bitches, even if they have been secluded from the dog during the period of "heat," will secrete a fluid much resembling milk at the time they would have had pups had impregnation been allowed, but such is the case. It is therefore the duty of the owner to note the time and look out for the evidence of this secretion and have it removed by hand, or by one of the many breast-exhausters, giving at the same time a light diet, with an extra proportion of boiled vegetables and a few doses of cooling, aperient medicine. Permitting a bitch when in milk to lie on cold bricks or flags, or to be exposed in other ways to cold and damp, may also cause obstruction of the teat and subsequent tumour; while blows, bruises, and wounds sometimes produce a like result. A not uncommon cause of these lacteal tumours is the hurried drying up of the milk by artificial means. It is sometimes desirable to destroy pups that are the result of a *mésalliance*, but it is absolutely cruel to deprive the poor mother of all her progeny. In addition to the cruelty, there is always the risk of the flow of milk damming up one or more of the teats and producing tumour.

The measures of prevention against lacteal tumours will, from the foregoing remarks, have suggested themselves to the reader. Nature has ordained that the bitch should bring forth young at least once in twelve months, and, though she permits us to take certain liberties with her laws, yet if we go beyond a certain limit, disease follows as a punishment; even when we interfere with her prerogative, it must not be by direct contradiction, but by diverting her forces into other channels. When we forbid the bitch to breed, we put an embargo on certain functions, and the energy that supplies and works these functions we divert by exciting extra secretions of the bowels, kidneys, etc.; but the safest, because the most natural, prevention of disease, is to let the bitch breed.

When it is desired to "dry" the bitch, that is, to stop the secretion of milk, it is wrong to give alum and other astringents, and to rub brandy, etc., along the mammae. The object is more surely obtained gradually, and that without the risk of untoward results, by drawing off what milk there is regularly, giving a spare diet, and a good purge, following this with 2gr. to 3gr. of iodide of potassium, twice a day, and rubbing well with the following liniment :

Liniment for Drying Bitches.—Iodide of potassium, 2dr. ; soap liniment and oil of camphor, of each 2oz.

When a tumour does form, and the bitch is still in milk, draw the milk off twice a day, and in any case, give a brisk purge. Keep her on a spare, and rather dry diet, and to one of 20lb. weight, give twice a day 2gr. of iodide of potassium, in about two tablespoonfuls of water, immediately after feeding, and apply twice or thrice a day the following ointment to the lumps or swelling :

Ointment for Lacteal Tumours.—Iodide of potassium, 1dr. ; powdered camphor, 1dr. ; strong mercurial ointment, $\frac{1}{2}$ oz. ; spermaceti ointment, 1oz. ; mixed. Rub a little well in with gentle friction.

If these means do not prove sufficient for the dispersion of the swelling, add to the above ointment 2scr. of resublimed iodine dissolved in a little spirit of wine.

When the swelling has gone on so far unheeded that matter is formed, and becomes soft and ripe (which may be told by the fluctuating of the enlargement under pressure of the fingers), there is nothing for it but the lancet, which should be inserted in the soft part, and a cut made downwards, to insure perfect drainage. The parts must then be frequently bathed, the matter pressed out, washed with a solution of Condy's Fluid, and dressed with Turner's cerate, while the patient should have a good strong purge. These growths are often removed by the knife, and when of long standing that is the only course.

LAMENESS may arise from a cut foot, a thorn, injury to the spine, or to one of the limbs or joints, or from rheumatism. When it comes on suddenly, the cause should be at once diligently sought for, and the case treated accordingly. See **KENNEL LAMENESS**.

LARYNGITIS, OR INFLAMMATION OF THE LARYNX.—This is a common affection caused by cold and also by incessant barking ; hence it is very often met with in drovers' dogs, and in dogs which are constantly sent to shows. The dog becomes hoarse, and the power to bark articulately is lost. Yard-dogs kept constantly on the chain are also common sufferers. For my own part I can never understand why so many people desire a yard-dog

that is always straining on his collar, and keeping up a never ending noise in trying to get at somebody or another without discrimination; but people do like what they call a "savage" yard-dog, which generally means a dog without intelligence and training. These brutes, whilst they frighten timid people, do more harm than good; they cry "wolf, wolf," until the master gets so used to the false alarm that when the thief really does come the barking of the watch-dog is unheeded.

CAUTION.—The peculiar hoarse and husky bark which is one of the symptoms of rabies might be mistaken for the loss of voice caused by inflammation of the windpipe, if other and concomitant symptoms were not taken into consideration, and the consequences would be dangerous; but the two diseases are easily distinguished, and to that end I refer the reader to the article on RABIES.

In treating laryngitis the difficulty in swallowing occasioned by the inflammation renders the danger of choking great if it should be attempted to drench the dog; but I find the following electuary in this and all cases of sore throat very beneficial:

Electuary for Sore Throat.—Take of chlorate of potash finely powdered, 2dr.; powdered gum guaiacum, 1dr.; powdered gum acacia, 1dr.; oxymel of squills, 5dr.; and honey, loz. Mix and place a teaspoonful well back on the tongue three times a day.

Large hot linseed-meal poultices, or the spongio-pilin often renewed, should be applied to the throat, and kept in position by a bandage; or else it should be bathed with hot water and afterwards well rubbed with this liniment: spirit of turpentine and spirit of hartshorn, of each loz.; tincture of cantharides, $\frac{1}{2}$ oz.; rape oil, $1\frac{1}{2}$ oz.

LARYNX, INFLAMMATION OF.—See LARYNGITIS.

LEGS, CROOKED.—There are some breeds, such as the Basset-Hound and the Dachshund, in which crooked legs are considered desirable and characteristic; but I think there can be no doubt that this now inherited peculiarity originated in rickets. In many of the straight-legged breeds, however, we meet with crooked legged specimens. Pups of such large, heavy breeds as mastiffs and St. Bernards are specially liable to go wrong in their legs, and the present craze for forcing young puppies, encouraged by the prizes offered at shows, is answerable for the ruin—in this respect—of many a promising dog. See RICKETS.

LICE.—See PARASITES, EXTERNAL.

LIPS, WARTS ON THE.—See WARTS.

LIVER, INFLAMMATION OF.—See JAUNDICE.

LOCK-JAW (Tetanus).—This is of very rare occurrence, a fact all the more remarkable when we consider how liable the dog is to various spasmodic affections. I have never seen a case of it myself, but Blaine describes it, and it is a recognised canine disease. It is a form of tetanus, and under that head Professor J. Woodroffe Hill describes the symptoms: “When the jaws only are affected, the head is poked out, the jaws are tightly closed, the angles of the mouth are drawn back, the mouth is filled with frothy saliva, and the eyes are fixed in an unnatural and often hideous position.”

The person who is unfortunate enough to have a dog seized with locked jaw should remove the sufferer to a quiet place on a good bed, where the light is subdued and the dog will not be liable to be disturbed, and then consult the best veterinary surgeon within reach. Even with the most skilful treatment a cure is very doubtful; but as a matter of duty and humanity no quack should be permitted to experiment, or officious ignorance roughly handle the patient, for such would only cause pain without the remotest hope of good results.

LOOSENESS OF THE BOWELS.—See DIARRHŒA and DYSENTERY.

LUMBAGO.—See RHEUMATISM.

LUNGS, INFLAMMATION OF (Pneumonia; Pleurisy—Inflammation of the Investing Membrane of the Lungs, and that which lines the Chest-Cavity—&c.).—These two diseases are sometimes co-existent, when it is known as pleuro-pneumonia. It would be too much to expect an amateur to distinguish between them; but as the causes and treatment are much the same, I shall continue to treat them as one disease. This disease is of very common occurrence in dogs, and in many cases proves fatal. When it exists as a complication of distemper it is known as “chest distemper”; but other of the respiratory organs may be involved.

The causes producing inflammation of the lungs are generally exposure to severe cold, allowing dogs to swim during inclement weather, clipping dogs or otherwise removing a greater part of their natural covering, or washing them and afterwards exposing them to excessive cold, especially if not thoroughly dried. In fact, any sudden transition from a high to a low temperature may produce it, especially in dogs of a delicate constitution and unused to roughing it. Again, it may occur from over-exertion through running too far, or from fractured ribs penetrating the lung-tissue.

The more notable symptoms are quick and laboured breathing, the inspirations being full, the expirations short, and the breath hot. The dog sits on his haunches, and if obliged to move does so reluctantly, and soon resumes that position, with his head pushed forward. The ribs are more or less fixed, and the abdominal muscles brought into action, especially if pleurisy is present. The fixed position of the ribs, with the heaving of the flanks, is a most characteristic symptom of pleurisy. In affections of the lungs, the animal stands with its legs (fore legs) wide apart. If the disease progresses, the face has a haggard expression, the angle of the mouth is drawn up, and the extremities become deathly cold. If not relieved, the dog rapidly gets worse, and the breathing becomes more laboured and painful.

Pleurisy, or inflammation of the investing membrane of the lungs, often exists independently, or as a complication of pneumonia. To treat this disease with any chance of success, it is important that the dog should be kept where he can freely breathe fresh, cool air; a hot, stifling place is equally to be avoided with a damp or draughty one. Whilst cool, fresh air is insured, the patient must at the same time be kept warm by clothing if necessary; it is also needful that he should be as little disturbed as possible. If the legs are cold, woollen bandages should be placed on all of them. The diet should be rather low at first, but not too much so—broth, gruel, etc., are suitable under the circumstances.

In the way of medicines, it is necessary that the bowels should be kept open by castor oil or the use of clysters. The *Fever Mixture* should be immediately and diligently administered.

Blisters to the sides, as sometimes advised, are bad, as they cause soreness and increase the pain in breathing. Hot linseed poultices should alone be employed throughout the day and night. If the fever is high, give $\frac{1}{2}$ to 1 drop of tincture of aconite, every fifteen minutes for two hours, then hourly for eight hours.

Dogs recovering from this disease are always very weak, and require very great care to prevent a relapse, even when all danger appears to be gone. Only the most gentle exercise should be allowed at first, and fine weather selected for it. The dog will require nourishing diet, which should be plain, and consist for a time of broths, etc., a return to solid food being gradual. The dog will at this stage be greatly benefited by tonics. The most suitable are the *Concentrated Tonic Mixture*; or for a 20lb. dog 2gr. of quinine twice a day in a little water; or 10 to 60 drops of Easton's Syrup in water, twice a day after food.

M.**MADNESS.**—See RABIES.

MAMMITIS (Inflammation of the Milk-Glands) frequently occurs. The causes are the retention of milk, the result of taking away the puppies immediately after they are born, or too early, or from their death, or cold and injuries. The symptoms are a redness and tenderness of the part, the milk is curdled, and sometimes pus or blood accompanies it, the former if abscesses have formed. It is highly important that these cases should be taken in hand at once. Immediately one notices the first symptoms, foment the parts with warm water frequently throughout the day, taking care to dab them dry afterwards. If the cause is the retention of milk brought about by the bitch having lost her puppies, or having had them taken away, the secretion must be frequently drawn away by the hand. Where possible, and the bitch will take to it, a puppy should be given her. Medicinally, 1dr. to 2dr. of Epsom salts should be given, with from 10gr. to 20gr. of bicarbonate of soda, twice a day in water, until the bowels are well relaxed.

If this treatment is adopted in the early stages of the disease, the inflammation will usually subside, and the gland regain its normal condition. In protracted cases, however, pus, or matter, will accumulate, and abscesses form. The contents of the latter must be evacuated by lancing, and boracic acid lotion or ointment applied to the part night and morning; while to prevent the animal from licking it she should have a muzzle with a piece of canvas sewn over the front. Where abscesses have formed, generally patches of the gland will become obliterated, and of no further use. Mammitis may assume a chronic form, and the glands become enlarged and indurated.

MANGE.—The very pronounced distinction between true mange and the modifications of eczema and other causes of irritation of the skin—excluding that caused by such visible parasites as lice and ticks—is that the former is caused by a parasite, although invisible to the naked eye, and that it is readily transferable by contact from one animal to another; whilst eczema, blotch, surfeit, or red mange, are not.

Mange has been a recognised disease in our kennels for centuries. An old writer justly calls it “the capital enemy to the quiet and beauty of a brave spaniel; wherewith, poor creatures, they are

often grievously troubled, and as often infect others," so that if respectability goes by long and pure descent, mange mites must rank very high in animal society. A modern writer on canine pathology begins his dissertation on mange with these prefatory remarks: "The term mange is generally used by those people who dabble in canine matters, without the knowledge necessary to diagnose correctly, to denote any affection of the skin which results in eruption, irritation, or the detachment of hair." This is to a great extent true.

The two clearly defined kinds of parasitic mange—Sarcoptic and Follicular—are both due to species of mites.

Sarcoptic Mange.—The mite producing this most nearly resembles the itch-mite of man, and as it is propagated by eggs, and transmitted by contact, direct or indirect, there seems nothing impossible in the idea of stamping out this chief "enemy to the comfort of a brave spaniel," if only we could get every dog-owner to be careful and clean. There is much virtue in an "if"; but at least we can learn from the facts known about the mange-mite that we need not harbour it in our own kennels, and by stamping it out there, lessen it generally. Dirt unquestionably harbours and encourages mange, although it does not produce it; left undisturbed by cleansing processes, the pests breed and multiply with great rapidity.

When the mite reaches the dog, it burrows into the skin; the process, and also a poisonous fluid discharged by the creature, causes intolerable itching, and to relieve this the dog scratches, with the result that the skin is broken, small red points appear, and these become pustular and discharge a fluid which dries or crusts and forms a scab; the hair falls off. The multiplication of the original cause of the evil is rapid, and, left unchecked, the whole surface of the body soon becomes involved, while the poor dog is an object of pity, and from want of rest and other causes sinks into a helpless condition. This state is often called virulent or scabby mange, and presents many of the characteristics of **BLOTCH**. The skin is harsh, dry, and rough, until small pimples appear, when therefrom oozes a purulent matter, forming scabs, which mat the hair together, and bring it off in patches as the dog rubs or scratches himself. The back, breast, and insides of the thighs are generally the first places attacked, and every crease and wrinkle in the skin becomes inflamed and moist with the irritating discharge. If the disease is left unchecked, it soon extends over the whole body, reducing the dog to a deplorable condition, disgusting to all who see him and intolerable to himself. These are severe and extreme cases. In others a dry,

scurfy mange exists, marked by little red spots, and confined to the joints of the legs, over the eyes, the flaps of the ears, etc.; and this may exist some time without other damage than causing the dog great uneasiness and injury to his appearance, by partially destroying the hair and robbing it of its natural glossy appearance. Fig. 12 is a much magnified illustration of the mite causing Sarcoptic mange. It is too small to be seen with the naked eye, and it is not until a compound microscope comes to our aid that we can see the minute creatures.

The preventive measures are self-evident. Do not permit your dog to associate with mangy curs. A dog cannot contract mange

except by being in contact with an infected dog, or where one has been and left mites behind him. Railway companies should be compelled by law to cleanse and disinfect their dog-boxes after every occupant. Make periodic and very careful examination of your dogs, and insist on thorough cleanliness in the kennel.

The first thing to be done with a mangy dog is to wash him. Let him have a good sousing and scrubbing with soft soap and water, "hottish rather, but not so boiling as to turn him red"; dry well with a soft cloth, which must immediately be boiled, and then dress him with one or other of the innumerable preparations which their vendors declare are never known to fail; or use one of the following

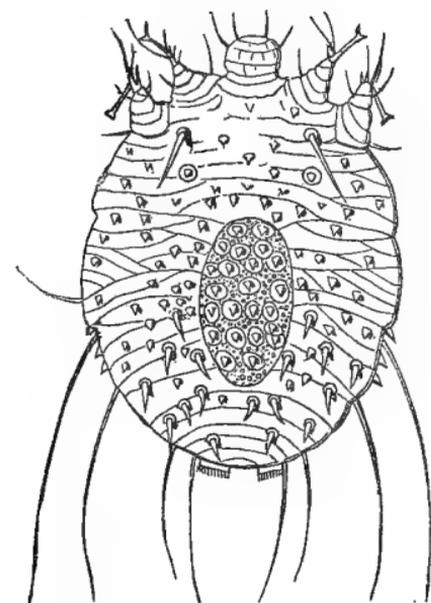


FIG. 12. MANGE MITE (*Sarcoptis canis*).
(Magnified).

remedies, which you can make or get your chemist to prepare for you. Whatever you use, see that it is applied thoroughly; see that it reaches the skin where the mites are ensconced, and is not merely left on the hair. A very old and very effective remedy for mange is the

Lime-and-Sulphur Lotion.—Take flowers of sulphur, 2lb.; unslaked lime, 1lb.; water, 2 gallons. Slake the lime in a small portion of the water, stir in the sulphur, adding water gradually until it is of a creamy consistence, then add the remainder of the two gallons, and boil down to one gallon. Let it stand till cold, pour off

the clear liquid, and make the quantity to five quarts with cold water.

In using, all the affected parts should be freely wetted with it. Chronic cases of mange often take a month or two to cure. Spratts' Patent make a mange lotion somewhat similar to the above, but containing, I believe, other parasiticides, and I have found it convenient and very effective.

Another excellent preparation is: olive oil, 1 pint; oil of tar, 4oz.; sulphur, 4oz. This dressing should remain on the skin for one week, and then be washed off with hot water and soap, to which has been added a little soda. It should be repeated in twenty-four hours. The ointment of balsam of Peru has also been successfully employed.

Sulphur is given as an internal remedy for mange, but it is not of any use. Whatever external application may be used for mange, the dog, or at least the affected parts, should first be well cleansed with soap and water, with the addition of a little of the carbonates of soda or potash, and afterwards well dried. The litter should also be frequently changed, while the walls of the kennel, and all posts and other places where the dog has rubbed, should be treated to lime-wash containing a little carbolic acid. The floors, too, should be swilled with a weak solution of the acid or some other disinfectant.

Various forms of sulphur ointment are in vogue as cures for mange, some of them combining with the flowers of sulphur powdered hellebore (a strong poison) made up with soft soap, whale or seal oils, turpentine, etc., the whole forming a compound as disgusting to sight and smell as the worst cases of mange. Moreover, I have not found them one bit more effective than a simple ointment made with 1 part of sulphur to 4 parts of lard.

Follicular Mange is due to another mite (*Demodex folliculorum*, Fig. 13), very different in appearance from the *Sarcoptes*, which are short and thick, whereas the *Demodex* is elongated, and with a long, obtuse tail. These parasites differ in their habits, the *Demodex* living in the hair-follicles, and burrowing deep under the skin in the sebaceous gland that supplies the unctuous matter to protect the skin and keep it soft. The depth to which the *Demodex* burrows renders Follicular mange much less easy of transmission between dogs; but it also makes a cure much



FIG. 13. MANGE MITE (*Demodex folliculorum*). (Magnified).
(a) Oval Sucker.
(b) Mouth.
(c) Legs.

more difficult, as the parasites are hard to reach. This mite is identical with a parasite found in the human skin causing some disfiguration of the face, but further than that it does no harm until transferred to the dog, when it causes a most repulsive disease, and one very difficult to eradicate.

Some few years ago Mr. Wm. Hunting, F.R.C.V.S., in conjunction with Professor Duguid, made a series of investigations and experiments in elucidation of this disease, and the following description of symptoms and the diagnosis are from an article by the former gentleman, which appeared in the *Veterinary Journal*, and afterwards in pamphlet form :

“ The symptoms of the disease are seldom seen in the first stages ; they consist merely of circumscribed spots from which the hair falls, and upon which are noticeable a few small pimples. These patches extend rapidly, and fresh ones appear on other parts. Any portion of the skin may be affected, but the head, legs, belly, and sides, are usually the seat of the disease. The affected places are almost hairless, and what hair remains is easily pulled out ; small pimples and pustules stud the surface, the latter varying in size from a pin’s head to that of a pea. The confluence of the pustules, and the discharge of their contents, give rise to scabs ; these crack and bleed, and so produce a most repulsive appearance. In white-haired dogs the skin is red ; in all it is extremely hot, and emits an unpleasant odour. The irritation does not excite much scratching, but the dog frequently shakes himself. More pain than itching seems to accompany the disease. In cases where the whole body is affected, loss of condition is most marked ; and in cold weather the almost total loss of hair may cause death, if the animal be not kept in a warm place. This stage, too, is always accompanied by ravenous appetite, due, probably, to the rapid loss of animal heat.

“ Diagnosis.—In white dogs the colour of the skin may cause the disease to be mistaken for ‘Red Mange’ or ‘Eczema.’ The circumscribed spots in the first stages may be confounded with some forms of Tinea ; and the loss of hair and the presence of scabs seen in the fully developed disease may easily be mistaken for ordinary scabies. The pustules, the heat of the skin, and the comparatively slight itchiness shown, are, however nearly diagnostic. Positive diagnosis can only be made by the aid of the microscope and the detection of the parasite. If we puncture one of the pustules, and mix its contents on a slide with a little water, the acari are easily discovered. I have found as many as thirty to one pustule. Sometimes we may detect them on the root of a hair removed from an affected spot. With a low power, the parasites somewhat resemble sprats or minnows, but a higher power shows them to

consist of a head and body, which latter terminates in a long and obtusely pointed tail. They are furnished with six or eight legs situated on the anterior part of the body, three or four on each side. The head consists of two antennæ and a median proboscis, all of which are capable of being moved forwards and backwards. The legs consist of three segments. The movements of the creatures are not often seen, and are very slow. The parasite measures about one-hundredth of an inch in length by one five-hundredth in breadth."

In regard to treatment, Fleming, in "Veterinary Sanitary Science," says: "The situation of the *Demodex* renders it almost inaccessible to parasiticial remedies; the disease it engenders is therefore looked upon as extremely troublesome, and, in the majority of cases, almost beyond a cure. Often, when it is believed to be extinguished, it reappears in all its virulence in one or two months. Nevertheless, Zürn asserts that he has frequently succeeded with an ointment composed of 1 part of benzine to 4 parts of lard. Weiss recommends the inunction of essence of juniper. Zundel states that the balsam of Peru has often yielded good results when the malady has not been of too long duration; he has employed it dissolved in alcohol (1 to 30); he has likewise used the green ointment of mercury with success, as well as the nitrate of silver ointment. Hofer speaks highly of an ointment composed of carbolic acid and Vogel prescribes a solution of caustic potash."

Messrs. Hunting and Duguid, after many unsuccessful experiments, adopted the plan of softening the skin and breaking up the cuticular covering by the application of oil and caustic potash. The following is Mr. Hunting's formula: "Creosote $\frac{1}{2}$ oz.; olive oil, 7oz.; liquor of potash, $\frac{1}{2}$ oz.; first mix the creosote and oil, and then add the potash, mixing them by agitation." With this the affected spots should be dressed twice a week, allowing longer intervals when the skin becomes soft and tender. Mr. Hunting says a cure requires from three to eight months, and a longer time allowed for the growth of the hair.

I have had some experience of Follicular mange, but principally with pugs. In one case I had two sent to me in a very bad state, and both eventually became entirely denuded of hair. The treatment I adopted was washing—I might say soaking—the dogs in a strong lather of soft soap, hot water, and pearl-ash, carefully drying. One, the youngest, I painted over with a solution of iodide of potassium, 1oz. in a pint of water, and after allowing it to dry, applied very freely Spratt's Mange Lotion. To the other, after drying, I applied the lotion without the solution of iodide of potassium, and

this process I repeated every other day. The dogs were in my possession about ten weeks, by which time they were perfectly free from disease, and the re-growth of hair had made considerable progress. Of internal medicines the dogs had very little, some podophyllin pills when I first began treatment, after which I regulated the bowels as required by diet, increasing or decreasing the quantity of fresh vegetables, but no alteratives such as arsenic were employed.

I did not find that the one treated with iodide of potassium made more rapid recovery than the other, and in instances where I have had to prescribe since, I have found similar treatment equally effective. The following is also useful in Follicular mange: olive oil, 1 pint; oil of tar, 4oz.; sulphur, 4oz. This should be well rubbed into the skin every third day, and the dog washed with warm water and soap, to which has been added a little soda, at the end of the week. In all cases of Follicular mange it is well to shave all the hair off the animal before applying any dressing.

MAW-WORMS.—See WORMS.

MENINGITIS.—See BRAIN, INFLAMMATION OF THE.

MENTAL EMOTION AND ITS EFFECT UPON MILK SECRETION.—During pregnancy, as is fairly well known, the system is in an unusually active condition, and consequently the animal is readily impressionable. All undue excitement should therefore be carefully avoided, and strangers should be denied admittance to the animal and, especially to those animals which are likely to resent it. This strict exclusion of visitors is more important when the bitch has pupped.

The first secretion of the mammary glands is known as the colostrum; this acts as a natural purgative to the pups, and removes the meconium which is present. During the first week of puppyhood, the conversion of the colostrum into true milk should take place; but undue excitement will suspend or retard this process. The result of this is severe purging of the pups, and often death. Handling the pups more than is absolutely necessary should be strictly avoided; while great harm may be wrought by being in and out of the kennel too frequently.

MILK, ABSENCE OF.—This condition is often met with in bitches. It is usually the result of weakness, obesity, or disease of the mammary glands. It may only be temporary, when friction to the glands with the hand may restore the secretion. To weakly bitches, however, a teaspoonful to a tablespoonful of the following

mixture should be given three times a day : Tincture cinchonæ co., 1oz. ; liquor cinchonæ flav. $\frac{1}{2}$ dr. ; spirits of ammonia aromatic, $\frac{1}{2}$ oz. ; water to 6oz. The diet must be nourishing and liberal.

MILK-FEVER (Parturient Apoplexy) is uncommon in the bitch, but there is always a risk of causing it by robbing the mother of the whole of her puppies, especially if she is full of milk ; therefore that course should never be adopted. The symptoms are apparent weakness, staggering, quick, hard breathing, hot, dry nose and tongue, the latter thickly furred, the milk is suppressed, and the bitch shows extreme thirst. In milk-fever when the animal is unconscious, nourishment, such as brandy and milk, can be administered per rectum. The bladder must be emptied by means of the catheter.

If possible, apply ice to the head, but if that is not obtainable, then use cold spring water, changing it often, and relieve the bowels by clysters. The patient should be kept perfectly quiet, and a soft bed on an inclined plane must be provided, so that the head may be somewhat elevated. This elevation of the head is very important.

MILK-GLANDS, INFLAMMATION OF THE.—See MAMMITS.

MOUTH, CANKER OF THE.—This disease is generally the result of too dainty feeding, combined with want of exercise, although it may arise in old dogs from failing teeth, and consequent want of masticating power. Both these causes lead to disordered stomach and foul breath ; a deposit of tartar takes place, the gums and lips become red, inflamed, and spongy, and there is after a time more or less of fetid discharge from the mouth, frequently accompanied with bleeding. Old animals are the most subject to canker of the mouth, and, on examination, most probably some of the teeth will be found decayed, and the gums so tender that, in attempting to eat, the dog suffers great pain.

To cure the disease, remove the cause ; return to a more rational way of feeding, and give proper exercise. It will be necessary to examine the mouth carefully, and if the exciting cause be decayed teeth, then remove all loose rotten stumps with a pair of suitable forceps. This will be done more readily than may be supposed, and a very little practice will make anyone efficient. Whilst extracting the teeth, the dog's head must be held firmly by an assistant. It will be evident that, whilst the dog's mouth is in such a tender state, he must be supplied with food that requires no chewing. This will be necessary for other reasons also. The disordered stomach must be corrected, and a diet, principally vegetable, will assist in

doing so. By way of medicine the dog should have a brisk dose of *Podophyllin Pills* and afterwards one or two, according to the size of the animal, of the following should be given twice a day till all untoward symptoms have disappeared :

Stomachic Bolus.—Take extract of gentian, 1dr. ; powdered rhubarb, 36gr. ; carbonate of soda, 12gr. ; gum acacia, sufficient to make into twelve 10gr. pills. If considered preferable, the ingredients may be rubbed down with water and given in the form of a drench in proportionate doses. In the liquid form the medicine must be freshly made, but the pills will keep good any reasonable length of time. 5gr. to 15gr. of carbonate of bismuth, given dry upon the tongue, night and morning, will also act beneficially.

As a wash for the mouth, and to remove the unpleasant smell from the foulness of the breath, teeth, etc., Condy's Fluid should be used, properly diluted. The following will harden the gums and assist in bringing them to a healthy state :

Mouth Wash.—Take powdered alum, $\frac{1}{2}$ oz. ; simple tincture of myrrh, 1oz. ; dissolve the alum in a pint of water, and add the tincture of myrrh. This should be applied to the gums pretty frequently and freely, by means of a piece of sponge or rag tied on the end of a stick, or with a soft tooth-brush. Powdered boracic acid 1scr., water to 6oz., is also a good mouth wash. The ulcers that occur upon the gums should be touched with a ten per cent solution of nitrate of silver. Another excellent wash for the mouth in such cases is solution of chlorinated soda, diluted with twenty-four to thirty times its volume of water. The mouth should be freely washed with this several times a day.

N.

NAVEL HERNIA.—An enlargement of the navel, erroneously called a wind navel, is often met with in puppies, and may be simply an expansion of the same. Navel hernia, or umbilical hernia, is the protrusion of a portion of the intestine, or the omentum (the membranous covering of the bowels). It is frequently congenital, and may be caused by extra strain on the umbilical cord at birth ; or the tongue of the mother may extend the wound. The part is soft and movable, and varies in size, but is most prominent when the stomach and bowels are full.

In treating, fast the pup, and place over the enlargement a pad of vulcanised indiarubber or cork, tapered, the smaller end being applied to the protruding part after it has been pressed in, which should be

done when the bowels are nearly empty, and the pad secured by strips of white leather smeared with warm pitch plaster, or by means of Mead's plaster, to be obtained of any chemist. This should be done after the pup has been weaned and separated from its mother, or she will with her tongue remove or displace the application.

NEPHRITIS.—See KIDNEYS, INFLAMMATION OF.

NOSTOMANIA (Home Sickness).—This is often seen in dogs which, from some cause or other, have to leave their home and friends, and reside for a time in a hospital. It therefore behoves everyone who has charge of such dogs, to make them comfortable, and treat them as nearly as possible, consistent with rational and medical treatment, as they would be at home. It is absolutely cruel to place a nervous, and highly sensitive pet dog in a kennel surrounded by other dogs which are continually barking, or to give them over entirely to an attendant, which is too frequently done in hospitals, the owner of the establishment, or the veterinary surgeon, only attending at intervals. All pets should be taken into the house, or have a special place set apart for them, where they can receive personal attention, and have their small comforts attended to.

O.

OBESITY.—See FATNESS, EXCESSIVE.

CESTRUM (The Period of Heat).—Bitches are usually in this condition twice a year, or twice in the twelve months, but this rule is not without exception, for sometimes it only occurs once, and at other times more than twice a year. The symptoms are a general change of the habits of the animals, and of temper, a savage bitch often becoming docile, and *vice versa*. The bitch becomes restless, the external generative organs are swollen and hot, and a discharge of a whitish colour is present. Gradually this discharge becomes slightly tinged with blood, and finally blood alone issues from the vulva. The bitch frequently passes water, and in small quantities.

The period of oestrus varies in different individuals, from one week to three. An animal in this condition should be carefully watched; it should not on any account be allowed to enter the water. Where a bitch is more frequently on heat than twice a year she

rarely conceives. During the period of heat the food should be light, and the bowels kept regular.

OPHTHALMIA.—What is called the conjunctiva is the mucous membrane that lines the inner surface of the eyelids, and, as its name suggests it, joins these with the eyeball. Ophthalmia is an inflammation of this mucous membrane. It is a disease unfortunately very common in dogs and varies greatly in severity, in some cases, when arising from constitutional causes, becoming chronic. Sporting dogs are said to be more liable to it than other breeds, but I do not think so, and I believe the idea originated from the fact that these have generally been more exposed to circumstances exciting it.

Anything that will set up local irritation, such as the intrusion of dust, flies, etc., the scratch of a cat, a blow, exposure to sudden and extreme changes of temperature—as plunging into or being thrown into cold water when heated—and excessive exertion, are occasionally causes; but the commonest causes are the vapours of foul kennels or hot stables, and derangement of the digestive organs. An inverted eyelash may occasion ophthalmia, while it is very often found as an accompaniment of distemper.

The symptoms are an intolerance of light and a watery discharge, while on the eyelids being opened and examined there is seen to be congestion of the lining membrane, and across the cornea, or front clear portion of the eye, there are red streaks. Ulceration soon follows, and a white film obscures the eye and interferes with the sight.

When treating a dog for ophthalmia, the cause should be first sought for, and if it be some foreign irritating body, or an eyelash growing in a wrong direction, these should be removed. A mild dose of cooling aperient medicine should be given, and the eye well and frequently bathed with a decoction of poppy-heads; afterwards, if the inflammation be considerable, one of the following lotions may be used several times a day with advantage:

Eye Lotions.—(1) Extract of belladonna, $\frac{1}{2}$ dr.; rose-water, 4oz.; wine of opium, 2dr.; mixed. When ulceration has taken place, or is going on, use this lotion: (2) Sulphate of zinc, 12gr.; tincture of belladonna, 1dr.; wine of opium, 2dr.; rose-water, 4oz.; mixed.

In ophthalmia the most external covering of the eyeball is the seat of the inflammation; this covering or mucous membrane is closely adherent to the cornea (Fig. 14, A). If ophthalmia goes unchecked, the deep-seated structures like the iris (Fig. 15) become involved. The iris is for the purpose of regulating the amount of light that is transmitted to the retina (Fig. 14, a) through the pupil (Fig. 15, 1). The

latter is an aperture in the centre of the iris (Fig. 15), and is capable of contraction and expansion; hence in a strong light the pupil becomes smaller, and in a dim light, or in the dark the pupillary opening is large. The iris, which also gives the colour to the eye, as before

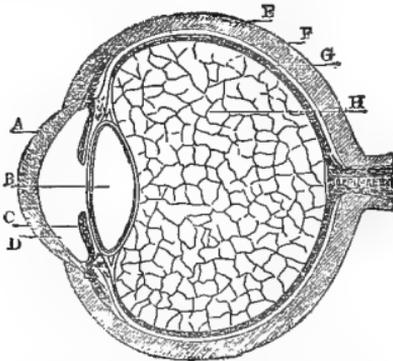


FIG. 14. SECTION OF EYEBALL, showing A, Cornea; B, Lens; C, Iris; D, Anterior Chamber and Aqueous Humour; E, Sclerotic Coat; F, Choroid Coat; G, Retina; H, Vitreous Humour.

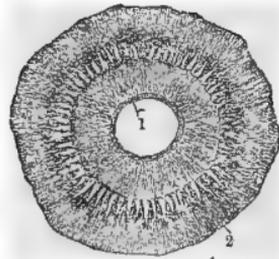


FIG. 15. IRIS, showing, 1, Pupillary Opening; 2, Attached Border.

mentioned is sometimes the seat of disease, and the pupillary opening loses its power of movement.

A little of the following ointment may also be introduced into the eye, night and morning. Yellow oxide of mercury, 1gr.; lard or vaseline, 1dr. Or the eye may be touched night and morning with a camel-hair brush which has been dipped into nitrate of silver, 2gr.; distilled water, $\frac{1}{2}$ oz.

If the disease be thought to be sympathetic with derangement of the digestive organs, change the diet, and in any case give light and nutritious food. When the eye is very sensitive to light, the dog should be kept in a shaded kennel and not exercised in the glare of the sun; but exercise is absolutely necessary to general health, especially in weakly dogs; and so is light, so that the place where the patient is kept, whilst shaded, must not be absolutely dark. The kennel must be perfectly clean, and if disinfectants are needed, avoid chloride of lime or carbolic acid, as they might increase the inflammation. Condy's Fluid would be most suitable under the circumstances.

OSTITIS (Inflammation of the Bone).—This disease may be due to direct violence, blows, etc., or to constitutional disturbance, such as rheumatism or scrofula. The symptoms are pain, heat and swelling of the skin at the affected part, and lameness. Rest is most essential in treating these cases, and should be combined with

hot fomentations to the part and a dose of aperient medicine; when due to rheumatism, the systemic treatment recommended under RHEUMATISM should be adopted; and should there be an enlargement left after the acute inflammation has subsided, the part should be painted daily with tincture of iodine, unless soreness is produced, when this treatment should cease for a day or two.

OZÆNA.—This complaint shows itself by a discharge from both nostrils. The causes are diseased teeth, protracted catarrh, causing chronic inflammation of the lining membrane of the nose, polypi, or inflammation of the sinuses of the nose, due to the presence of foreign matter in that organ. Where the disease is due to decayed teeth, the latter should be extracted; or to polypi, these should be removed. The nostrils should be syringed night and morning with a saturated solution of boracic acid; or the tincture of hydrastis is often useful—1 part of tincture to equal parts of water. Exercise and fresh air are very necessary to recovery.

P.

PARALYSIS.—Most people are familiar with the appearance of paralysis—the loss of muscular power in the part affected, and the consequent wasting of the muscles. It is generally confined to one set of muscles, but may be general, and it varies in degree from producing a slight tottering gait to complete loss of power and inability to walk. It arises from pressure or injury to the brain or to the spinal cord. If one side of the brain be affected, the opposite side of the body will be paralysed; if the whole of the brain be involved, the paralysis will be general, and where it arises from injury to the spine it is in the parts behind the injury that power is lost.

Paralysis very often follows distemper, and the hindquarters generally suffer; the dog, in severe cases, loses the use of his hind legs in walking, and drags them behind him. In such instances the muscles of the thigh soon waste, and cure is very rare indeed. Long-standing constipation will induce paralysis, and it is not infrequently the result of debility and old age. Paralysis of the lower jaw is a distinctive symptom of dumb madness, and renders the subject of it incapable of biting. Loss of power and wasting of the hindquarters may also be caused by tapeworm.

So long as the dog can use his limbs, he should be given regular, gentle exercise. The food should be nourishing, and rather laxative. Oatmeal porridge, mixed with strong broth, every other day, will generally act gently on the bowels. Where the disease

is connected with debility, it is very necessary to maintain the strength by extra food; give, therefore, more than usual of cooked meat, and in small quantities at frequent intervals. The medicine relied on in these cases are tonics in general and strychnine—the active principle of *nux vomica*—which has a special power over the muscles and nerves. 1gr. of powdered *nux vomica*, or $\frac{1}{4}$ gr. of strychnine, combined with 2gr. of extract of gentian, and 1gr. of quinine, made into a pill, is the dose for a 20lb. dog. It is almost needless to observe that very great care must be used in compounding pills containing a minute quantity of such a powerful drug as strychnine. A dose should be given twice a day. Syrup of the phosphates, with strychnia, called Easton's Syrup, is often of great service in relieving mild cases of paralysis; and galvanism is sometimes beneficial.

In applying the electric battery in cases of paralysis the following is the mode: Procure two earthenware vessels (metal ones will not do), and cover the bottom of each with cold water. Put the two handles of the battery in the water, one in each vessel, and start the appliance. Place one foot of the dog in each vessel, both hind feet or both fore feet, as the case may suggest, or the right fore foot and left hind one and so on. The water in the vessels should be just sufficient to cover the feet. Five to ten minutes, twice a day, is long enough for the battery to be employed.

In paralysis of the hind legs the bladder generally participates; or the animal being unable to stand, cannot pass the urine freely. In such cases the catheter must be passed night and morning, or the animal held up, and pressure applied to each side, in the region of the bladder, to expel its contents. To prevent bed sores, and congestion of one lung, the animal must be turned over occasionally.

PARASITES, EXTERNAL.—The number and variety of parasites that make one part or another of the dog their habitat is very great. These are divided into external and internal; in the former two distinct mites, producing two very distinct forms of the mange, have already been referred to, and the internal parasites will be treated under **WORMS**.

There is no dog-owner of much experience who is not aware that great care and cleanliness are needed to prevent the introduction of these unwelcome visitors, or who has not had to pay smartly for their extermination, if his kennels have been neglected. The parasites to which I particularly wish to direct attention are four in number—the louse, the flea, the tick, and the harvest-bug.

Lice.—Two species of lice (Fig. 16) infest the dog. One is the

true or sucking louse (*Hæmatopinus piliferus*, Fig. 16), and is thus described in Professor Neumann's "Parasites," translated by Professor Fleming: "The head is short and almost as wide as long; it is salient in the thorax to which it is exactly applied; the third and fourth articles of the antennæ are alike. The abdomen is very developed in the female, and is a long oval in shape; it has nine rounded segments, which are often salient at the sides; stigmata distinct and marginal; the first seven segments have two rows of short bristles. The general tint is yellowish-white, the head and thorax being a little darker. The female is 2mm. long, and the male 1·15mm." This louse is oftener found about the throat and back of the ears, but extends to all parts of the body.



FIG. 16. DOG LOUSE.

The other louse of the dog is *Trichodectes latus*, of which this is Neumann's description: "The head is sub-quadrangular and much wider than it is long, being truncated in front; the antennæ are hairy and different in the two sexes, the first article in the male being much thicker, and occupying a moiety of the length of the organ. The abdomen is broad, and more rounded in the female, with lateral, but no median spots. The colour is bright yellow, spots darker; the bands on the head are blackish-brown. Length of the female is 1·5mm., of the male 1·4mm." This is a biting louse, and is allied to the Bird-Lice.

Lice, under favourable conditions, multiply at a marvellous rate. In fact, so prodigious is their fecundity, that it has been calculated the third generation of a louse may number 125,000, independent of the great destruction from many causes which restrain this multiplication. They excite great irritation, causing the dog to scratch and worry himself continually. Lice live on all parts of the body, but are generally most abundant about the head and face, round the eyes, roots of the ears, and along the top of the back. If the dog's skin be closely examined, red streaks and dots of blood will be observed where the enemy has been feeding, but the actual presence of the foe, which will be seen creeping about, will be a sufficient incentive to his destruction, without witnessing the havoc he has made. There are numberless nostrums made and advertised for the destruction of these pests, some of which are quite as likely to kill the dog as the parasite. White precipitate in dry powder well rubbed into the coat and skin, and left there for four or five hours, and then thoroughly brushed out, is a certain cure; but it has the disadvantage of being a mercurial poison, and when it is used it becomes necessary that the dog should be muzzled during the whole time the

powder is on him to prevent him from licking it. For this purpose a canvas-faced muzzle is the safest and best. Care should also be taken that the dog is not exposed to wet while the precipitate is on him, as it would be difficult to remove it from the coat after wetting. It is also advisable that the person brushing the precipitate out of the coat should wear a light covering over mouth and nose during the operation. An equally effective remedy is the *Lime-and-Sulphur Lotion* prescribed for MANGE. If the coat and skin be thoroughly saturated with it, and left so for ten minutes or a quarter of an hour, all that will be left of the insects will be shrivelled carcasses. The dog should then be well washed with soap and warm water and thoroughly combed and brushed till he is perfectly dry. For delicate dogs, and those with tender skins, the lotion should be reduced in strength, by adding equal, or even two, parts of water to one of lotion, and if any doubt exist in the operator's mind as to the course to take, let him try the weaker solution first, and watch its effects, when he can make it stronger as required. Olive oil 2 parts, and paraffin 1 part, is another good insecticide, as is also the following: dissolve 4oz. of hard soap in 1 quart of water, and add to this $\frac{1}{2}$ oz. of oil of stavesacre. Rub this preparation well into the skin, allow it to remain on for three days, at the end of which time wash off with hot water and soap, well dry, and repeat the dressing. The dog must be muzzled, as the dressing is poisonous.

These dressings should be repeated in eight days, in order to destroy the young lice hatched from the "nits," or eggs, laid before the previous dressing.

Trichodectes latus plays a very important part, being the intermediary host of one of the tapeworms of the dog. The history is as curious as it is important for dog-owners to know, and I therefore quote the following from Dr. Spencer Cobbold, who says: "The joints of the worm, having escaped per anus, readily crawl as semi-independent creatures on the coat of the dog, chiefly on the back and sides. The eggs thus distributed are readily swallowed by the louse of the dog (*Trichodectes latus*).

"In the body of the louse, the six-hooked embryo, hitherto contained in the egg of the tapeworm, escapes the shell, and becomes transformed into a minute cysticercus, or louse measles. When the dog is irritated by the lice, it attacks, bites, and frequently swallows the offending external parasite. In this way the louse-measle is transferred to the dog's intestinal canal, where, in course of time, it develops into the sexually mature cucurbitine tapeworm."

The above very curious and important bit of history of the tapeworm and the dog louse should teach the practical lesson of thorough and constant cleanliness in the kennel.

Fleas (*Pulex serraticeps*, Fig. 17) are familiar to most dog-owners, and with their very lively propensities are more mischievous and annoying, if less disgusting, than the lice which, with them, infest and torment the dog. Numerous are the means suggested for the destruction of fleas, and scores of drugs, simple and compound, are in vogue for this purpose. For pet dogs I do not think there is anything at once so innocent, so clean, and so effective, as Keating's Persian Insect Powder; the price alone is against it, that being un-

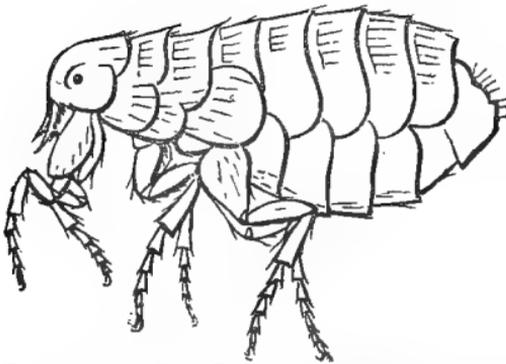
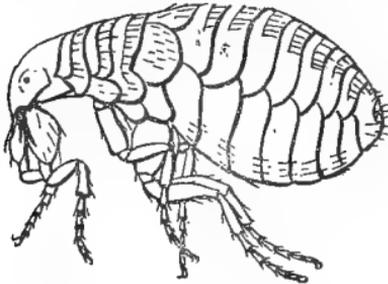


FIG. 17. THE DOG FLEA, WITH ORDINARY FLEA SHOWN ABOVE. (Both much magnified.)

necessarily high. It consists, I believe, of the powdered flowers of *Pyrethrum roseum*, and is used in a dry state by simply rubbing it into the roots of the hair or blowing it in with suitable miniature bellows, which are sold for that purpose by most chemists. The best article of the kind I have seen is one of French manufacture, worked by a small piston, acting on a spring of spiral wire, covered with a piece of glazed calico, the whole neatly encased in tin, with an aperture at the bottom for filling with powder. The powder is blown out of a long spout with such force as to spread it among the roots of the hair.

The whole apparatus, when filled, costs only 1s.

Within the last few years a large trade has sprung up in "dog soaps," most of them depending on carbolic acid for their flea-destroying properties, and all of them claiming special virtues in improving the dog's coat, curing mange, getting him in condition, and all the rest of it. Professor Williams, of Edinburgh, strongly condemns the use of carbolic acid soap on the dog. And I myself have had convincing proofs of the ill effects of carbolic acid and carbolic acid soaps on dogs, and have seen that the acid, even in the mild form of

soap, will poison by absorption through the skin, and that when there is no abrasion. I have had numbers of instances of it brought under my notice, and two very well marked cases I personally treated. In one case, a toy terrier, great depression and trembling were followed by profuse bleeding of the nose, and the dog died, despite all that could be done. Another case was that of a strong fox terrier. His mistress was herself washing him with a carbolic acid soap when she was called away to see a visitor and for some short time the dog was left with the lather from the soap upon him; the result was very great depression and weakness, with constant trembling and loss of appetite. I gave the dog brandy and quinine and iron, as well as cold douches, followed immediately with brisk and continued rubbing, and he recovered, but it was several weeks before he regained his usual health.

Some years ago Spratts' Patent brought out a dog soap at my suggestion, and I have found it in practice thoroughly suited to its purpose. The advantages it possesses are that it contains nothing poisonous to man or dog, but a vegetable insecticide that proves certain death to fleas. I have frequently seen, after washing with carbolic acid and other dog soaps, the fleas apparently dead, but, on being put under a glass in the sun, their very lively actions have soon proved they were not dead, but had only been for the time stupefied. Spratts' soap, however, kills them outright, and among its minor advantages it is colourless, and improves the coat and skin. Naldire's is another harmless soap; while 1 part of Jeyes' Fluid to 40 of water, or Newton Chambers's Izal, will readily kill fleas.

A strong infusion of quassia, made by suspending a couple of ounces of quassia wood chips, tied in a piece of muslin, in a bucket of water, for two or three hours, occasionally stirring it, is useful in killing fleas; it is free from danger, and being almost colourless is an advantage in washing white dogs. The infusion must be used instead of plain water with either soft soap or curd soap, a good lather being made to penetrate the dog's coat to the skin. Some plain water should be poured over the dog to finish the washing and remove the quassia from the coat.

Whatever insecticide is employed, its application should be repeated several times, to ensure perfect eradication of the pests. This will be the better understood if a brief sketch of the life-history of the lively little creature is given. Unlike the louse, the flea undergoes what entomologists term a complete metamorphosis, egg, larva, pupa, and perfect insect stages having to be passed. Contrary, too, to the general belief, the flea is parasitic in the last stage only. That being so, the advisability of treating the kennel with something destructive to the eggs, larvæ, and pupæ, will at

once be evident. The mother flea deposits her eggs in the cracks of the floor-boards, in the dust which congregates in the corners of the kennel, etc., and in due time these eggs are hatched, and whitish footless maggots result. These in about fourteen days assume the pupal state in a silken cocoon, and in about a fortnight after the perfect insect (flea) stage is reached and the cycle of existence is again begun. It would therefore be useless to rid a dog say of fleas and return him at once to a kennel which had not been scrubbed, as in a very short time the animal would be as badly infested as ever.

Ticks (*Ixodes ricinus*, Fig. 18) are less common and less known than either the flea or the louse.

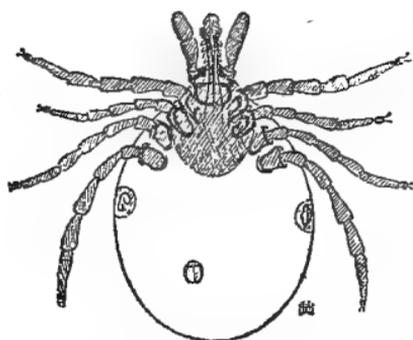


FIG. 18. DOG TICK. (\times about 7 diam.)

In appearance they bear some resemblance in body to a spider, to which, in fact, they are related. Ticks vary in size from a pin's head to a small pea. The colour of the smaller ones is a light grey, but they become dark when gorged with blood. The tick fastens in the skin, and holds on with such tenacity as frequently to part in two in the attempt made to remove it. The cure for ticks most to be relied on is either the white precipitate powder or the *Lime-and-Sulphur Lotion*, used as already directed; but an excellent wash for dogs infested with ticks is sold by Mr. J. Dawson, 84, Lowther Street, Carlisle.



FIG. 19. THE HARVEST BUG. (\times about 50 diam.)

Ticks occasionally occur even in the best regulated of kennels, as it is of course impossible to prevent a dog coming in contact with another infested with the pests. Though often found upon dogs and other animals, ticks are not truly parasitic on them, their food in the ordinary way being vegetable. Once ticks make their appearance, no time must be lost in ridding the dog of his persecutors. The kennel must also be treated, as in that the animals find lodgment.

Harvest Bugs (*Trombidii*). — Nearly everyone is acquainted with the harvest bug which in summer thrusts its unwelcome presence upon man. Few, however, seem to be aware that these mites are troublesome to dogs.

Harvest bugs are now regarded as belonging to several species of *Trombidium*, and not as was once the case to one species known as *Leptus autumnalis*. The accompanying illustration (Fig. 19) gives an accurate idea of the mites in both the adult and the larval stages, the former having eight and the latter six legs. These pests burrow into the skin and create a most intolerable itching. They are, however, readily destroyed by dressing the skin with equal parts of olive oil and petroleum, or touching the spot with benzine on a camel-hair pencil. The treatment suggested for mange would also be efficacious.

PARTURIENT APOPLEXY.—See MILK FEVER.

PARTURITION.—The period of gestation in the dog is sixty-three days, and in a majority of cases the bitch pups on the sixty-third day, although that may occur a day or two earlier or later. It is important to keep a register, so that preparation may be made for the event. A quiet, retired place should be selected, with plenty of room for the bitch, and so easily accessible that assistance may be readily given if required. A bed of fresh, soft hay is suitable, and especially in cold weather. This may be on a boarded floor; for whatever is put down for a bed the bitch will scrape a nest in it to the solid ground, and if that is damp soil, or cold flags or bricks, the pups would get chilled; but when the soil is dry, no better foundation for a bed can be found.

The symptoms of approaching parturition are: Considerable enlargement of the mammæ, and of the external organs of generation, with more or less discharge of glairy matter, and frequent urination; the bitch becomes restless, and moves about from place to place in search of a locality which to her mind is suitable for the nest.

The very best advice I can give to the breeder is, do not interfere. The few cases where it will be absolutely necessary to do so will only add force to the wisdom of the rule. Next, even when help is called for, do not interfere too soon, and, if manual assistance has to be given, avoid unnecessary force. When labour is protracted, the liquid extract of rye—dose for a 20lb. bitch, 10 or 12 drops—given with a little brandy and water, will generally greatly assist the bitch in the delivery of her pups. The cases of greatest danger are where a bitch has been allowed to stray during œstrum, and mated herself with a dog of much larger size than herself. Very finely-bred and highly-pampered bitches often suffer greatly, and die in the act of giving birth. In healthy parturition even, considerable time is often occupied, the rest between being of great service in supporting the bitch against the prostration consequent on the event. She should not be interfered with in these intervals, and it is foolish to try to force food upon her.

In all cases where difficulty from wrong presentation or the disproportioned size of the pups occur, alike from motives of prudence and humanity, the veterinary surgeon should be consulted, for his obstetric knowledge and skill in manipulation will save much unnecessary suffering, and probably the lives of mother and pups.

PENIS, DISCHARGE FROM (Balanitis).—Some dogs suffer from an inflammation and excited state of the organs of generation, with frequent partial erections, accompanied with discharge of a thick yellowish matter, very loathsome, especially in a house and companion dog. In treating, bathe the parts very frequently with cold water, give a strong dose of ordinary black draught, and the following medicine :

Mixture for Balanitis.—Bicarbonate of soda and bicarbonate of potash, of each 2dr. ; tincture of henbane, 3dr. ; Mindererus' spirit, 1½oz. ; and water to make 6oz. Dose for a 40lb. or 50lb. dog, a tablespoonful four or five times a day. The prepuce should also be syringed with weak Condyl's Fluid, or a lotion composed of boracic acid 1sc. and water to 6oz.

Give the dog barley-water to drink, and but little meat. Porridge, milk, and broth, with chopped green vegetables, will be most suitable.

PERICARDITIS (Inflammation of the Pericardium, or Sac surrounding the Heart).— This disease is more frequent in dogs than is usually thought, but one is seldom called to attend cases of heart trouble in the dog, probably from the disease not being diagnosed. As a rule, it will be found accompanying pleurisy and rheumatism, or as the result of direct violence. The symptoms are a jerking action of the heart and an intermittent pulse ; in fact, if the effusion in the sac is considerable, the sounds of the heart will be deadened, or nearly imperceptible.

The patient must be kept perfectly quiet—usually this will not be a difficult matter, as the animal is unwilling to move—and a hot linseed poultice applied three times during the day over the region of the heart. As a sedative, give 5gr. to 20gr. of bromide of potassium, or ½ to 1 drop of nitrate of amyl. When the more acute symptoms have abated, 2gr. to 10gr. of iodide of potassium can be given in water twice a day ; and during convalescence, 10 to 60 drops of Easton's Syrup, twice a day in water after food, will be helpful. The diet must be light and nourishing.

PERICARDIUM, INFLAMMATION OF.—See PERICARDITIS.

PERIOSTEUM, INFLAMMATION OF.—See PERIOSTITIS.

PERIOSTITIS (Inflammation of the Periosteum, the Membrane covering the Bone) is not infrequently met with in the dog, and as it usually arises from direct injuries, this is hardly to be wondered at. Often it is associated with osteitis (inflammation of the bone proper). Periostitis is a most painful disease. The membrane becomes much inflamed, swollen, and separated from the bone, while frequently deposits of bone are the result, causing permanent lumps (exostoses); these are generally most unsightly.

The symptoms of periostitis are heat and swelling of the skin over the affected part, with great pain upon manipulation, lameness when occurring in a limb, and feverishness. Strict quietude is most essential in these cases; hot flannels should be applied to the part, or in severe cases, more benefit will be derived from hot linseed poultices. When the heat and swelling have left the part, but lumps are present, they should be painted with tincture of iodine, discontinuing this latter treatment when the skin becomes sore.

PERITONITIS.—See BOWELS, INFLAMMATION OF.

PHARYNGITIS (Inflammation of the Pharynx) is not a disease which frequently affects the dog, and but few cases have come under my immediate notice. I speak of pharyngitis pure and simple, and not of inflammation of the pharynx as a result or an accompaniment of other diseases. The latter form is common enough. True pharyngitis is usually due to some foreign body becoming lodged in the pharynx, though I have known it caused by the administration of strong drugs, given with the object of curing disease. In these cases the stomach suffers also.

The symptoms are a dry, irritating cough, while as time goes on, a difficulty in swallowing is observed, the act being performed with pain; the muscles of the throat contract, and upon manipulation there is pain. Upon opening the mouth, and examining the throat, it will be found red and swollen, and if the inflammation is not checked, ulceration of the throat will ensue; or abscesses may form, when there will be a discharge from the nostrils.

The treatment is primarily to ascertain the cause, and endeavour to remove it. If the condition is due to the presence of foreign matter, this latter must be removed, and a hot linseed poultice (kept in position by a bandage) applied to the neck. The diet should consist of milk, egg, and Bovril; nothing solid must be given. Generally this simple treatment will effect a cure; but should ulceration take place, the part must be painted with a weak solution of nitrate of silver—2gr. of silver to ½oz. of distilled water. This should be

applied night and morning with a camel-hair brush. If the ulceration is severe, and granulations are present, the latter may be touched with "London Paste." This is best applied on the point of a probe, around which is rolled a piece of wool. In the event of pharyngeal abscesses forming, these must be lanced, and their contents let out. When the acute symptoms have subsided, the animal will be left in a debilitated state, owing to the general constitutional disturbance which accompanies the disease. Therefore, tonics should be given, such as 2gr. to 8gr. of sulphate of iron, with $\frac{1}{2}$ gr. to 2gr. of sulphate of quinine, in water, twice a day.

PHARYNX, INFLAMMATION OF.—See PHARYNGITIS.

PILES (Hæmorrhoids) occur most frequently in house dogs and those too closely confined to the kennel. They depend on an enlarged condition of the hæmorrhoidal veins at the lower part of the rectum. The parts present an enlarged, swollen, and tender appearance, giving pain when touched, or when the dog draws himself along the ground. Piles are known as internal or external, according as they exist within or without the sphincter muscle, that is, the muscle which contracts the orifice of the anus. The principal causes producing piles are the injudicious use of purgative medicines, over feeding with stimulating food, and want of sufficient and healthful exercise, producing diseases of the liver, constipation of the bowels, with consequent straining, and undue distention of the parts in the act of fæcation.

A dog suffering from piles should be fed on a laxative diet such as broth, well-boiled oatmeal and chopped green vegetables; little or no flesh meat should be given. As a mild aperient a little milk of sulphur may be advantageously given in milk or with the food. Dose, a heaped-up teaspoonful for a 20lb. dog. One of the three following ointments should be applied twice a day, smearing the parts well with them:

Ointments for Piles.—Mild mercurial ointment, 7 parts, finely powdered camphor, 1 part, well mixed; or the compound gall ointment of the Pharmacopœia may be used. Hazeline is also very beneficial.

In bleeding piles the following injection may be used: Tincture of krameria, 2dr., water to 6oz. Two ounces should be injected twice a day; while in all cases of piles $\frac{1}{2}$ dr. to 2dr. of tincture of krameria in water, twice a day, will be useful.

In some cases of piles a tumour forms near the orifice of the rectum; it is at first red, but afterwards becomes purple, and finally discharges a thick foetid matter mixed with blood. It forms a

ragged sore, difficult to heal from the movements of the dog in the natural act, and from his dragging himself along the ground. Similar treatment to that already advised should be pursued, using the ointment and washing with the following lotion alternately :

Wash for Tumour.—Goulard's water, $\frac{1}{2}$ pint; laudanum, $\frac{1}{2}$ oz. ; tincture of arnica, $\frac{1}{2}$ oz. ; mixed.

PLETHORA (Full Habit of Body).—Having regard to the thoroughly unnatural conditions under which most dogs live, it is not surprising to find many the subjects of Plethora. Food is given at irregular times, and often of the most unsuitable description, and in quantities quite out of proportion to the requirements of the animal ; the blood in consequence becomes overcharged, and the animal lapses into a generally bloated condition.

The symptoms are readily recognised. The bloated condition is the most prominent, with the mucous membranes, especially noticeable in the eyes, injected, the pulse full and bounding, the dog seems unwilling to take exercise, the bowels are irregular (due to indigestion), wind accumulates and is passed, and the breath is very offensive. The bowels must be freely moved with medicine, and the food given at regular intervals and in reasonable quantities. The patient must be brought to exercise gradually, for if violent exercise is forced upon him whilst in this condition, a fit will often result. *See also* FATNESS, EXCESSIVE.

PLEURISY.—*See* LUNGS, INFLAMMATION OF.

PNEUMONIA.—*See* LUNGS, INFLAMMATION OF.

POISONING.—Perhaps none of our domestic animals are so liable to suffer from the effects of poisonous substances as the dog. His restless and inquisitive nature, and that inveterate habit of routing in every accessible hole and corner, lay him open to it ; whilst the sporting-dog on duty in places where unsportsmanlike practices prevail, is exposed to special danger.

Dog-poisoning is the result of design—when some envious or malicious and cowardly person is the perpetrator—of persons administering to the animals drugs of the nature and action of which they are ignorant ; or of accident, which, properly interpreted in most cases means culpable negligence on the part of those having to use poisonous substances for the destruction of vermin or other purposes. To this last cause the majority of cases of poisoning may be traced, as by many of the general public poisons are used and left about in a most careless manner.

Against the malicious poisoner it is difficult to guard, as being rarely forewarned, we cannot be forearmed; against the ignorant practices of the empiric the dog-owner can defend himself if he will; while against accidental poisoning much can be done by using reasonable care when it is necessary to employ poisons, and by keeping them properly labelled and in secure places when not required.

It may be of service to some readers to briefly refer to a few of the commoner and more popularly known poisons from which our dogs are most likely to suffer; and I think the following will cover the majority of cases: Arsenic, cantharides, carbolic acid, corrosive sublimate, phosphorus, and strychnine.

As a general rule for distinguishing between the evidence of poisoning and the symptoms of disease, the suddenness of the attack must weigh largely; while by tracing where the dog has been, and what he has or is likely to have picked up, a pretty accurate conclusion may be arrived at.

The first step to be taken in most cases is to freely empty the stomach by means of emetics such as tartar emetic, sulphate of zinc, ipecacuanha wine, or, if none of these are at hand, by drenching with lukewarm water, and afterwards giving the antidotes indicated, if procurable. Under any circumstances, however, give demulcents, such as boiled flour and milk, starch, gruel, milk and eggs beaten up, olive oil, etc., in considerable quantities. A dose of castor oil may also be administered, and, if the dog suffer much pain, a dose of opium or laudanum every three or four hours. Where great depression and weakness follow, stimulants, as ether, wine, or brandy, should be given in small quantities at frequent intervals.

Arsenic is used in wheat-dressing, as well as to poison rats, mice, and other vermin; in this way it is frequently met with in and about country houses.

Symptoms: Great heat and evident pain in the stomach and bowels, sometimes accompanied with swelling—the belly being very tender to the touch—great thirst, frequent vomiting and retching, more or less discharge of a frothy saliva, and frequent evacuations of fluid, dark coloured matter, often marked with blood. The animal soon loses muscular power to a great extent, showing an indisposition to move; the tongue, lips, etc., are red and swollen, and the breathing is more and more laboured and painful.

Antidotes: Ferrugo or hydrated sesquioxide of iron, 12 parts of which combine with 1 part of arsenic, forming an insoluble compound; also light magnesia, which will remove 1-25th its weight of arsenic from its solution in water.

Cantharides (Spanish Fly).—This is given by ignorant men

for purposes which are defeated; but, being an acrid, irritant poison, it produces serious results, frequently causing inflammation of the urinary organs.

Symptoms: Violent thirst, copious discharge of bloody mucus from the stomach, mixed with which may be seen the shiny green particles of the "flies"; there are great pains in the loins and bowels, swelling and inflammation of the genital organs, and bloody stools and urine.

Antidotes: An emetic should at once be resorted to, the dog should afterwards be drenched with demulcents, and a dose of opium given every three or four hours.

Carbolic Acid.—This produces baneful effects, even by absorption through the pores of the skin, when too freely used. It causes great prostration, with trembling of the whole frame.

Symptoms: Extraordinary depression of the vital powers, general shivering and almost constant trembling of the limbs, and a palsied motion of the head. Bleeding at the nose is a frequent symptom, and the discharges from the bowels are also often stained with blood; the countenance of the sufferer is expressive of a most helpless and painful state.

Antidotes: The proper treatment consists in placing the dog in a warm bath, using friction the while, and administering such stimulants as ammonia, ether, brandy, etc., in water or gruel.

Corrosive Sublimate is used for a variety of purposes about farms, although for most of these it must be admitted a non-poisonous article would answer as well or better. Corrosive sublimate, phosphorus, and strychnine each enters into the composition of paste and powders largely sold for the destruction of vermin, and it is when so used, being placed on bread-and-butter, bits of meat, etc., that they are most likely to be picked up by the dog.

Symptoms: Violent vomiting and purging of stringy and offensive matter, the belly is distended and painful to the touch, the urine suppressed, cramp and twitches are noticeable in the limbs, and frequently paralysis ensues.

Antidotes: Tartar emetic as an emetic; white of egg, followed immediately by infusion of galls; milk or gluten of wheat. Of the chemical antidotes, the albumen of eggs is by far the best; the white of one egg is sufficient to neutralise or render insoluble 4gr. of solid bichloride of mercury.

Phosphorus.—*Antidotes:* Calcined magnesia, with diluents and demulcents given in quantity.

Strychnine.—*Symptoms:* Acute pain, causing the dog to utter sharp cries; frequent twitchings and jerkings of the head and limbs,

the fore and hind legs are drawn towards each other, and the back is arched; the fits of cramp and twitching are intermittent, but are readily brought on by a touch or even a sudden noise. Foaming at the mouth is also a frequent symptom.

Antidotes: An emetic should immediately be given, and afterwards butter, lard, or other fat in considerable quantities.

The subject of poisoning is too abstruse to be dealt with fully here. I merely attempt to point out a general line of treatment to be adopted till professional aid can be obtained—when that is considered necessary—and which will tend to alleviate the animal's sufferings should it fail in averting fatal consequences.

POLYPI are tumours growing on some mucous membrane, as the nose, ear, anus, or, more commonly, the vaginal passage. They are attached by a stalk, or pedicel, varying in length and thickness, and are smooth, red, and pear-shaped. They also vary in size; when small, they are concealed from view, but protrude as they increase in growth. They sometimes discharge a mucous matter, slightly tinged with blood and are generally offensive in smell.

The treatment is simple, and consists in their removal by tying a strong silk thread or piece of fine silver wire round the neck of the polypi. This must be tightened daily for a few days, till the neck is cut through, and the tumours drop off. They can also be removed by an *écraseur*, an instrument specially made for the purpose. The parts should then be bathed freely for a few days with Goulard Water. Internal medicines are not required unless feverishness exists, when a dose of cooling medicine will be sufficient.

POT-BELLY is a condition peculiar to young puppies. It generally occurs whilst sucking, and affects the puniest in the litter, which is probably prevented by weakness from obtaining a fair share of nourishment.

The chief symptom is indicated by the name, but there is also wasting of the muscles. Worms may be a cause, and evidently there is a weak digestion, and great flatulence. Except in some very valuable strain that there is a strong reason for preserving, such puppies do not pay for the trouble of treating. As soon as the pup will lap, it should be given lime-water in cow's milk, and fed upon a variety of nourishing things given often and in small quantities.

POVERTY OF BLOOD.—*See ANÆMIA.*

PRICKS from thorns or any pointed instrument should be treated by bathing with warm water, or poulticed.

PROLAPSUS ANI sometimes occurs, but oftenest in pampered house dogs when getting old, kept too fat, and not having much exercise, these together producing constipation and consequent straining. When treating, the protruded part should be cleansed and pressed into its place, and cold douches frequently applied to it. If the prolapsus recurs, a stitch or two can be inserted. The diet must then consist entirely of milk.

PROLAPSUS, OR FALLING, OF THE VAGINA is characterised by a soft, red swelling, and generally occurs during, or immediately after, the period of heat. It must be carefully washed, and gently returned to its place. The following injection should then be used for a few days, and one of the powders given twice a day :

Injections for Prolapsus.—Tannic acid and glycerine, 1oz. ; water to make a pint. Or tincture of krameria, 2dr. ; water to make 6oz. Two ounces to be injected night and morning with a female syringe.

Astringent Powders for Prolapsus.—Take gallic acid, 18gr. ; alum, 12gr. ; mix, and divide into six equal powders, and give one twice a day, first dissolving them in hot water, but allowing them to cool before administering.

Falling of the vagina must not be confounded with inversion of the womb, which occasionally happens after pupping, and which can only be safely treated by a qualified practitioner.

PULSE.—See TEMPERATURE AND PULSE.

PURGING.—This is a symptom in many diseases, but it may exist simply from temporary derangement of the stomach, or from some irritating substance taken into the intestines, in which cases a dose of castor oil and extra attention to diet are all that is necessary.

B.

RABIES, OR CANINE MADNESS (Erroneously called **Hydrophobia**), has been known for at least two thousand years, and probably much longer. It is justly dreaded, because incurable, and on account of the havoc it makes in our kennels, herds of cattle, flocks of sheep, parks of deer, and all domestic animals bitten by infected dogs ; and still more because man inoculated by the rabic virus of a mad dog suffers from the terrible disease known popularly as hydrophobia, from a dread of water and inability to swallow liquids being a main feature of the malady.

More accurately, however, the disease in man is known also as rabies.

Every age and nation has produced its own crop of phylacteries, and the supposed cure for rabies, in nearly every instance, is marked by ignorance and the grossest superstition. It would fill pages to merely enumerate the absurdities man has resorted to for the purpose of preventing and curing rabies. The practice of docking the tails of dogs was originally instituted for the purpose; while until quite recently (and the practice is not dead yet), it was usual to "worm the tongue"—that is, to draw out the tendon under the tongue which is used in moving it, and as it curled up on removal Ignorance called it a worm; then the heart and tongue of a dog were carried about the person; and Abracadabra was written as many times as there are letters in it, thus: ABRACADABRA ABRACADABR ABRACADAB and so on till the last line consists of the letter A only, and this worn about the person. These and many other equally absurd things have been considered prophylactics. Among preventives of hydrophobia in persons actually bitten by rabid dogs the following are a few of the hundreds in vogue one time or another and believed in still; a hair of the dog that bit you; the liver of the mad dog cooked and eaten; the root of the dog-rose; the herb called dog's-tooth; leaves of the dog berry tree; forcible immersion in cold water till the party was nearly drowned; ashes of river crayfish which had been burnt alive. Of so-called cures we have still in this age of enlightenment the Ormskirk cure, Princes nostrum, the Girling cure, Higgs' Hertfordshire cure, and numberless others. The people who trade on the credulity of others by selling such nostrums should be made to prove their own faith and honesty by allowing themselves to be bitten by a mad dog and trust to their own nostrum for safety.

Among the popular fallacies concerning the disease the commonest is that it is of spontaneous origin. Nothing is further from the truth; rabies can no more be produced in a healthy dog without the germ of the disease being communicated to him—which we may say is practically only done by the bite of a mad one—than a farmer can grow a field of turnips without sowing the seed. That a person bitten by a healthy dog will become rabid or hydrophobic should the dog become mad at some period of its life after having given the bite, is as foolish as it would be to say that a person contracted fleas from a dog that had no fleas on him, but might be infested with them some years afterwards. There are people too who go so far as to say of muzzling dogs, which is the means of preventing the spread of rabies adopted by our own and several other Governments, that it is "an unnatural, pernicious, and inhuman practice; a

senseless cruelty which defeats its own object and manifestly tends to *create and increase* rabies and hydrophobia." The expressive word "rot" is the exact value of such stuff; for it has force enough in it to decay, nothing more. Rabies cannot be created, and it can only be propagated by its own seed or germ; just as mange can only be reproduced by transference of the mite which produces it from a mangy dog to a healthy one. My own opinion of muzzling is that, whilst it cannot be made the means of stamping out rabies, it undoubtedly holds it in check.

It is most important that every dog-owner—and indeed every person—should be able to recognise the symptoms of rabies, and I here give the description of them, taken from my small work, "Mad Dogs and Hydrophobia," to which I refer readers for fuller treatment of the whole subject.

Altered Demeanour.—Those who keep dogs and care for them must be acquainted with the ordinary demeanour and habits of these animals. One dog is of a morose disposition, rarely making friends with anyone but his master, even to him not very demonstrative of affection, whilst another is most profuse in show of its kindly feelings. A change from the ordinary state in the exhibition and expression of the emotions is one of the very earliest symptoms of approaching madness. The dog may display an exuberance of affection, his natural tendency to jealousy be unusually and notably excited, or the lively or loving dog may be dull and fretful, evading or resenting the notice and caresses he had formerly seemed to live for. Any such change should be a reason for giving extra close attention to the animal's conduct. As, however, it might arise from other causes, it cannot be taken *alone* as proof of rabies, but merely suggestive and suspicious.

Appetite.—Very often the appetite fails the dog; but, as this is a common symptom of many ailments, it must only be considered with others.

Seeking Retirement.—When madness is coming on a dog, he naturally seeks retirement, that he may have rest and quiet. But a dog with distemper will do the same, and in fact, it is a natural action in illness in all animals, man not excepted. More than that, it is a habit with some dogs in health, and no doubt an inherited one, to seek rest in dark and shaded places, such as under tables, beds, behind large furniture, and other quiet places; but this becomes more marked in the incipient stage of rabies, and if indulged in more than usual, other symptoms should be looked for.

Avoidance of Light.—One, and probably the immediate cause of the retirement referred to is the painfulness caused by strong light, for it will be noticed that a dark or shaded place is selected.

Eyes Affected.—If the eyes are carefully looked at, it will be seen (if the case is one of rabies) that they have an unnatural gleam, an unsteady look, not stupid, but suggesting that the brain is, to some slight extent, affected. If the dog is now taken into a strong light, he will endeavour to avoid it, as, no doubt, it causes pain. So far, the redress from congestion may not have appeared in the eye, nor the peculiar squint that so many writers have called attention to, but, at a very early stage, the keen observer will detect an anxious expression and unsteady look, which give to the dog an uneasy aspect.

Bright and Glistening Objects.—Closely connected with the foregoing is the effect of bright objects, which, although not exciting to fury, yet show that they annoy. In a pet dog of my own that was seized with rabies, the first symptom that aroused my suspicions was her darting at the glistening patent leather points on a pair of slippers. She did not bite at them savagely, but pounced on them and nibbled them. She had seen them on my feet often before without taking this notice of them, and I thought it strange, as she repeated the act several times, although stopping when ordered. Soon after, she pounced on the cat, but, being naturally of a very jealous disposition, I attributed that act to her just having received an extra amount of petting to get her to remain in position to have her portrait taken. On examining the eyes, I had a conviction, causing an uneasy feeling, that there was an unnatural light in them; and this opinion was confirmed on closer examination next day. Still, the change was not very great, nor did this symptom develop very rapidly, but it certainly noticeably increased. I mention these, not that they are proofs of rabies by themselves, but because their appearance calls for great caution and very close watchfulness, and certainly for temporary isolation.

Temper.—The effect on temper is, in the first stage, great irritability, rather than savageness, but it must never be forgotten that individual cases vary considerably, and any deviation from the ordinary habits demands from the master the greatest attention and care.

Snapping at Imaginary Objects.—As clearly showing that the brain is affected, the dog may be seen to snap at imaginary objects, biting the air in fact, as though he were catching flies, an act which it is very apt to be mistaken for, it being a common practice with many dogs. During this restless period the poor dog prowls about, sniffing about corners, and apparently looking for something. He will start forward and snap at some unseen enemy by which he appears haunted, and the delusion is constantly repeated.

Excessive Display of Affection.—Concurrently with all or some of the symptoms, the dog may, impelled by the strong love he feels for

man, display great fondness, and show it by fawning and licking the hands or face of those he knows. This is a habit in the dog which should at all times be discouraged; and to permit it even in the earliest, the most incipient, stages of rabies may be fraught with terrible consequences. These displays of exuberant affection are often intermittent with the periods of gloomy retirement and active excitement and irascibility. During these intervals of lucidity, nothing seems to ail the dog, and this is apt to induce the owner to permit the dog to lick him; but even then the saliva on the tongue may be laden with virus, and it might easily be absorbed through the thin skin of the lips, or where there was any slight cut or abrasion. Soon after this display, the affected dog is again under the baneful influence, showing itself in the morbid mental effect of seeing or pursuing imaginary enemies, and the completely changed and abnormal conduct already described.

Dogs Leaving Home.—During this stage of the disease—this period of unrest—the poor dog often wanders from home, and, when we consider the irritable state of the brain then existing, it will be evident that if hallooed, chevied, and stoned by strangers, the cerebral disease will be more quickly developed, and the furious and more dangerous stage of madness at once appear. It has been said that the dog, knowing the dangerous impulses of the disease, leaves home that he may not injure those he loves. It is a pretty fancy, begotten of love for the dog; but we must be thankful for the good qualities he really does possess. The impulse to wander is but an effect of the disease he cannot escape from.

Gnawing, Tearing, and Swallowing Inedible Substances.—After prowling about, as if in search of some lost object, the afflicted dog begins to gnaw and bite at everything. If he is confined, he will worry his chain, or tear the woodwork of his kennel; when free, furniture, carpets, rugs, and curtains, all get torn to shreds. In the case I have referred to, the bitch, confined in my writing room, had in one night torn into scraps a big pile of newspapers, littering the floor with them. Pieces of stone, coal, cinders, wood, rag, and even its own excrement as well as that of other animals are swallowed.

Disposition to Bite.—With the symptoms just described, the disposition to attack and bite other animals, particularly those of its own species, increases.

Pawing at the Throat.—When a dog is seen to do this, as though to remove a bone, or as is done in severe canker of the ear, it is evidence of the increasing inflammation at the back of the mouth and throat, and it is easy to see that a bone is not the cause; for in that case the effort would be unceasing whilst the obstacle remained, and the other symptoms described would not be present.

Saliva, Froth, and Foam.—There may be an increase of saliva, but this is not constant, and the dog does not froth and foam as when in an epileptic fit, or when under intense fear, excitement, and heat from having been chased.

Sexual Excitement.—It is a common, and often an early symptom, for the dog to be unusually salacious. Any excessive display, therefore, of this passion should excite suspicion; but it is not to be taken alone as proving rabies.

Change in the Voice.—The bark of the rabid dog is hoarse and husky, and indeed has a note so peculiar that it indicates the disease with great certainty to those who have studied it. It is not, however, an early characteristic, nor are the following:

Fluid Vomited.—In some cases a dark brown, almost blood-like fluid is vomited.

Insensibility to Pain.—Sensibility becomes greatly blunted, so that wounds which would make a healthy dog howl, are borne apparently without much feeling.

Paroxysms of Fury.—As the disease progresses, paroxysms of rage alternate with periods of quiet from exhaustion, and soon the dog becomes paralysed, and dies asphyxiated, unless his sufferings have been humanely put an end to.

Drinking Water.—When first attacked, the dog takes his water much as usual; but as he is affected by everything that glistens, he may start at the gleam of bright water. In the very advanced stages, a mad dog will plunge his mouth into water, apparently to cool his parched tongue and fauces, for he has lost the power to lap. The appetite is, in many instances, so vitiated that, while the power remains, the patient will lap at his own urine.

Obedient to the Last.—Not in the early stage only, but far into, and even at, the sad close, the dog, when conscious, answers to his master's voice, and obeys his command. This should not, however, induce the free handling or encouraging pat, so natural to bestow, for, in a moment, the dog may be under the sinister influence again, and inflict an injury which, if in possession of his senses, he would be far from doing.

Importance of Early Symptoms.—To prevent the dreadful spread of this disease, and especially to prevent human beings from the horrible sufferings and death a bite from a mad dog may cause, dog-owners should make themselves thoroughly acquainted with the earlier symptoms, which I have endeavoured to make clear.

Necessity for Isolation.—Whilst some of the symptoms described, taken alone, may indicate a harmless complaint, not one should pass without serious notice, and when any two or more are known to be present, it is clearly the duty of an owner to isolate the dog in a

secure place, supplying him with water and food. In a very few days the increase in the number and intensity of the symptoms will have proved the dog rabid; or his remaining in the state he first was when suspected will have shown the symptoms to have indicated some other disease.

Duration of the Disease.—Dogs do not live more than seven or eight days when rabies is once actively developed, so that a dog isolated for that time, and remaining in a similar state to that exhibited when he was first taken, may be considered free from it; but, to allay anxiety, and to secure to the dog proper treatment, a veterinary surgeon should always be consulted in such cases.

A dog suddenly seized with a fit, falling down unconscious, champing the jaws, frothing at the mouth, and with the limbs and body convulsed, does *not* show signs of rabies: on the contrary, such an attack *may be taken as proof that the dog is not mad*; yet, on such evidence, hundreds of dogs have been done to death with all the barbarous cruelty of an ignorant terror. Fits of fury are expressions of excited passions, and are not early symptoms of rabies, although ungovernable paroxysms of rage mark the later stages of furious madness.

When a "mad-dog scare" arises, scores of dogs are killed in panic fear, and reported as having been rabid. I do not know who is responsible for these official or semi-official reports; but as the matter is carried out they do more harm than good, and increase the panic they should allay. The dogs are killed before even a competent man can study the symptoms, post-mortem examinations are misleading, and no dog should be reported as having been rabid until the fact is proved by the Pasteurian method. I will give one case in point. A neighbour asked me to see her pet dog as it was ailing. I thought it rabid—kept it twenty-four hours and had my opinion confirmed. I sent the body to the Brown Institute—report in three days—"post-mortem gives no evidence of dog having been rabid." Second report in twenty-four days, after Pasteurian method of proof had been carried out—"unmistakable evidence that the dog had been rabid."

One of the most puzzling features of rabies in dogs and man is the uncertain period of latency, in which the poison lies inactive in the system. In this evil there is some good—it gives time for those bitten to undergo the preventive treatment discovered by M. Pasteur, and to which some thousands of human beings already owe their lives.

Dumb Madness.—In this form of rabies the lower jaw becomes paralysed, so that the dog cannot bite: but in these cases, equally with those of furious madness, the saliva is tainted with the virus,

and is capable of reproducing the disease in other dogs or man, if absorbed by any means, so that, although the danger is less than in furious madness, it is still present.

RACHITIS.—See RICKETS.

RED MANGE.—See ECZEMA.

RHEUMATISM.—This is a very common disease in dogs, and one form of it, known as Kennel Lameness, has been already described. In lumbago, another form of the disease, the back and hindquarters are affected; the dog drags his hind legs, and shows evidence of acute pain when touched, or even when an attempt is made to do so. In rheumatism there is always more or less of fever present; the nose is hot and dry, the urine scanty and more highly coloured than usual, and generally the bowels are more or less costive.

In treating a dog for rheumatism, it is imperative that the bowels should be at once freely acted on; and for this purpose the *Compound Podophyllin Pills* will be found most suitable; or as a substitute, should it be inconvenient to obtain the pills, give for a 20lb. to 30lb. dog, 2dr. of Epsom salts, with 20gr. of cream of tartar, as a drench, in water. After the bowels have been relieved, give for a dog of that size 10gr. of bicarbonate of potash daily. In many cases 10gr. to 30gr. of salicylate of soda given in water three times a day, act as a specific. If this fail, then 5gr. to 15gr. of benzoic acid, made into a pill, should be administered twice a day. A warm bath will often give immediate relief from pain, more especially if followed by a vigorous application of one or other of the liniments ordered for KENNEL LAMENESS.

As rheumatic attacks are generally caused by exposure to wet and cold, or more frequently by the dog being placed in a damp, cold, or draughty kennel (and especially when warm after a run), preventive measures are; to a considerable extent in the hands of the master, and should receive due attention. A light diet is advisable during the existence of rheumatism, more especially whilst any feverishness is present. It should be noted that a dog having once suffered from rheumatism in any form should receive special attention, as one attack predisposes to subsequent seizures.

RIBS, FRACTURE OF.—This injury, which is not uncommon in dogs, is usually due to a kick. The symptoms are pain on manipulating the part, the breathing is short, the ribs are more or less fixed, and crepitus can be heard if the ear is applied to the

ribs. The ribs should be bandaged rather tightly, to prevent undue expansion of the chest-walls, and this will generally effect a cure. If, however, the lungs are injured, then such complications as pneumonia or pleurisy may arise. A mild aperient is always beneficial.

RICKETS (Rachitis).—Pups the offspring of an enfeebled dam yielding an insufficient supply of milk, and that of poor quality, or those which from any cause are ill-fed and neglected, or kept in close, ill-ventilated places, without a chance of fresh air and needful exercise, suffer from mis-shapen limbs, thick joints, and other deformities. These are caused by the bones being imperfectly developed, the food and other conditions on which the pup is reared not yielding the constituents necessary to give them the required hardness to enable them to perform their proper functions. This condition is known as rickets, and the cause being plain the treatment is evident.

Continuous consanguineous or in-and-in-breeding should be avoided, as one cause of rickets. Do not attempt to rear a pup on a weakly, unhealthy mother, but if the breed is desired, procure for the pups a foster-mother of undoubted health and stamina. Let the nest be in a warm, airy place, and as soon as the pups are able to leave, give them plenty of room, fresh air, warmth and sunshine, and insure thorough cleanliness of the place in which they are kept. When old enough to eat, let their diet be light, nourishing, and digestible, a portion of it flesh, cooked or raw.

In cases where rickets already exist, attend to the above suggestions. Let a considerable portion of the diet consist of good milk, to which add a little lime-water, say a tablespoonful to every quarter pint, and give in the food small doses of cod liver oil twice a day for some months. Phosphate of calcium in doses of 10gr. to 20gr. twice a day is very useful, as is also Parrish's Chemical Food.

RINGWORM is due to a vegetable parasite (*Tinea tonsurans*). It appears in circular, scaly patches, and is very contagious. It is commonest in dirty, damp kennels, and may be communicated to the dog by a child suffering from it. A little of the ointment of iodide of iron, rubbed in twice a day; or yellow oxide of mercury 15gr., and benzoated lard loz.; or oleate of copper 1 part and lard 4 parts, will effect a cure.

ROUND-WORMS.—See WORMS.

5.

ST. VITUS'S DANCE.—*See* CHOREA.

SALIVATION.—Cases of salivation as the result of the administration of over doses of quack medicine, into the composition of which mercury largely enters have occurred. Again mercurial salts enter into the composition of many skin dressings, and the mercury may become absorbed through the skin.

The symptoms of mercurial poisoning are increased salivation, swollen and spongy gums, which bleed at the slightest touch, and are surrounded with a bluish rim, loose teeth, extremely foetid breath, intense thirst, furred tongue, loss of appetite, ulceration, and sloughing of the gums. If the dose has been a large one, or repeated doses have accumulated in the system, the stomach and intestines become involved, causing obstinate vomiting and dysentery, the animal rapidly loses flesh, eruptions take place on the skin, the hair drops off, the teeth fall out, and paralysis and death follow. The symptoms must be treated as they occur, the bowels and kidneys must be operated upon, and the patient's strength kept up by stimulants and good food, which in serious cases must be forced upon the animal.

SARCOPTIC MANGE.—*See* PARASITES, EXTERNAL.**SCALDS.**—*See* BURNS.

SCROFULA is not unknown in dogs, although fortunately it is not very prevalent. The subjects are mostly young animals, and the disease is due to in-and-in-breeding, and is hereditary.

The symptoms are a general unhealthy and unthrifty condition, the coat never looking sleek or shiny, but invariably dull, while it is usually offensive smelling; the lymphatic glands swell, the eyes have a chronic, whitish discharge, and the appetite is irregular; in fact the dog's health is scarcely two days alike. As the animal matures, the symptoms become chronic, and the abdomen pendulous. It is scarcely necessary to warn owners against breeding from animals so affected.

Although scrofula cannot be cured, to keep it in check, strict cleanliness should be observed, both as regards the dog itself and its habitation. The animal should be groomed daily, as this tends to produce a healthier action of the skin, have plenty of exercise and fresh air, and be frequently washed. Medicinally, 20 to 60 drops

of iodide of iron should be given in water twice a day. This drug has been found very valuable; Parrish's Chemical Food and cod liver oil are also useful. The swollen glands should be dressed with tincture of iodine, and the diet must be liberal and of the best quality.

SCROTAL IRRITATION is often met with in dogs, particularly in those which have been used constantly for stud purposes. The scrotum becomes red, spots make their appearance, and discharge serum, and the irritation is severe. Finally the part becomes swollen and very sore, the discharge dries, and forms scabs, which are cast off, leaving sore patches, and granulations may appear.

Upon the first appearance of any irritation, bathe the parts with warm water, and administer an aperient. After well drying the parts, dress night and morning with boracic acid ointment, and apply a muzzle to prevent the dog from licking. Where granulations exist, touch them with nitrate of silver. This condition will often recur, and the treatment must be repeated.

SCURF.—This occurs from want of attention to the skin, but it often appears on the ears as a forerunner of canker, in which cases wash with warm water, anoint with olive oil, and give the dog a dose of physic and a light diet for a day or two.

SEPTICÆMIA PUERPERALIS, AND INFLAMMATION OF THE UTERUS.—This is common in bitches, and is the result of retention and putrefaction of a dead foetus (pup), or the introduction of putrid matter through the blood stream. The symptoms are high fever, the nose and mouth are hot, the pulse is quick, the respirations are increased, the eyes are injected, the extremities become cold, and often insensibility and death occur.

If the treatment is to be of any avail, it must be adopted at once. First, remove the cause, if possible, inject the uterus with warm, weak Condry's Fluid, and give immediately 10gr. to 20gr. of the hyposulphite of soda, in water 3 times a day. Creasote given in 1gr. to 3gr. doses (made into a pill with crumb of bread), three times a day is useful; salicylate of soda is also recommended in 10gr. to 30gr. doses, in water, three times a day. The bowels must be relaxed by means of doses of oil, and soap and water enemas. The kennel must be thoroughly cleansed and sanitary, the drains well flushed and a good clean bed provided. The patient must have warmth with plenty of fresh air. The food must be light, such as beef-tea and mutton-broth, with crumbled stale bread. As the animal approaches convalescence, 1gr. to 2gr. of sulphate of quinine may be given with advantage.

SPRAINS.—By the term “sprain,” is meant a sudden, violent straining of a tendon or ligament. It may be caused by extreme and long-continued exertion, by the dog stepping on something, or by his foot getting into a hole when running, causing a twist of limb or body from the natural position. There is sudden and severe pain, followed by inflammation. The exact seat of the injury can be discovered by passing the hand over the back, shoulder, or limb which appears to be affected. Rest is necessary; and it is advisable in these cases to give a cooling aperient, such as the *Mild Purgative*.

As soon as possible, bathe with water as warm as the dog can bear it, and then rub the part with the *Liniment for Sprains, Bruises, etc.*, at least three times a day; or apply the *Cooling Lotion*, though that requires such constant application, the former treatment is generally to be preferred.

STOMACH, INFLAMMATION OF (Gastritis).—This may be caused by irritants accidentally swallowed, frequently by mineral and other poisons thoughtlessly thrown out by housekeepers or servants who have used them for exterminating rats, mice, etc.; or by the administration of turpentine in capsules or any other form, except combined with an emulcent. Dogs also at times accidentally swallow extraordinary things of an irritating nature in their haste to devour picked-up garbage, and these produce inflammation.

The first and principal symptoms for the owner to notice are excessive thirst and violent vomiting. In the intervals the dog will lie down on his side stretched out, and whine and moan from the pain he is suffering. When this is observed, $\frac{1}{2}$ gr. to $\frac{1}{2}$ gr. of hydrochlorate of cocaine should be administered.

The general treatment is to keep the dog quite undisturbed. Let him have at his command a constant supply of water which has been boiled, and give thin mutton-broth, made with Scotch barley, adding a little isinglass thereto. Opium to allay the pain may be given, but cautiously, and the less of any medicine the better. Diarrhoea will not unlikely follow, and must be treated as directed under that head.

SUNSTROKE.—In writings on dog diseases I have not seen any allusion made to dogs being liable to sunstroke, but I have seen cases I consider to be due to such. One, a fox-terrier bitch, in New York, which I was called in by a friend to see; her life was saved by the application of ice to the head, and sedative treatment afterwards.

Some readers will recollect the Burton-on-Trent Show, 1878,

when during the judging the heat was almost tropical, and this was followed by a storm, sudden and short, that nearly carried away the tent. During the heat a bulldog, I think, as well as a pug, was overpowered by the heat and had fits. The bulldog died. From the suddenness of the attack, the stertorous breathing, and quick collapse, I thought then and since that it was sunstroke. In such cases the dog should be quickly removed to a place as cool, retired, and airy as possible, and ice, or the coldest water obtainable, applied to the head.

SURFEIT.—See **BLOTCH AND ECZEMA.**

T.

TAPEWORMS.—See **WORMS.**

TARTAR ON THE TEETH.—See **TEETH, DECAYED.**

TEARS.—See **WOUNDS.**

TEETH.—The dog has, when the set is complete, or in kennel parlance, when he “has a full mouth,” forty-two teeth, made up of twelve incisors, or cutting teeth, four canines, or fangs, and twenty-six molars, double or grinding teeth. Some of these constitute what are ordinarily called the milk-teeth, and are deciduous—that is to say, they are after a few months cast, and give place to permanent ones.

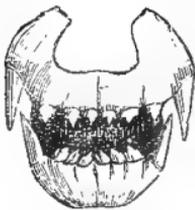


FIG. 20. PUPPY'S MOUTH
AT THREE MONTHS.

The Incisors—six above and six below—form the front teeth; those in the upper jaw are the larger, and those both above and below the centre teeth are the smaller, while the outer or corner cutters are the stronger; these appear at the age of from four to five weeks, and give

place to the permanent incisors at three or four months.

The Canines, or Fangs, also make their appearance when the pup is from four to six weeks old; these are replaced by the permanent fangs about the age of five to six months. They are considerably elongated and pointed; the upper ones are the stronger.

The Molars.—Of these, twelve are in the upper jaw, and fourteen

in the lower. The first (that is, of course the four, two upper and two under) are not deciduous, and make their appearance at about three or four months; the second, third in the upper and fourth in the lower are, like the incisors and canines, deciduous, appearing at the fourth or fifth week, and giving place to the permanent ones at five to six months; the fourth in the upper jaw is much the strongest,

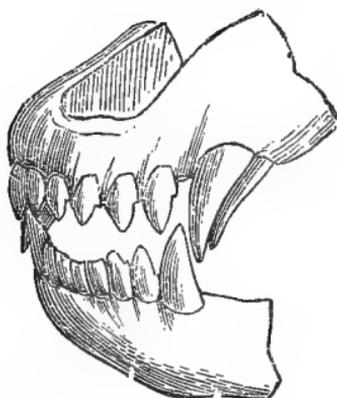


FIG. 21. PUPPY'S MOUTH AT SIX MONTHS.



FIG. 22. DOG'S MOUTH AT EIGHTEEN MONTHS.

and in the lower jaw the fifth is the largest and strongest. The fifth generally appears from the fourth to the fifth month, the sixth at the age of from five to six months, and the seventh in the lower jaw from five and a half to seven months. Most of the molars, whilst adapted for grinding or crushing bones, etc., are terminated by acute lobes suitable for tearing flesh. Figs. 20, 21, and 22 represent respectively the dog's mouth at three, six, and eighteen months.

TEETH, DECAYED.—It is unfortunately only too true that the condition of a dog's teeth does not receive the attention that it should; this is very evident when it is borne in mind that one of the most important functions of the teeth is mastication, and that an animal cannot maintain good health if it is imperfectly performed. Upon sound teeth greatly depends perfect mastication. Before assimilation of the food can take place in the stomach, it must be received into that organ in a fit condition for the process, and this depends upon the condition of the teeth. When the food is not properly chewed, it acts as an irritant to the stomach and bowels, causing indigestion and diarrhoea, which latter in puppies often proves fatal.

Generally speaking, the teeth do not receive any attention until they decay, and cause pain or stomach trouble. Preventative measures are in my experience seldom taken, though it is quite as necessary for a dog to have clean teeth, as it is for ourselves.

The teeth especially require attention in the case of dogs which are fed upon an unsuitable diet, as they become furred, and finally accumulations of tartar exist. To avoid this they should be gone over once a day with an ordinary tooth-brush, dipped into weak Condyl's Fluid. This will not only prevent decay, but also keep the breath sweet, a most important matter where the dog is one's constant companion. Fœtid breath, however, is not always wholly due to the teeth, but to indigestion as a result of their condition; at times, too, especially when the teeth are irregular, food accumulates between them; this should be removed with the brush. That dogs are frequently the subject of toothache cannot be doubted, and is clearly shown by the swelling of the cheek, and often by the formation of abscesses. All decayed teeth that are past preserving should be extracted by a competent person.

TEMPERATURE AND PULSE. — As indications of health or departure from the normal state the temperature and the moisture or dryness of the nose—the integument forming the walls of the nostrils—are very delicate indicators, but, if I may say so, they tell too much, and are too general, and do not enable us to discriminate. When the nose is dry and hot, we know the dog is out of sorts, but we have to search for other symptoms to determine what is the matter. The pulse and general temperature are important aids to diagnosis far too much neglected.

The first thing a medical man does when he visits a patient is to feel the pulse, and if there is a suspicion of fever of any kind, the temperature of the body is carefully taken; this course, if followed with the dog, would assist the owner in treating his animal in all inflammatory and febrile cases, such as distemper.

The pulse in the dog varies from 90 to 100 beats per minute, the heart's action being quicker in highly bred, nervous dogs, such as some strains of setters and pointers, and some of the finely bred toys. For this reason the owner should make himself acquainted with the pulse and temperature of his dog in health, in order that he may be able at once to detect departure from the normal state. The pulse can be felt inside the knee, but, especially in small dogs, it is better to count the heart-beats. If the left fore leg is held up so that the elbow is slightly bent, the point of it will indicate the place where the hand should be held flat over it.

The temperature is gauged by inserting an ordinary clinical

thermometer in the rectum for half a minute, or in the mouth between the lip and teeth, though this latter can only be exercised in a quiet subject. Some advocate placing the thermometer under the armpit; but the skin there is far too thick to allow of anything like a correct registration being arrived at. Temperature of the dog normally varies from 100deg. to 101deg. Fahr.

TESTICLES, ENLARGED.—When this condition occurs, acute pain is, in most cases, present, while in others it seems to cause but little if any inconvenience. Dogs past the middle age are usually the subjects, and obesity predisposes an animal to this condition. Dogs, again, which have not been allowed sexual intercourse are also affected, while it occurs as well in stud animals; it is also due to injuries. In treating these cases, the cause, if ascertainable, must be removed. If pain is present, hot fomentations should be applied, and an aperient given. Sometimes it is necessary to remove the testicles.

TETANUS.—*See* LOCKJAW.

THORNS.—These are most likely to pierce the pad, or sole, of the foot—in reality, the toes. A thorn should be at once extracted, and, if a large one, the foot should be bathed or poulticed.

TICKS.—*See* PARASITES, EXTERNAL.

TONGUE, INFLAMMATION OF (Glossitis).—Dogs are extremely liable to injuries of the tongue, which is not surprising when we consider the variety of articles they pick up—sharp pieces of bone or stone. In some instances the inflammation is due to a sting (I have known one or two cases of this in terriers), while the teeth sometimes cause lacerations.

The symptoms are first an increase of saliva, the jaws are moved constantly, and upon examination the tongue is found to be inflamed and tender, swallowing is performed with difficulty, thirst is present, or at least the animal finds relief in continually lapping, although probably not much is swallowed. The mouth should be rinsed out frequently throughout the day with a solution of boracic acid (1scr. of the acid to 6oz. of water). To do this, hold the head down slightly, pour the liquid in one side, and allow it to run out of the other. If a little is swallowed, it is of no consequence. A weak solution of Condy's Fluid can also be used in the same way with marked benefit. This treatment, with an aperient, is usually all that is necessary. If the inflammation is due to injuries caused by the teeth, the latter must

have attention; they may require extraction, or filing. The food must consist for a time of warm milk or gravy, with stale bread crumbled, and egg and milk to lap.

TONGUE, PARALYSIS OF.—This is occasionally seen in the dog, and is often congenital. The tongue protrudes from the mouth, finally becomes dry, and often cracks. Except for the dryness, the animal appears to experience little inconvenience, and lapping is accomplished with ease. If cracks are present, apply a little boracic acid ointment, which is non-poisonous; while a little sweet oil to the tongue will often prevent the dryness already alluded to. A nerve tonic should be administered, and 5 to 20 drops of tincture of nux vomica, with $\frac{1}{2}$ gr. to 1gr. of quinine, is an excellent preparation. It should be given in water twice a day, after food.

TONGUE, WORMING.—See WORMING THE TONGUE.

TUMOURS.—These are divided into groups, of varying structure—Fibrous, Fatty, Calcareous, Melanotic, Osseous, and Lacteal.

Fibrous Tumours are usually situated in the jaw or limbs, they have a firm attachment and are hard and insensible to the touch. Excision is necessary. In the centre of these tumours a cyst, or cavity, containing serum or matter (pus), often exists, and in consequence abscesses form upon their surface.

Fatty Tumours are commonly met with in the dog, and have no particular position, but occur at any part of the body. They are smooth and shiny upon their surface, unattached to the surrounding tissues, they seldom become inflamed, and are not tender when touched. The treatment is by excision.

Calcareous Tumours.—These are common in bitches, and are usually situated in the mammary glands. The treatment is by excision, external applications being of no avail.

Melanotic Tumours are seldom seen in canine practice. There are a few cases on record, and with them excision has been successful.

Osseous Tumours are likewise rare in dogs, and when occurring, are invariably associated with rickets; their situation is the limbs.

Lacteal Tumours have already been fully dealt with under that heading.

TURNSIDE.—In this disease the dog has no fit, but walks about apparently without an object, generally in circles, keeping always in one direction. This state will have been preceded by dulness and loss of appetite. Youatt, Moore, and others have ascribed

the disease to the presence of hydatids in the brain, but the results of more recent study of animal parasites are opposed to this view. The cause of turnside is more likely to be worms in the stomach or intestines. I therefore recommend that a vermifuge be given, followed by an aperient; and that the dog be placed in a room where he cannot injure himself by running against things, as he is apt to do, his sight being impaired.

U.

ULCERS ON THE TONGUE.—This painful condition when met with in the dog is usually the result of neglect, the teeth being allowed to accumulate tartar. The ulcers may be due to rough or decayed teeth as well as to a disordered stomach, the latter being a frequent cause. In the latter case aperients must be administered, and a plain diet be furnished, and in moderate quantities, when, as the condition of the stomach improves, the ulcers will disappear. If tartar is present, it must be removed by scaling, and the teeth afterwards gone over with an ordinary tooth-brush dipped into weak Condyl's Fluid. Any decayed teeth must be extracted. The ulcers themselves should be lightly touched with nitrate of silver.

UMBILICAL HERNIA.—*See* NAVEL HERNIA.

URETHRAL CALCULUS (Stone in the Urinary Passage).—*See* CALCULI.

URINARY PASSAGE, STONE IN THE.—*See* CALCULI

UTERUS, DROPSY OF.—This is sometimes observed in bitches which have had several litters, and the condition has often been mistaken for pregnancy. The absence, however, of the round hard bodies, and the want of tenseness of the abdomen will invariably guide one in determining the true condition of affairs.

UTERUS, INFLAMMATION OF.—*See* SEPTICÆMIA PUERPERALIS.

UTERUS, INVERSION OF.—This sometimes occurs after pupping, and also from great weakness. The uterus is turned inside out, and part of it is seen to protrude at the opening

of the vagina. It should be returned as gently as possible, and mild astringents afterwards injected, but the whole treatment is best left to the veterinary surgeon.

V.

VAGINA, PROLAPSUS OF.—*See* PROLAPSUS OF THE VAGINA.

VERMIN.—*See* PARASITES, EXTERNAL.

VERTIGO, OR DIZZINESS, is frequently the result of a too tight and narrow collar, but a deranged liver or disordered stomach will also cause it. In treatment, first remove the cause; if due to a disordered state of the stomach, give an aperient.

VOMITING.— There is no domesticated animal in which vomiting is so easily excited as in the dog; in fact, some appear to practically vomit at will. Overloading the stomach will frequently cause vomiting, as also will the presence of worms in that organ, bile, and the administration of emetics. The cause must be removed, and the effect will cease. If often becomes necessary to excite vomiting—in cases of poisoning, for instance, and in worms in the stomach. When this is the case, ipecacuanha wine is one of the most useful and least dangerous agents to employ. The dose is from 3dr. to 8dr. in a little warm water; 10gr. to 30gr. of sulphate of zinc is another useful emetic, and has the advantage of operating very quickly, a very important fact in cases of poisoning. If neither of these remedies is at hand, a little mustard and water, or salt and water, or greasy water is useful.

W.

WARTS are fairly common in the dog and occur on different parts of the body—lips, eyelids, ears, mouth—and they may appear singly or in clusters. They may be removed by a ligature tied tightly round the root, or by a scalpel; the latter is preferable. The blade is held flat on the skin at the root of the wart, and cut through, the raw surface being afterwards cauterised. The hot iron or actual cautery, although for the time the most painful,

is after all, I think, the best and safest. Neither potassæ fusæ, nitric acid, nor nitrate of silver can be safely used, because it is quite evident that the dog's tongue would sweep the injured lip, with the consequence that the caustic would be transferred in part to the tongue, which would peel in consequence. If used, the jaws must be so tightly bound that the teeth are held together, so that the tongue cannot be protruded.

When the warts grow in clusters, as they often do, the difficulty of dealing with them is greatly increased. The application of bicarbonate of soda slightly dampened has in some cases proved effectual.

WASTING.—*See* DEBILITY.

WATERY EYES.—*See* WEAKNESS IN EYES.

WEAKNESS IN EYES.—Tears, or watery discharge from the eyes, are natural to some breeds of dogs, such as Blenheim and King Charles Spaniels, and in that case should not be interfered with further than to bathe with an infusion of green tea or the astringent lotion for weak eyes; but the weakness may arise from slight inflammation, in which case give light diet, a purge if the dog is gross and fat, and use the following :

Lotions for Weak Eyes.—Sulphate of zinc, 12gr. ; laudanum, $\frac{1}{4}$ oz. ; water, 6oz. Bathe freely. Equally as effectual is a wash made with boracic acid, 1scr. ; distilled water, 6oz.

WOMB, FALLING OF.—*See* PROLAPSUS VAGINA.

WORMING THE TONGUE.—There is a very old standing idea still existing in some isolated nooks and muddled brains, that a dog has a worm under the tongue, and that the removal of it, called "worming," does great good, among other things preventing the dog biting, should he ever become mad. The operation consists in cutting the bridle of the tongue and pulling out a small ligament, which, by contraction, curls like a worm. It is scarcely necessary to say that the operation is as cruel as it is uncalled for, and should be sent to the limbo of obsolete stupidities.

WORMS.—Until the present century the existence of worms was even by men of science attributed to spontaneous generation brought about by the influence of heat and fermentation in decaying organic matter. Gradually the researches of helminthologists proved that these creatures sprang from a germ, each having its individual mode of reproduction and distinct life-history; and our

knowledge on the subject has gone on and goes on at an ever accelerated pace. Even in such a by-corner of knowledge as the parasites of our dogs, progress has begot progress, revelation revelation, till this little bit of ground teems with marvellous life-histories of the infinitely small, and soon we may hope to be as familiar with every creature that lives in or upon the dog as we are with the dog himself. But even in dealing with worms in dogs ignorance will have its way, and sticks pertinaciously to old notions and empiric treatment.

The worms that infest the dog are exceedingly numerous in their varieties; but many fortunately are rare, and most of those we are best acquainted with are to a considerable extent under our control. This country has not hitherto been prolific in investigations in this subject, and most of our knowledge comes from abroad. Now, however, at our veterinary colleges and elsewhere are many students pushing forward from the vantage ground prepared by their predecessors. To the late Dr. Spencer Cobbold we are indebted for much in actual research, and perhaps even more for the impetus he gave to the study of this subject. To Mr. George Fleming, so well known as a veterinary scientist and by his valuable works, dog-owners and others are not a little indebted, more especially for publishing a translation of the great work on "Parasites and Parasitic Diseases of Domesticated Animals," by L. G. Neumann, Professor at the National Veterinary School of Toulouse. This work will prove a boon to students and to non-professional men who are interested in an intelligent understanding of dogs and all that concerns them. I most strongly recommend its study to everyone interested in domestic stock.

The worms that most concern the dog-owner are the Tapeworms and the Round-worms. Of these there are many species, but I will only dwell on those most commonly met with in English dogs.

Tapeworms.—These are, as the name indicates, the flat worms which are often seen evacuated with the fæces in small sections of half an inch or less, when they are usually called "maw-worms"; or at times chains of them may be seen hanging from the anus, when being expelled naturally or under the action of medicine.

No less than a dozen tapeworms select the dog as their host. They have a remarkable life-history, and it is as well for the dog-owner to know something as to this, as he is often puzzled to think how this or that dog became infested.

It will therefore be well to see how an adult tapeworm is made up. If examined, it will be found to consist of a head, or scolex, and a series of segments, scientifically known as metameræ. These latter are constantly being budded off from the head, and assume

forms varying with their age. Thus those nearest the head are the youngest, and those at the other extremity the oldest. It is these last which one sees from time to time pass with the faecal discharges. They are, in fact, the ripe segments, or proglottids (Fig. 23), which detach themselves from the hind portion, and each portion thus freed is endowed with reproductive organs. In time these detached portions die away, but the eggs contained in them have been impregnated by spermatozoa, and simply await another host to begin anew the cycle of existence. The eggs thus scattered broadcast are not influenced by extremes of heat or cold, dryness or moisture, nor does Time seem to destroy their germinating power. From this it will readily be seen how important it is to burn all excreta from dogs infested with tapeworms.

In course of time the eggs are swallowed by a suitable host—sheep, rabbit, pig, or ox—each of which has its particular form of tapeworm. The gastric juices of this intermediary soon dissolve the outer covering of the egg, and an embryo, oval in form, and pro-

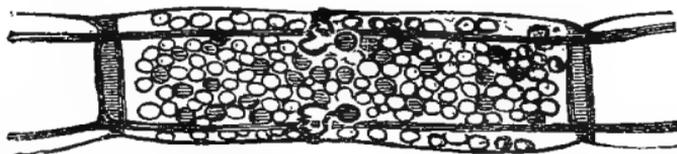


FIG. 23. PROGLOTTID, OR RIPE SEGMENT OF TAPEWORM, SHOWING THE SEXUAL ORGANS.

vided with six bristle-like organs, or stylets, results. By means of these the embryo is able to penetrate the tissues of its host, and to take up its position in whatever part of the animal's body Nature has ordained that it shall flourish—it may be in the brain of the sheep, where it assumes the form of a bladder—becomes encysted (Fig. 24). Gradually the stylets, which afforded it the means of access, decay, and a circle of hooks is developed, by which the future Tapeworm will be enabled to anchor when in its new host.

Soon a many-headed animal (Fig. 25) develops. A fresh host is now necessary to carry on the cycle. In the case of the gid tapeworm the sheep dies or is killed, and in due time the cysts are swallowed by the dog. Once in the dog the bladder is absorbed, and the tapeworm matures. The heads are set free, and the creatures having made their way into the intestines, attach themselves thereto, and each one is capable of founding a colony, as it were. The head has no mouth, but is provided with sucker-like processes (Fig. 26), through which the animal derives sustenance.

These also fulfil a double purpose, inasmuch as they are used by the tapeworm for attaching itself to its host, and readily accounts for the difficulty experienced by dog-owners in expelling that portion of the parasite.

Of the commonest tapeworms affecting the dog the following may be named :

Tænia serrata.—This tapeworm, which attains about a yard in length, is very frequently met with, and particularly in those kennels in which the viscera of rabbits occasionally enter into the dietary. The reason for this is not far to seek : the rabbit and the hare are intermediaries, as they are termed, and it is in them that the parasites pass a portion of their existence, usually termed the

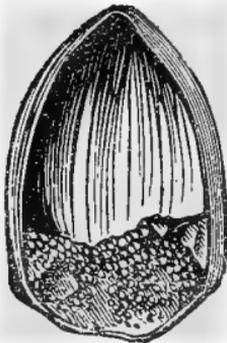


FIG. 24. SECTION OF GID TAPE-
WORM CYST.



FIG. 25. HEAD OF GID TAPEWORM AS
FOUND IN THE CYSTS.

larval one, and beyond which no further development takes place in that particular animal. In the hare and the rabbit this parasite takes up its abode in the peritoneum, and is known by the name of *Cysticercus cellulosus*.

Tænia marginata.—The dog derives this tapeworm from the *Cysticercus tenuicollis* of our sheep and cattle.

Tænia cœnurus.—This parasite grows to a length of 1yd., and sometimes more, and in the hydatid or bladder forms develop on the brain of the sheep, causing "gid" or "sturdy." In this stage of its existence it is known as *Cœnurus cerebralis*. Dogs feeding on the heads of sheep that have had the "gid" swallow these hydatids and in two to three months the tapeworm is again fully developed in the dog.

Tænia serialis.—A tapeworm about $\frac{1}{2}$ yd. to $\frac{3}{4}$ yd. long when fully grown. It is much like *Tænia cœnurus* in appearance. Rodents, and particularly warren-rabbits, are the intermediary hosts. This is not so common in the dog as are some of the other Cestodes.

Tænia echinococcus.—This is the most diminutive of the tapeworms: it consists of three or four segments only. Writing in 1879, Dr. Spencer Cobbold ("Parasites of Man and Animals") says: "In England the *Tænia echinococcus* is excessively rare, and has not been seen in any dog which had not been previously subjected to a feeding experiment." It has always been common in the dogs of Iceland,

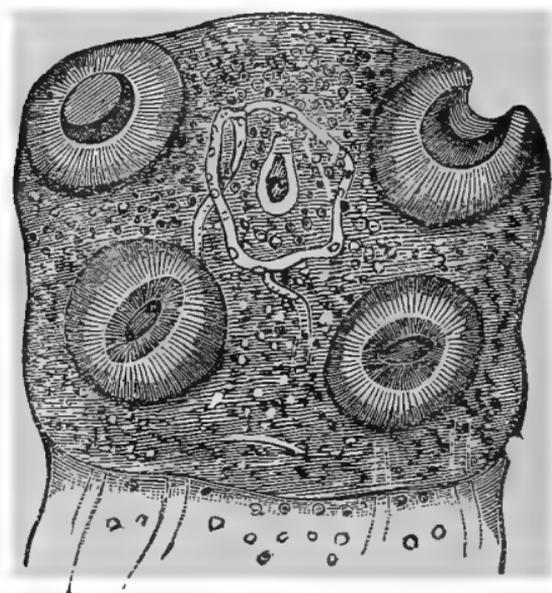


FIG. 26. HEAD OF TAPEWORM, SHOWING SUCKERS (after Cobbold).

Northern Russia, and Siberia, and some years ago, when many dogs from northern climes were being imported for fancy and show purposes, I ventured to warn the public that we might be importing this very dangerous parasite with them. I have repeated that warning in regard to the importation of Russian or Siberian wolfhounds or Borzois, and in a most interesting and instructive letter by Fred C. Mahon, M.R.C.V.S., Tufnell Park, London, in the *Veterinary Journal*, June, 1892, there is ample proof that my warning was necessary.

Mr. Mahon has had many Borzois under his professional notice, and expelled *Tænia echinococcus* from them. I recommend a perusal of Mr. Mahon's article, which space prevents me from reproducing here. He finds that this tapeworm has greatly increased in our dogs, and attributes that, first, to the direct import of infested dogs from the countries referred to and North Germany; secondly, to the viscera of imported cattle in which the *Echinococcus* exists in cystic form, as it of course will do in our own stock if dogs carrying this tapeworm are allowed to roam over pasture-land. Not only are the herbivora bearers of the hydatid form, called *Echinococcus veterinorum*, but man also; and in him it sets up a very serious disease. In Iceland, parts of North Germany, parts of Russia, and also in Australia the *Echinococcus* is very prevalent in dogs and other animals, as well as in man.

I have said enough to show how very serious may be the results from importing dogs carrying this tapeworm. Further, I would strongly recommend all who obtain dogs from countries where its prevalence is known, to place them at once under the care of a veterinary surgeon who has specially studied this branch of his profession.

Tænia canina (*Tænia cucumerina* of some authors).—This is one of the most abundant tapeworms of the dog, attaining a length varying from 10cm. to 40cm. and 3mm. at its greatest breadth. In its larval state it is known as *Cryptocystis trichodectes*, from the fact of the dog-louse (*Trichodectes latus*) being one of its intermediaries. It has been ascertained that the dog flea (*Pulex serraticeps*), and also the flea that lives on man (*Pulex irritans*), serve as intermediaries of this tapeworm. When the ripe segments leave the dog *per anus* they are charged with ova, and possessing the power of motion wriggle among the hair, where the lice and fleas devour the eggs and develop into the cryptocysts found by Grassi free in the abdominal cavity. The dog, again, in searching for his tormentors, nibbles and licks his skin and coat, and in this way swallows the insect, and when the contained cryptocyst is set free in the dog's stomach the tapeworm is once more developed. The nimble flea travels so readily from one host to another, carrying this tapeworm with him, that we have an explanation of what has puzzled so many—how a carefully fed and groomed house pet dog becomes infested with tapeworm. Evidently the introducer was the strange dog, the neighbour he stopped to fraternise with or lay alongside of at the show, that brought him the guest that so often "works him mickle woe." This should be a strong incentive to the practical adoption of the maxim of John Scott, huntsman to the Albrighton Hounds, "not a flea in the kennel."

Round-Worms.—Several species of Round-worm infest the dog, and puppies are very much troubled with them. They may be found in puppies of even two or three weeks old, though those of two or three months are usually the greatest sufferers. These live in the small intestines, and are sometimes coiled together so as to obstruct the passage; at other times some of them crawl into the stomach and may be vomited. The common species of Round-worm is *Ascaris marginata*; it requires no intermediate host, as the tape-worms do, but is directly developed. Puppies probably get infested by the young of those worms voided by the dam. In fact, on this hypothesis I have for a long time practised giving the pregnant bitch vermifuges. I believe such a course has prevented many puppies from becoming infested with worms.

Another Round-worm of the dog is *Uncinaria trigonocephala*, which inhabits the intestines, and produces a grave form of anæmia with wasting of flesh, great debility, and frequent bleeding at the nose. There is another smaller worm resembling this, and often found associated with it in the same dog.

Worms cause great disturbance to the system, producing diseases of the stomach, liver, kidneys, weakness and poverty of blood, what kennel-men call unthriftiness in pups, and an irritable state of the skin often mistaken for mange. It is therefore very important to adopt all possible measures to prevent the propagation of these parasites, as well as to free the dog from them when they exist.

The following list includes most of the anthelmintics or vermifuges which destroy or expel worms with which I am acquainted: powdered glass, granulated tin, horsehair cut fine, cowhage, or cow-itch. These act mechanically, and none of them are very reliable. Cowhage is the best of them; it should be given in doses of half a teaspoonful for a dog 20lb. weight, mixed with treacle into a stiff paste, and the dose repeated every fourth or fifth morning till three doses have been given. Besides tin in mineral substances, arsenic and mercury, in the form of calomel, are resorted to for the destruction of worms, and often end in the destruction of the dog. Such very dangerous agents are best left alone. Common salt, too, comes into the mineral class, but as it acts powerfully as an emetic, the only way it is likely to reach the worms is when administered as an enema, and in this case care must be taken not to use the solution too strong; a teaspoonful of salt to three pints of water is ample. The unlearned are specially given to reason that if a weak dose does good a strong one will do more; but such is not the case, and grave results often follow such a practice.

The Vegetable World furnishes a numerous list of vermifuges, of which I may enumerate the following, each having its advocates:

wormwood, garlic, cowhage (the stiff brown hair that covers the pods of the climbing plant *Mucuna pruriens*), Barbados tar, Venice turpentine, spirit of turpentine, Kouso, Indian pink, Stinking Hellebore, santonine (the active principle of worm-seed, *Artemisia* species), areca-nut, also called betel-nut, savin, tobacco, pomegranate bark, Male Fern, and kamala. Of these, wormwood, garlic, cowhage, pomegranate bark, and tar, are but little to be depended on. The dose of pomegranate is 20gr. to 30gr. of the bark, finely powdered, and it may be tried if other remedies have failed.

Kouso, or Cusso (*Brayera anthelmintica*), the flowers of a tree growing in Abyssinia, and said to have been used by the natives for some centuries as an anthelmintic, has been much extolled for tapeworms; it is given as an infusion, $\frac{1}{2}$ oz. infused in $\frac{1}{2}$ pint of boiling water, allowed to stand till cold, and then strained, forming a dose for a large dog. It is, however, uncertain in its action, and not very safe. The same remarks apply, but with greater force, to Indian pink, a United States plant (*Spigelia marilandica*), Stinking Hellebore (*Helleborus fatidus*), also called Bear's-foot, tobacco, and savin (*Juniperus Sabina*). All of these should be discarded as very unsafe in the hands of those unaccustomed to deal with medicines.

There remain of our list turpentine and Venice turpentine. The first is a good vermifuge, but apt to inflame the kidneys. To prevent this an emulsion should be formed by mixing it with the yolk of egg and olive oil; the dose for a 20lb. dog is half a teaspoonful. Venice turpentine is a milder remedy and it may be given in doses of $\frac{1}{2}$ dr., made into pills with flour or with areca-nut powder. Santonine is an excellent remedy, and has the advantage of being easily given, the dose for dogs being from 1gr. to 5gr.

Areca-nut is, perhaps, the most generally useful worm medicine we have. The best plan is to buy the nut and grate it freshly as required. In purchasing see that the nuts are sound. If you find one light and worm-eaten reject it. It may be given mixed with fat or honey or treacle, and placed well back on the tongue; but if freshly mixed with a little savoury broth the dog will generally take it readily. It should not be allowed to stand long in the broth. The dose is 1gr. for every pound weight of the full grown dog, but no dog will require more than 2dr.

Oil of Male Fern, or, as it is now called, ethereal extract of Male Fern, is a very effective remedy in tapeworm. It is obtained from the roots of *Lastrea Filix-mas* (Male Shield Fern), and is the most convenient form for administering the drug. The powder of the root has been used as an anthelmintic from a very remote period. The oil or extract is very irritating, and frequently produces vomiting. To guard against that, it is advisable, after giving the dose,

to tie the dog's head up at an angle of 45deg. for an hour. The following formula, however, softens greatly its irritating effects, and I would recommend it to be kept ready mixed, in a well stoppered bottle, and in a cool place; it will retain its good qualities a long time, merely requiring to be well shaken before a dose is measured out.

Oil of Male Fern Emulsion for Tapeworm.—Take oil of Male Fern, $\frac{1}{2}$ oz. ; powdered gum acacia, 1oz. ; pure glycerine, 1oz. ; water to make 10oz. It should be mixed by a chemist, who will make a much nicer emulsion than a person unaccustomed to dispense could do. The dose for a 20lb. dog, one dessertspoonful ; for a mastiff, two tablespoonfuls.

Kamala is a comparatively new remedy against worms in this country. It is a product of India, and is a dry, reddish-brown powder, obtained from minute glands adhering to the capsules of *Rottlera tinctoria* ; the dose is the same as in the case of areca-nut. In my own experience I have found it a most useful remedy for both Round and Tapeworm.

There are many remedies more or less reliable, manufactured and sold by firms dealing in kennel requisites, and amongst the best are Naldire's, Spratt's, Rackham's, Chamberlin and Smith's, and Heald's.

There are general rules to be observed in giving worm medicine to dogs. The animal must be prepared for it, as it is of no use giving it on a full stomach. A strong and mature dog should be kept without food sufficiently long to empty the stomach. With young pups, giving the worm medicine in the morning before feeding generally answers. My practice is to administer a tablespoonful of olive oil to the dog in the evening before giving the vermifuge ; and the worm medicine should always be followed in a few hours by a purgative, for which purpose there is nothing better than the *Mild Purge*. Many of the worm medicines advertised have jalap and other purgatives combined with the anthelmintics, but that is not a good plan.

Another point to be observed is the repetition of the dose. It is in almost all cases needful to repeat worm expellents two or three times at intervals of four or five days, or a week, and in every case the dog should be kept confined, that the effect may be observed. In the case of tapeworm the remedy or remedies selected must be persevered with until the head of the worm is expelled, and in all cases the worms and all discharged fæces should be burned to prevent propagation of the parasites by their ova.

WOUNDS.—For the purposes of description these can be divided into Incised, Lacerated, Punctured, and Contused.

Incised Wounds are those caused by a clean cut, such as a sharp-edged instrument. Lacerated wounds are those in which the tissues are torn and the edges of the wound irregular; punctured wounds those caused by stabs or probes; while contused wounds are those due to crushing and bruising.

The process of healing is accomplished in different ways, according to the nature of the wound, and the condition of the surrounding parts.

1. First intention—that is, by immediate reunion of the parts.
2. Adhesive inflammation, in which there is an exudation of lymph in both cut surfaces.
3. Granulation, where the wound gradually heals by the formation of proud flesh.
4. The union of granulations.
5. The commoner and more usual method of healing, under a scab.

In incised wounds the parts should be cleansed, and the bleeding arrested, any hair should be removed, and the lips or edges of the wound brought into immediate contact by sutures. Where practicable, the whole should be covered with dry carbolised tow and a bandage. A muzzle must be worn, or the stitches will be torn out, causing an unsightly wound that must then heal by granulation, while instead of a very slight scar, a large one will be the result. In adhesive inflammation the mode of treatment is the same; it has, however, been proved beyond doubt, that dry dressings are much preferable to any other. The old method of dressing with oils, etc., is no longer continued. The commonest method of healing is by granulation under a scab as already noted.

In wounds I have found the carbolised tow and carbolised gauze the most successful. The object of these is to prevent suppuration, if possible, by keeping the hair aseptic. Especially is this the case when one is trying to heal a wound by first intention, or by adhesive inflammation. In other wounds it keeps them healthy. The wound must be constantly washed and kept thoroughly clean. If it is a serious one, or there is much discharge, it should be dressed twice a day. Where proud flesh appears, it should be kept under by the application of nitrate of silver; again if the wound is unhealthy-looking, and the healing process is retarded, a slight application of nitrate of silver will often stimulate it to healthier growth.

In all cases where the wounds heal by the process of granulation it is absolutely necessary that the repairing process should begin at the bottom, and so gradually close the wound. Should it occur at the surface, the pus will be imprisoned, burrow between the muscles, and

find an exit or exits elsewhere in the shape of abscesses; or the pus will form sinuses, which will necessitate making large incisions. All wounds should be examined well for the purpose of detecting the presence of foreign matter, and again hæmorrhage (bleeding) must be stopped before suturing.

In punctured wounds, the wound should be explored by means of a silver probe, so that the exact extent of the injury can be ascertained, and foreign matter removed. If this latter is overlooked, the result is often blood-poisoning and death. Punctured wounds must always heal by granulation; where there is any suspicion of foreign matter, always have recourse to a poultice.

Contused wounds are generally successfully treated by poulticing and fomentations, but if the injury is severe, sloughing may take place. The final healing is by granulation. Always bear in mind to keep the wound clean.

To summarise the general treatment of wounds. First stop the bleeding, remove the hair and examine for the presence of foreign matter, and where this exists remove it. If there is any doubt about it, apply a hot poultice night and morning until satisfied that the wound is cleansed; where it is practicable, always insert sutures to keep the edges together.

As I have already said, dry dressings are the most successful, such as carbolized tow, and gauze (Lister's carbolized gauze) with a pledget of tow over it, kept in position by a bandage. In some situations this is not possible. The wound should be dressed night and morning with carbolic lotion: Carbolic acid 1 part, water 20 parts, with a little glycerine added. Or a saturated solution of boracic acid will do equally as well.

Y.

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